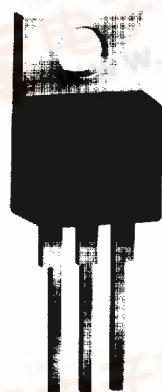


Selected Packages  
UL RECOGNIZED  
File #E7169

8872819 2008L4V"供应商



TO-202AB



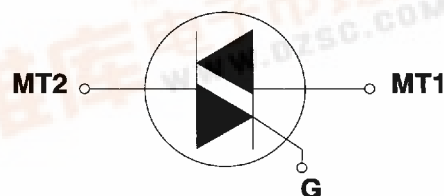
THERMOTAB  
TO-220AB



TO-92



A SIEBE COMPANY  
1801 HURD DRIVE  
IRVING, TEXAS 75038-4385  
PHONE 214/580-1515  
FAX 214/550-1309



# TRIACS

(1- 25 AMPS)

## GENERAL DESCRIPTION

These gated triacs from Teccor Electronics are part of a broad line of bidirectional semiconductors. The devices range in current ratings from 1 to 25 amperes and in voltages from 200 to 800 volts.

The triac may be gate triggered from a blocking to conduction state for either polarity of applied voltage and is designed for AC switching and phase control applications such as speed and temperature modulation controls, lighting controls and static switching relays. The triggering signal is normally applied between the gate and MT1.

Teccor's gated triacs are available in a choice of different packages as shown above. Most packages are offered in the electrically-isolated construction where the case or tab is electrically-isolated from the semiconductor chip. This feature facilitates the use of low-cost assembly and convenient packaging techniques. Tape-and-reel capability is available. Please consult factory for more information.

All Teccor triacs have glass-passivated junctions to ensure long term device reliability and parameter stability. Teccor's glass offers a rugged, reliable barrier against junction contamination.

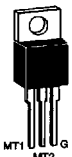
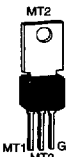
Variations of devices covered in this data sheet are available for custom design applications. Please consult factory for more information.

## Features

- Electrically-isolated packages
- Glass-passivated junctions
- Voltage capability — up to 800 volts
- Surge capability — up to 230 amps

# Electrical Specifications

查询"Q2008L4V"供应商

| $I_{T(RMS)}$                                                        | Part Number                                                                       |                                                                                   |                                                                                   |                                                                                   | $V_{DRM}$                                        | $I_{GT}$                                                                                                      |     |      |     |     | $I_{PRM}$                                                                                   |                     |                     | $V_{TM}$                                                                                    | $V_{GT}$                                                                           |                     |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----|------|-----|-----|---------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------|
|                                                                     | Isolated                                                                          |                                                                                   | Non-Isolated                                                                      |                                                                                   |                                                  |                                                                                                               |     |      |     |     |                                                                                             |                     |                     |                                                                                             |                                                                                    |                     |
| RMS<br>On-State<br>Current<br>Conduction<br>Angle of<br>360°<br>(4) |  |  |  |  | Repetitive<br>Peak<br>Blocking<br>Voltage<br>(1) | DC Gate Trigger Current<br>in Specific<br>Operating Quadrants<br>$V_D = 12VDC$<br>$R_L = 60\Omega$<br>(3) (7) |     |      |     |     | Peak Off-State<br>Current<br>Gate Open<br>$V_{DRM} = \text{Max}$<br>Rated Value<br>(1) (16) |                     |                     | Peak On-State<br>Voltage at<br>Max Rated<br>RMS<br>Current<br>$T_C = 25^\circ C$<br>(1) (5) | DC Gate<br>Trigger<br>Voltage<br>$V_D = 12VDC$<br>$R_L = 60\Omega$<br>(2) (6) (18) |                     |
|                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                  | mAmps                                                                                                         |     |      |     |     | mAmps                                                                                       |                     |                     |                                                                                             | Volts                                                                              |                     |
|                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                  | QI                                                                                                            | QII | QIII | QIV | QIV | $T_C = 25^\circ C$                                                                          | $T_C = 100^\circ C$ | $T_C = 125^\circ C$ |                                                                                             | Volts                                                                              | $T_C = 125^\circ C$ |
| TO-92                                                               | THERMOTAB<br>TO-220AB                                                             | TO-202AB                                                                          | TO-220AB                                                                          | Volts                                                                             |                                                  |                                                                                                               |     |      |     |     |                                                                                             |                     |                     |                                                                                             |                                                                                    |                     |
| MAX                                                                 | For Package Dimensions & Variations, See<br>Page 95.                              |                                                                                   |                                                                                   |                                                                                   | MIN                                              | MAX                                                                                                           |     |      |     | TYP | MAX                                                                                         |                     |                     | MAX                                                                                         | MIN                                                                                | MAX                 |
| 1.0<br>Amp                                                          | Q201E3                                                                            |                                                                                   |                                                                                   |                                                                                   | 200                                              | 10                                                                                                            | 10  | 10   |     | 25  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     | Q401E3                                                                            |                                                                                   |                                                                                   |                                                                                   | 400                                              | 10                                                                                                            | 10  | 10   |     | 25  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     | Q501E3                                                                            |                                                                                   |                                                                                   |                                                                                   | 500                                              | 10                                                                                                            | 10  | 10   |     | 25  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     | Q601E3                                                                            |                                                                                   |                                                                                   |                                                                                   | 600                                              | 10                                                                                                            | 10  | 10   |     | 25  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     | Q201E4                                                                            |                                                                                   |                                                                                   |                                                                                   | 200                                              | 25                                                                                                            | 25  | 25   |     | 50  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     | Q401E4                                                                            |                                                                                   |                                                                                   |                                                                                   | 400                                              | 25                                                                                                            | 25  | 25   |     | 50  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     | Q501E4                                                                            |                                                                                   |                                                                                   |                                                                                   | 500                                              | 25                                                                                                            | 25  | 25   |     | 50  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
| 4.0<br>Amps                                                         | Q601E4                                                                            |                                                                                   |                                                                                   |                                                                                   | 600                                              | 25                                                                                                            | 25  | 25   |     | 50  | .02                                                                                         | 0.5                 | 1.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q2004L3                                                                           | Q2004F31                                                                          |                                                                                   | 200                                              | 10                                                                                                            | 10  | 10   |     | 25  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     |                                                                                   | Q4004L3                                                                           | Q4004F31                                                                          |                                                                                   | 400                                              | 10                                                                                                            | 10  | 10   |     | 25  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     |                                                                                   | Q5004L3                                                                           | Q5004F31                                                                          |                                                                                   | 500                                              | 10                                                                                                            | 10  | 10   |     | 25  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     |                                                                                   | Q6004L3                                                                           | Q6004F31                                                                          |                                                                                   | 600                                              | 10                                                                                                            | 10  | 10   |     | 25  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.0                 |
|                                                                     |                                                                                   | Q2004L4                                                                           | Q2004F41                                                                          |                                                                                   | 200                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q4004L4                                                                           | Q4004F41                                                                          |                                                                                   | 400                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q5004L4                                                                           | Q5004F41                                                                          |                                                                                   | 500                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q6004L4                                                                           | Q6004F41                                                                          |                                                                                   | 600                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
| 6.0<br>Amps                                                         |                                                                                   | Q7004L4                                                                           |                                                                                   |                                                                                   | 700                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q8004L4                                                                           |                                                                                   |                                                                                   | 800                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q2006L4                                                                           | Q2006F41                                                                          | Q2006R4                                                                           | 200                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q4006L4                                                                           | Q4006F41                                                                          | Q4006R4                                                                           | 400                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q5006L4                                                                           | Q5006F41                                                                          | Q5006R4                                                                           | 500                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q6006L5                                                                           | Q6006F51                                                                          | Q6006R5                                                                           | 600                                              | 50                                                                                                            | 50  | 50   |     | 75  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
| 8.0<br>Amps                                                         |                                                                                   | Q7006L5                                                                           |                                                                                   | Q7006R5                                                                           | 700                                              | 50                                                                                                            | 50  | 50   |     | 75  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q8006L5                                                                           |                                                                                   | Q8006R5                                                                           | 800                                              | 50                                                                                                            | 50  | 50   |     | 75  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q2008L4                                                                           | Q2008F41                                                                          | Q2008R4                                                                           | 200                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q4008L4                                                                           | Q4008F41                                                                          | Q4008R4                                                                           | 400                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q5008L4                                                                           | Q5008F41                                                                          | Q5008R4                                                                           | 500                                              | 25                                                                                                            | 25  | 25   |     | 50  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q6008L5                                                                           | Q6008F51                                                                          | Q6008R5                                                                           | 600                                              | 50                                                                                                            | 50  | 50   |     | 75  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q7008L5                                                                           |                                                                                   | Q7008R5                                                                           | 700                                              | 50                                                                                                            | 50  | 50   |     | 75  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |
|                                                                     |                                                                                   | Q8008L5                                                                           |                                                                                   | Q8008R5                                                                           | 800                                              | 50                                                                                                            | 50  | 50   |     | 75  | .05                                                                                         | 0.5                 | 2.0                 | 1.6                                                                                         | 0.2                                                                                | 2.5                 |

## GENERAL NOTES

- All measurements are made at 60 Hz with a resistive load at an ambient temperature of  $+25^\circ C$  unless specified otherwise.
- Operating temperature range ( $T_J$ ) is  $-65^\circ C$  to  $+125^\circ C$  for TO-92, and  $-40^\circ C$  to  $+125^\circ C$  for all other devices
- Storage temperature range ( $T_S$ ) is  $-65^\circ C$  to  $+150^\circ C$  for TO-92, and  $-40^\circ C$  to  $+150^\circ C$  for TO-202 devices, and  $-40^\circ C$  to  $+125^\circ C$  for all other devices.
- Lead solder temperature is a maximum of  $230^\circ C$  for 10 seconds, maximum;  $\geq 1/16"$  (1.59mm) from case
- The case temperature ( $T_C$ ) is measured as shown on the dimensional outline drawings. See "Package Dimensions" section of this catalog on Page 95.

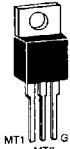
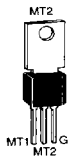
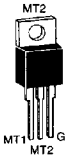
| $I_H$                                          | $I_{GT}$                       | $P_{GM}$                                                    | $P_{G(AV)}$                                 | $I_{TSM}$                     |      | $dv/dt (c)$                                                                                                                                                             | $dv/dt$                                                                                                   |                     | $t_{gt}$                                                                       | $I^2t$                                                                     | $di/dt$                                                                                      |
|------------------------------------------------|--------------------------------|-------------------------------------------------------------|---------------------------------------------|-------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Holding Current (DC) Gate Open<br>(1) (8) (12) | Peak Gate Trigger Current (14) | Peak Gate Power Dissipation (14)<br>$I_{GT} \leq I_{GT(M)}$ | Average Gate Power Dissipation<br><br>Watts | Peak One Cycle Surge (9) (13) |      | Critical Rate-of-Rise of Commutation Voltage at Rated $V_{DRM}$ and $I_T(RMS)$<br>Commutating $di/dt = 0.54$<br>Rated $I_T(RMS)/ms$<br>Gate Unenergized<br>(1) (4) (13) | Critical Rate-of-Rise of Off-State Voltage at Rated $V_{DRM}$<br>Gate Open<br>(1)<br><br>Volts/ $\mu$ Sec |                     | Gate Controlled Turn-On Time<br>$I_{GT} = 200mA$<br>0.1 $\mu$ s Rise Time (10) | RMS Surge (Non-Repetitive) On-State Current for Period of 8.3ms for Fusing | Maximum Rate-of-Change of On-State Current<br>$I_{GT} = 200mA$<br>with 0.1 $\mu$ s Rise Time |
| mAmps                                          | Amps                           | Watts                                                       | Watts                                       | Amps                          |      | Volts/ $\mu$ Sec                                                                                                                                                        | $T_C = 100^\circ C$                                                                                       | $T_C = 125^\circ C$ | $\mu$ Sec                                                                      | Amp <sup>2</sup> Sec                                                       | Amps/ $\mu$ Sec                                                                              |
| MAX                                            |                                |                                                             |                                             | 60Hz                          | 50Hz | TYP                                                                                                                                                                     | MIN                                                                                                       |                     | TYP                                                                            |                                                                            |                                                                                              |
| 15                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 40                                                                                                        | 30                  | 2.5                                                                            | 1.6                                                                        | 30                                                                                           |
| 15                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 40                                                                                                        | 30                  | 2.5                                                                            | 1.6                                                                        | 30                                                                                           |
| 15                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 30                                                                                                        | 20                  | 2.5                                                                            | 1.6                                                                        | 30                                                                                           |
| 15                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 30                                                                                                        | 20                  | 2.5                                                                            | 1.6                                                                        | 30                                                                                           |
| 25                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 50                                                                                                        | 40                  | 3                                                                              | 1.6                                                                        | 30                                                                                           |
| 25                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 50                                                                                                        | 40                  | 3                                                                              | 1.6                                                                        | 30                                                                                           |
| 25                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 40                                                                                                        | 30                  | 3                                                                              | 1.6                                                                        | 30                                                                                           |
| 25                                             | 1.0                            | 10                                                          | 0.2                                         | 20                            | 16.7 | 1.0                                                                                                                                                                     | 40                                                                                                        | 30                  | 3                                                                              | 1.6                                                                        | 30                                                                                           |
| 20                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 50                                                                                                        | 40                  | 2.5                                                                            | 12.5                                                                       | 50                                                                                           |
| 20                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 50                                                                                                        | 40                  | 2.5                                                                            | 12.5                                                                       | 50                                                                                           |
| 20                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 40                                                                                                        | 30                  | 2.5                                                                            | 12.5                                                                       | 50                                                                                           |
| 20                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 40                                                                                                        | 30                  | 2.5                                                                            | 12.5                                                                       | 50                                                                                           |
| 30                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 100                                                                                                       | 75                  | 3                                                                              | 12.5                                                                       | 50                                                                                           |
| 30                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 100                                                                                                       | 75                  | 3                                                                              | 12.5                                                                       | 50                                                                                           |
| 30                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 75                                                                                                        | 50                  | 3                                                                              | 12.5                                                                       | 50                                                                                           |
| 30                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 75                                                                                                        | 50                  | 3                                                                              | 12.5                                                                       | 50                                                                                           |
| 30                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 60                                                                                                        | 40                  | 3                                                                              | 12.5                                                                       | 50                                                                                           |
| 30                                             | 1.2                            | 15                                                          | 0.3                                         | 55                            | 46   | 2.0                                                                                                                                                                     | 60                                                                                                        | 40                  | 3                                                                              | 12.5                                                                       | 50                                                                                           |
| 50                                             | 1.6                            | 18                                                          | 0.5                                         | 80                            | 65   | 4.0                                                                                                                                                                     | 200                                                                                                       | 120                 | 3                                                                              | 26.5                                                                       | 70                                                                                           |
| 50                                             | 1.6                            | 18                                                          | 0.5                                         | 80                            | 65   | 4.0                                                                                                                                                                     | 200                                                                                                       | 120                 | 3                                                                              | 26.5                                                                       | 70                                                                                           |
| 50                                             | 1.6                            | 18                                                          | 0.5                                         | 80                            | 65   | 4.0                                                                                                                                                                     | 150                                                                                                       | 100                 | 3                                                                              | 26.5                                                                       | 70                                                                                           |
| 50                                             | 1.6                            | 18                                                          | 0.5                                         | 80                            | 65   | 4.0                                                                                                                                                                     | 150                                                                                                       | 100                 | 3                                                                              | 26.5                                                                       | 70                                                                                           |
| 50                                             | 1.6                            | 18                                                          | 0.5                                         | 80                            | 65   | 4.0                                                                                                                                                                     | 125                                                                                                       | 85                  | 3                                                                              | 26.5                                                                       | 70                                                                                           |
| 50                                             | 1.6                            | 18                                                          | 0.5                                         | 80                            | 65   | 4.0                                                                                                                                                                     | 125                                                                                                       | 85                  | 3                                                                              | 26.5                                                                       | 70                                                                                           |
| 50                                             | 1.8                            | 20                                                          | 0.5                                         | 100                           | 83   | 4.0                                                                                                                                                                     | 250                                                                                                       | 150                 | 3                                                                              | 41                                                                         | 70                                                                                           |
| 50                                             | 1.8                            | 20                                                          | 0.5                                         | 100                           | 83   | 4.0                                                                                                                                                                     | 250                                                                                                       | 150                 | 3                                                                              | 41                                                                         | 70                                                                                           |
| 50                                             | 1.8                            | 20                                                          | 0.5                                         | 100                           | 83   | 4.0                                                                                                                                                                     | 220                                                                                                       | 125                 | 3                                                                              | 41                                                                         | 70                                                                                           |
| 50                                             | 1.8                            | 20                                                          | 0.5                                         | 100                           | 83   | 4.0                                                                                                                                                                     | 220                                                                                                       | 125                 | 3                                                                              | 41                                                                         | 70                                                                                           |
| 50                                             | 1.8                            | 20                                                          | 0.5                                         | 100                           | 83   | 4.0                                                                                                                                                                     | 150                                                                                                       | 100                 | 3                                                                              | 41                                                                         | 70                                                                                           |
| 50                                             | 1.8                            | 20                                                          | 0.5                                         | 100                           | 83   | 4.0                                                                                                                                                                     | 150                                                                                                       | 100                 | 3                                                                              | 41                                                                         | 70                                                                                           |

## NOTES TO ELECTRICAL SPECIFICATIONS

- For either polarity of MT2 with reference to MT1 terminal.
- For either polarity of gate voltage ( $V_{GT}$ ) with reference to MT1 terminal.
- See Definition of quadrants.
- See Figures 1A, B, C, D, E, F and Figure 2 for current rating at specific operating temperature.
- See Figures 3A, B and C for  $I_T$  vs  $V_T$ .
- See Figure 5 for  $V_{GT}$  vs  $T_C$ .
- See Figure 4 for  $I_{GT}$  vs  $T_C$ .
- See Figure 6 for  $I_H$  vs  $T_C$ .
- See Figure 7 for surge rating with specific durations.
- See Figures 8A and 8B for  $t_{gt}$  vs  $I_{GT}$ .
- See package outlines for lead form configurations. When ordering special lead forming, add type number as suffix to part number.
- Initial on-state current = 200mA(DC) for 1-10 amp devices, 400 mA(DC) for 15 amp to 25 amp devices.
- See Figure 1(A,B,C,D,E and F) for maximum allowable case temperature at maximum rated current.
- Pulse width  $\leq 10\mu s$ .
- $R_L = 60\Omega$  for 1-10 amp triacs;  $R_L = 30\Omega$  for 15-25 amp triacs.
- $T_C = T_J$  for test conditions in off-state.
- $I_{GT} = 500$  mA for 25 amp devices.
- Quadrants I, II, and III only.

# Electrical Specifications

查询"Q2008L4V"供应商

| $I_T(RMS)$                                                               | Part Number                                                                       |                                                                                   |                                                                                   | $V_{DRM}$                                        | $I_{GT}$                                                                                       |     |      |     |     | $I_{DRM}$                                                                             |                     |                     | $V_{GT}$                                                               |                    |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------|-----|------|-----|-----|---------------------------------------------------------------------------------------|---------------------|---------------------|------------------------------------------------------------------------|--------------------|
|                                                                          | Isolated                                                                          | Non-Isolated                                                                      |                                                                                   |                                                  |                                                                                                |     |      |     |     |                                                                                       |                     |                     |                                                                        |                    |
| RMS<br>On-State<br>Current<br>Conduction<br>Angle of<br>360°<br>(4) (16) |  |  |  | Repetitive<br>Peak<br>Blocking<br>Voltage<br>(1) | DC Gate Trigger Current<br>In Specific<br>Operating Quadrants<br>$V_D = 12VDC$<br>(3) (7) (15) |     |      |     |     | Peak Off-State<br>Current Gate Open<br>$V_{DRM} = \text{Max Rated Value}$<br>(1) (16) |                     |                     | DC Gate<br>Trigger<br>Voltage<br>$V_D = 12VDC$<br>(2) (6) (15)<br>(18) |                    |
|                                                                          | THERMOTAB<br>TO-220AB                                                             | TO-202AB                                                                          | TO-220AB                                                                          | Volts                                            | mAmps                                                                                          |     |      |     |     | mAmps                                                                                 |                     |                     | Volts                                                                  |                    |
|                                                                          |                                                                                   |                                                                                   |                                                                                   |                                                  | QI                                                                                             | QII | QIII | QIV | QIV | $T_C = 25^\circ C$                                                                    | $T_C = 100^\circ C$ | $T_C = 125^\circ C$ | $T_C = 125^\circ C$                                                    | $T_C = 25^\circ C$ |
| MAX                                                                      | For Package Dimensions & Variations, See Page 95.                                 |                                                                                   |                                                                                   | MIN                                              | MAX                                                                                            |     |      |     | TYP | MAX                                                                                   |                     |                     | MIN                                                                    | MAX                |
| 10.0<br>Amps                                                             | Q2010L5                                                                           | Q2010F51                                                                          | Q2010R5                                                                           | 200                                              | 50                                                                                             | 50  | 50   |     | 75  | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q4010L5                                                                           | Q4010F51                                                                          | Q4010R5                                                                           | 400                                              | 50                                                                                             | 50  | 50   |     | 75  | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q5010L5                                                                           | Q5010F51                                                                          | Q5010R5                                                                           | 500                                              | 50                                                                                             | 50  | 50   |     | 75  | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q6010L5                                                                           | Q6010F51                                                                          | Q6010R5                                                                           | 600                                              | 50                                                                                             | 50  | 50   |     | 75  | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q7010L5                                                                           |                                                                                   | Q7010R5                                                                           | 700                                              | 50                                                                                             | 50  | 50   |     | 75  | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
| 15.0<br>Amps                                                             | Q8010L5                                                                           |                                                                                   | Q8010R5                                                                           | 800                                              | 50                                                                                             | 50  | 50   |     | 75  | 0.1                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q2015L5                                                                           |                                                                                   | Q2015R5                                                                           | 200                                              | 50                                                                                             | 50  | 50   |     |     | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q4015L5                                                                           |                                                                                   | Q4015R5                                                                           | 400                                              | 50                                                                                             | 50  | 50   |     |     | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q5015L5                                                                           |                                                                                   | Q5015R5                                                                           | 500                                              | 50                                                                                             | 50  | 50   |     |     | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q6015L5                                                                           |                                                                                   | Q6015R5                                                                           | 600                                              | 50                                                                                             | 50  | 50   |     |     | .05                                                                                   | 0.5                 | 2.0                 | 0.2                                                                    | 2.5                |
| 25.0<br>Amps                                                             | Q7015L5                                                                           |                                                                                   | Q7015R5                                                                           | 700                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |
|                                                                          | Q8015L5                                                                           |                                                                                   | Q8015R5                                                                           | 800                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |
|                                                                          |                                                                                   |                                                                                   | Q2025R5                                                                           | 200                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |
|                                                                          |                                                                                   |                                                                                   | Q4025R5                                                                           | 400                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |
|                                                                          |                                                                                   |                                                                                   | Q5025R5                                                                           | 500                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |
|                                                                          |                                                                                   |                                                                                   | Q6025R5                                                                           | 600                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |
|                                                                          |                                                                                   |                                                                                   | Q7025R5                                                                           | 700                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |
|                                                                          |                                                                                   |                                                                                   | Q8025R5                                                                           | 800                                              | 50                                                                                             | 50  | 50   |     |     | 0.1                                                                                   | 1.0                 | 3.0                 | 0.2                                                                    | 2.5                |

## GENERAL NOTES

- All measurements are made at 60 Hz with a resistive load at an ambient temperature of +25°C unless specified otherwise.
- Operating temperature range ( $T_J$ ) is -65°C to +125°C for TO-92, and -40°C to +125°C for all other devices
- Storage temperature range ( $T_S$ ) is -65°C to +150°C for TO-92, and -40°C to +150°C for TO-202 devices, and -40°C to +125°C for all other devices.
- Lead solder temperature is a maximum of 230°C for 10 seconds, maximum;  $\geq 1/16"$  (1.59mm) from case
- The case temperature ( $T_C$ ) is measured as shown on the dimensional outline drawings. See "Package Dimensions" section of this catalog on Page 95.

| V <sub>TM</sub>                                                                        | I <sub>H</sub>                                 | I <sub>GTM</sub>                  | P <sub>GM</sub>                     | P <sub>G(AV)</sub>             | I <sub>TSM</sub>                 |      | dv/dt(c)                                                                                                                                                                                       | dv/dt                                                                                 |     | t <sub>gt</sub>                                                                         | I <sup>2</sup> t                                                                                                   | di/dt                                                                                      |
|----------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------|-------------------------------------|--------------------------------|----------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Peak On-State Voltage at Maximum Rated RMS Current<br>T <sub>C</sub> = 25°C<br>(1) (5) | Holding Current (DC) Gate Open<br>(1) (8) (12) | Peak Gate Trigger Current<br>(14) | Peak Gate Power Dissipation<br>(14) | Average Gate Power Dissipation | Peak One-Cycle Surge<br>(9) (13) |      | Critical Rate-of-Rise of Commutation Voltage at Rated<br>V <sub>DRM</sub> & I <sub>T</sub> (RMS) Commutating<br>di/dt = 0.54<br>Rated I <sub>T</sub> (RMS)/ms Gate Unenergized<br>(1) (4) (13) | Critical Rate-of-Rise of Off-State Voltage at Rated V <sub>DRM</sub> Gate Open<br>(1) |     | Gate Controlled Turn-On Time<br>I <sub>GT</sub> = 200mA<br>0.1μs Rise Time<br>(10) (17) | RMS Surge (Non-Repetitive) On-State for Period of 8.3ms For Fusing<br>I <sub>GT</sub> = 200mA with 0.1μs Rise Time | Maximum Rate-of-Change of On-State Current<br>I <sub>GT</sub> = 200mA with 0.1μs Rise Time |
| Volts                                                                                  | Amps                                           | Amps                              | Watts                               | Watts                          | 60Hz                             | 50Hz |                                                                                                                                                                                                | Volts/μSec                                                                            |     |                                                                                         |                                                                                                                    |                                                                                            |
| MAX                                                                                    | MAX                                            |                                   |                                     |                                |                                  |      | TYP                                                                                                                                                                                            | MIN                                                                                   |     | TYP                                                                                     |                                                                                                                    |                                                                                            |
| 1.6                                                                                    | 50                                             | 1.8                               | 20                                  | 0.5                            | 120                              | 100  | 4                                                                                                                                                                                              | 350                                                                                   | 225 | 3                                                                                       | 60                                                                                                                 | 70                                                                                         |
| 1.6                                                                                    | 50                                             | 1.8                               | 20                                  | 0.5                            | 120                              | 100  | 4                                                                                                                                                                                              | 350                                                                                   | 225 | 3                                                                                       | 60                                                                                                                 | 70                                                                                         |
| 1.6                                                                                    | 50                                             | 1.8                               | 20                                  | 0.5                            | 120                              | 100  | 4                                                                                                                                                                                              | 300                                                                                   | 200 | 3                                                                                       | 60                                                                                                                 | 70                                                                                         |
| 1.6                                                                                    | 50                                             | 1.8                               | 20                                  | 0.5                            | 120                              | 100  | 4                                                                                                                                                                                              | 300                                                                                   | 200 | 3                                                                                       | 60                                                                                                                 | 70                                                                                         |
| 1.6                                                                                    | 50                                             | 1.8                               | 20                                  | 0.5                            | 120                              | 100  | 4                                                                                                                                                                                              | 250                                                                                   | 175 | 3                                                                                       | 60                                                                                                                 | 70                                                                                         |
| 1.6                                                                                    | 50                                             | 1.8                               | 20                                  | 0.5                            | 120                              | 100  | 4                                                                                                                                                                                              | 250                                                                                   | 175 | 3                                                                                       | 60                                                                                                                 | 70                                                                                         |
| 1.6                                                                                    | 70                                             | 2.0                               | 20                                  | 0.5                            | 200                              | 167  | 4                                                                                                                                                                                              | 400                                                                                   | 275 | 4                                                                                       | 166                                                                                                                | 100                                                                                        |
| 1.6                                                                                    | 70                                             | 2.0                               | 20                                  | 0.5                            | 200                              | 167  | 4                                                                                                                                                                                              | 400                                                                                   | 275 | 4                                                                                       | 166                                                                                                                | 100                                                                                        |
| 1.6                                                                                    | 70                                             | 2.0                               | 20                                  | 0.5                            | 200                              | 167  | 4                                                                                                                                                                                              | 350                                                                                   | 225 | 4                                                                                       | 166                                                                                                                | 100                                                                                        |
| 1.6                                                                                    | 70                                             | 2.0                               | 20                                  | 0.5                            | 200                              | 167  | 4                                                                                                                                                                                              | 350                                                                                   | 225 | 4                                                                                       | 166                                                                                                                | 100                                                                                        |
| 1.6                                                                                    | 70                                             | 2.0                               | 20                                  | 0.5                            | 200                              | 167  | 4                                                                                                                                                                                              | 300                                                                                   | 200 | 4                                                                                       | 166                                                                                                                | 100                                                                                        |
| 1.6                                                                                    | 70                                             | 2.0                               | 20                                  | 0.5                            | 200                              | 167  | 4                                                                                                                                                                                              | 300                                                                                   | 200 | 4                                                                                       | 166                                                                                                                | 100                                                                                        |
| 1.8                                                                                    | 100                                            | 2.0                               | 20                                  | 0.5                            | 230                              | 200  | 5                                                                                                                                                                                              | 400                                                                                   | 275 | 4                                                                                       | 220                                                                                                                | 100                                                                                        |
| 1.8                                                                                    | 100                                            | 2.0                               | 20                                  | 0.5                            | 230                              | 200  | 5                                                                                                                                                                                              | 400                                                                                   | 275 | 4                                                                                       | 220                                                                                                                | 100                                                                                        |
| 1.8                                                                                    | 100                                            | 2.0                               | 20                                  | 0.5                            | 230                              | 200  | 5                                                                                                                                                                                              | 350                                                                                   | 225 | 4                                                                                       | 220                                                                                                                | 100                                                                                        |
| 1.8                                                                                    | 100                                            | 2.0                               | 20                                  | 0.5                            | 230                              | 200  | 5                                                                                                                                                                                              | 350                                                                                   | 225 | 4                                                                                       | 220                                                                                                                | 100                                                                                        |
| 1.8                                                                                    | 100                                            | 2.0                               | 20                                  | 0.5                            | 230                              | 200  | 5                                                                                                                                                                                              | 300                                                                                   | 200 | 4                                                                                       | 220                                                                                                                | 100                                                                                        |
| 1.8                                                                                    | 100                                            | 2.0                               | 20                                  | 0.5                            | 230                              | 200  | 5                                                                                                                                                                                              | 300                                                                                   | 200 | 4                                                                                       | 220                                                                                                                | 100                                                                                        |

## NOTES TO ELECTRICAL SPECIFICATIONS

- For either polarity of MT2 with reference to MT1 terminal.
- For either polarity of gate voltage ( $V_{GT}$ ) with reference to MT1 terminal.
- See Definition of quadrants.
- See Figures 1A, B, C, D, E, F and Figure 2 for current rating at specific operating temperature.
- See Figures 3A, B and C for  $I_T$  vs  $T_J$ .
- See Figure 5 for  $V_{GT}$  vs  $T_C$ .
- See Figure 4 for  $I_{GT}$  vs  $T_C$ .
- See Figure 6 for  $I_H$  vs  $T_C$ .
- See Figure 7 for surge rating with specific durations.
- See Figures 8A and 8B for  $t_{gt}$  vs  $I_{GT}$ .
- See package outlines for lead form configurations. When ordering special lead forming, add type number as suffix to part number.
- Initial on-state current = 200mA(DC) for 1-10 amp devices, 400 mA(DC) for 15 amp to 25 amp devices.
- See Figure 1(A,B,C,D,E and F) for maximum allowable case temperature at maximum rated current.
- Pulse width  $\leq 10\mu s$ .
- $R_L = 60\Omega$  for 1-10 amp triacs;  $R_L = 30\Omega$  for 15-25 amp triacs.
- $T_C = T_J$  for test conditions in off-state.
- $I_{GT} = 500$  mA for 25 amp devices.
- Quadrants I, II, and III only.



# Electrical Specifications

查询"Q2008L4V"供应商

## THERMAL RESISTANCE (STEADY STATE) $R_{\theta JC}$ [ $R_{\theta JA}$ ] (TYP.) °C/W

| Type      |  |  |  |  |  |
|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|           | TO-92                                                                             | TYPE 1<br>TO-202AB                                                                | TYPE 2<br>TO-202AB                                                                | THERMOTAB<br>TO-220AB                                                               | NON-ISOLATED<br>TO-220AB                                                            |
| 1.0 amp   | 50 [95]                                                                           |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| 4.0 amps  |                                                                                   | 3.5 [45]                                                                          | 6 [70]                                                                            | 3.6 [50]                                                                            |                                                                                     |
| 6.0 amps  |                                                                                   | 3.8                                                                               |                                                                                   | 3.3                                                                                 | 2.1 [45]                                                                            |
| 8.0 amps  |                                                                                   | 3.3                                                                               |                                                                                   | 2.8                                                                                 | 1.8                                                                                 |
| 10.0 amps |                                                                                   | 3.5                                                                               |                                                                                   | 2.6                                                                                 | 1.5                                                                                 |
| 15.0 amps |                                                                                   |                                                                                   |                                                                                   | 2.1                                                                                 | 1.3                                                                                 |
| 25.0 amps |                                                                                   |                                                                                   |                                                                                   | 2.0                                                                                 | 1.1                                                                                 |

## ELECTRICAL ISOLATION FROM LEADS TO MOUNTING TAB

| TYPE      | TO-92    |  |  | Isolated **<br>TO-220AB |  |
|-----------|----------|--|--|-------------------------|--|
| VAC (RMS) |          |  |  |                         |  |
| 1600      | Standard |  |  | —                       |  |
| 2500      | N/A      |  |  | Standard                |  |
| 4000      | N/A      |  |  | Optional *              |  |

\* For 4000V isolation, use V suffix in part number.

\*\* UL Recognized File E71639

## GATE CHARACTERISTICS

Teccor triacs may be gated with in-phase signals (using standard AC line) in which Quadrants I & III are used, or by applying unipolar pulses (gate always positive or negative), where if a negative pulse is applied, Quadrants II & III are used, and Quadrants I & IV are used when a positive pulse is applied. However, due to higher gate requirements for Quadrant IV, it is recommended that only negative pulses be applied. If positive pulses are required, see logic triac sections of catalog or contact factory. In all cases, if maximum surge capability is required, pulses should be a minimum of one magnitude above minimum  $I_{GT}$  rating with a steep rising waveform (1  $\mu$ sec rise time).

## ELECTRICAL ISOLATION

Most Teccor isolated triac packages will withstand a minimum high potential test of 2500VAC (RMS) from leads to mounting tab, over the operating temperature range of the device. See isolation table for standard and optional isolation ratings.

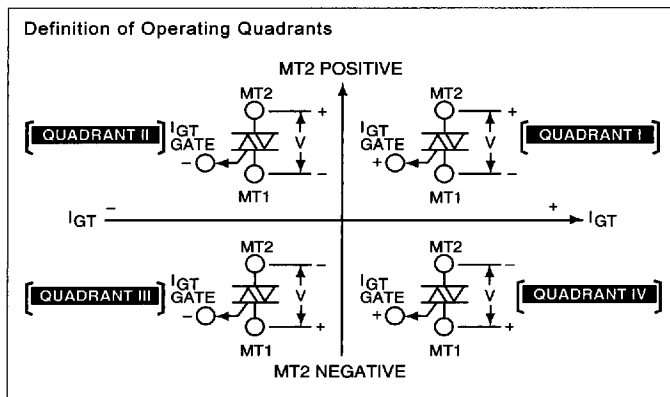


Figure 2 — Maximum Allowable Ambient Temperature vs On-State Current

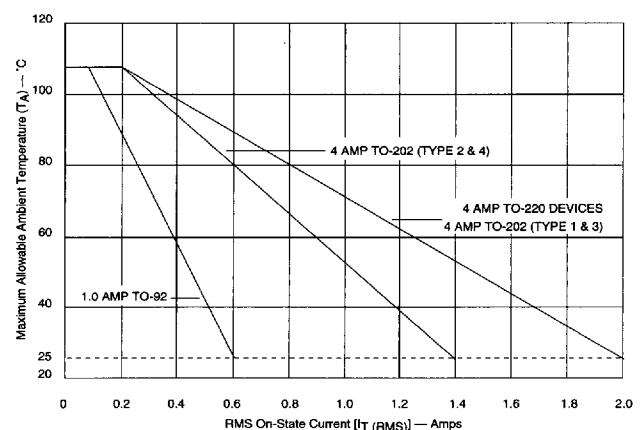


Figure 1A — Maximum Allowable Case Temperature vs On-State Current

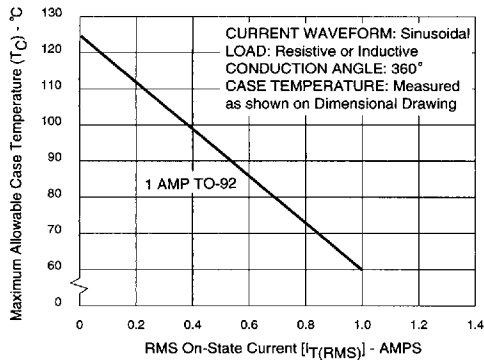


Figure 1B — Maximum Allowable Case Temperature vs On-State Current

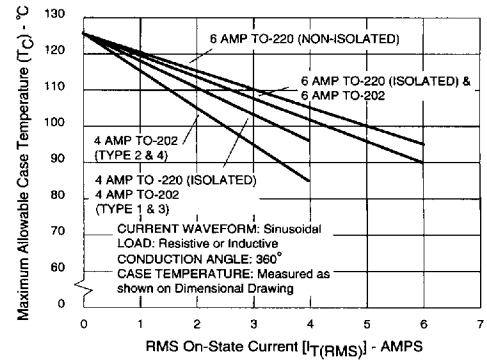


Figure 1C — Maximum Allowable Case Temperature vs On-State Current

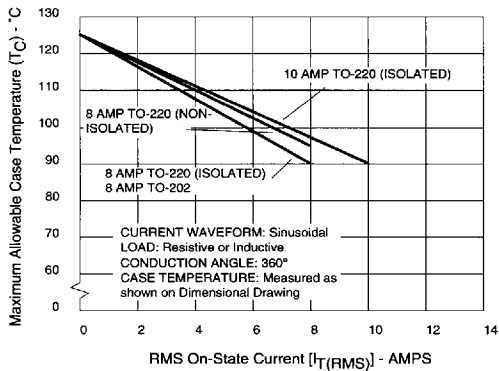


Figure 1D — Maximum Allowable Case Temperature vs On-State Current

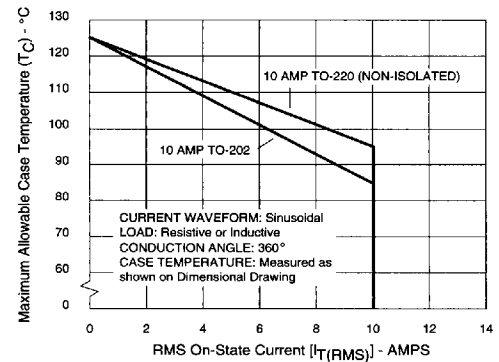


Figure 1E — Maximum Allowable Case Temperature vs On-State Current

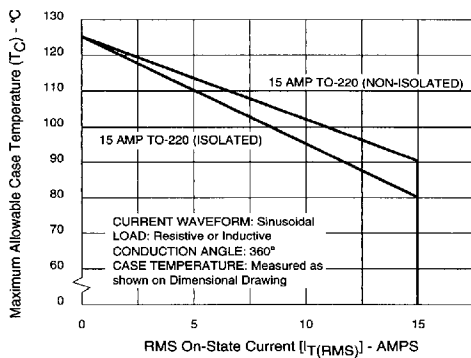
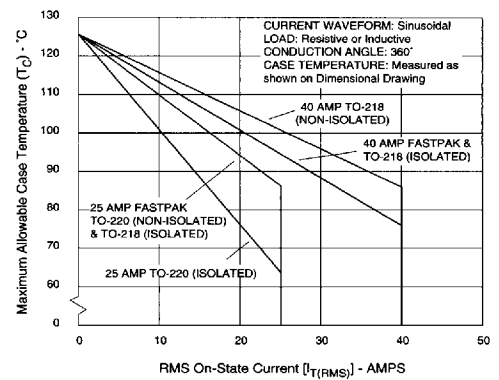


Figure 1F — Maximum Allowable Case Temperature vs On-State Current



# Electrical Specifications

查询"Q2008L4V"供应商

Figure 3A — On-State Current vs On-State Voltage (Typical)

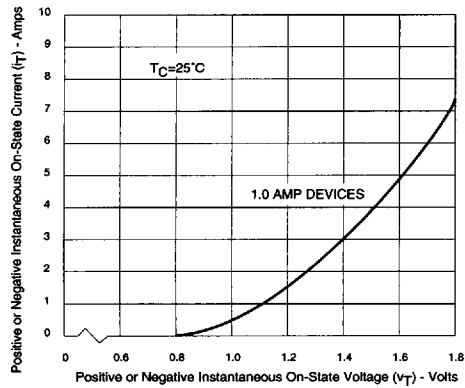


Figure 3B — On-State Current vs On-State Voltage (Typical)

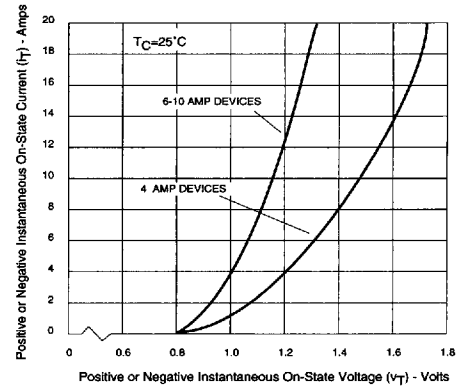


Figure 3C — On-State Current vs On-State Voltage (Typical)

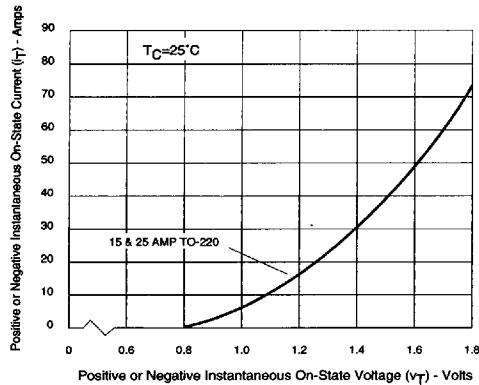


Figure 4 — Normalized DC Gate Trigger Current for All Quadrants vs Case Temperature

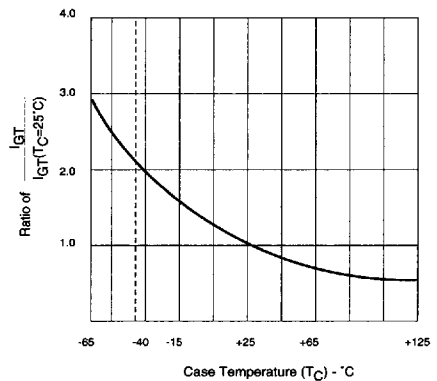


Figure 5 — Normalized DC Gate Trigger Voltage for All Quadrants vs Case Temperature

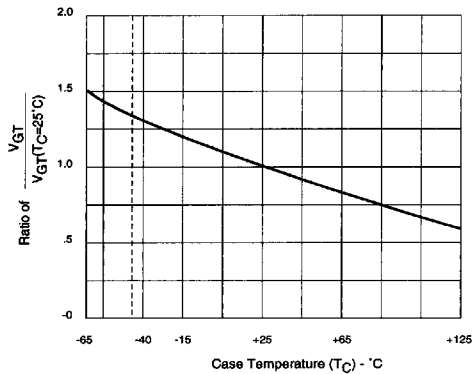


Figure 6 — Normalized DC Holding Current vs Case Temperature

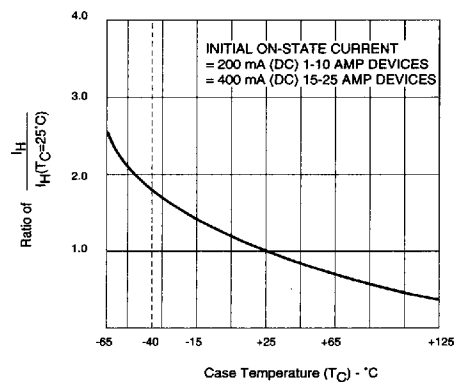
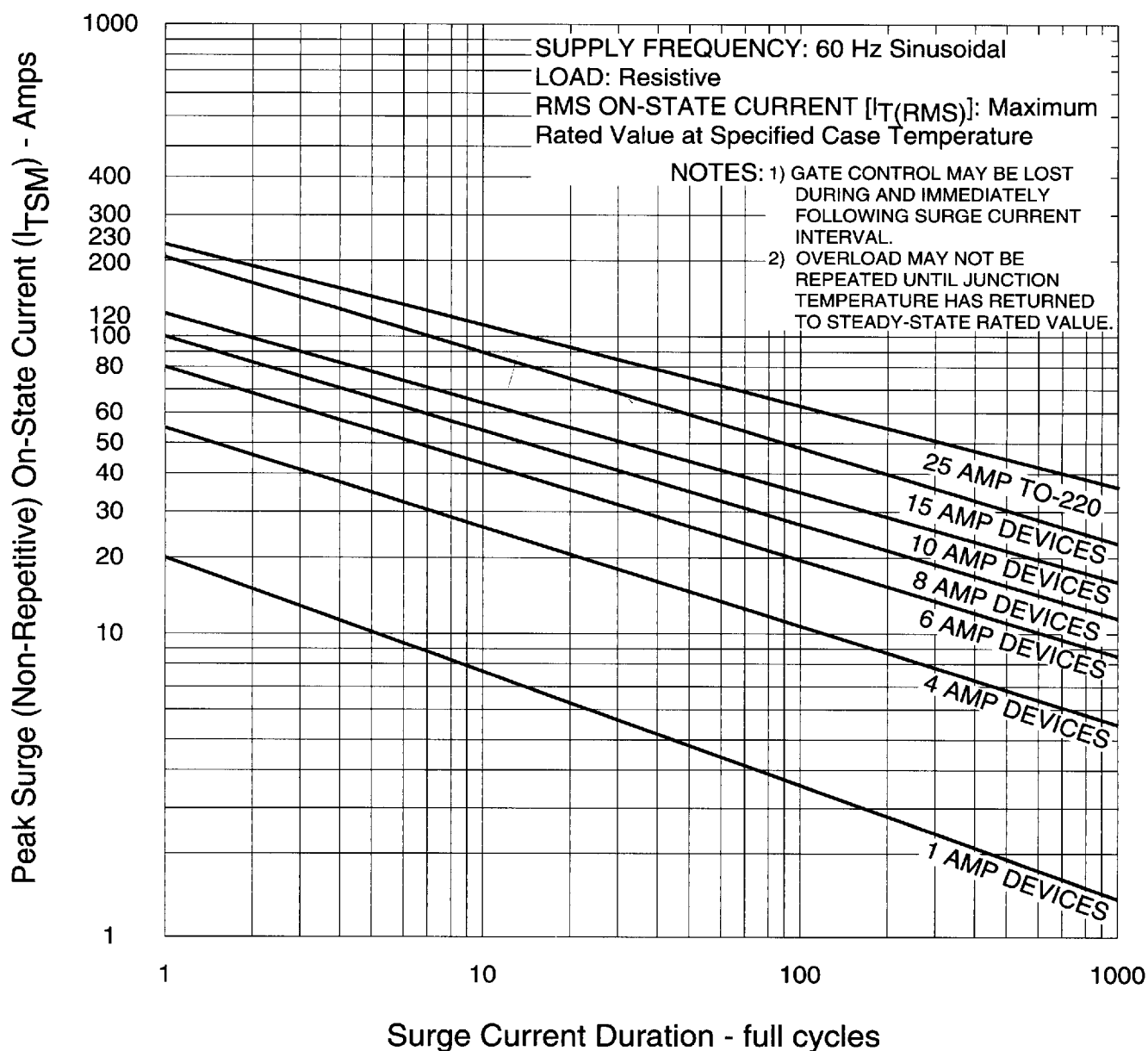




Figure 7 — Peak Surge Current vs Surge Current Duration



# Electrical Specifications

[查询"Q2008L4V"供应商](#)

Figure 8A — Turn-On Time vs Gate Trigger Current (Typical)

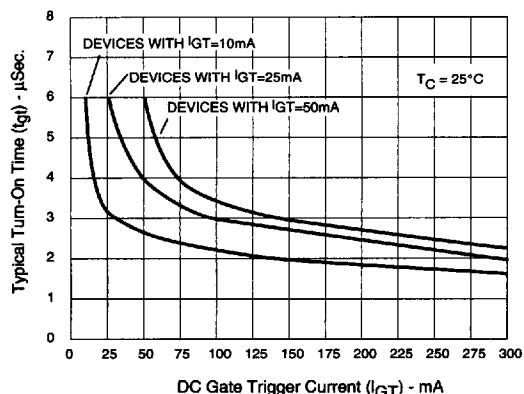


Figure 8B — Turn-On Time vs Gate Trigger Current (Typical)

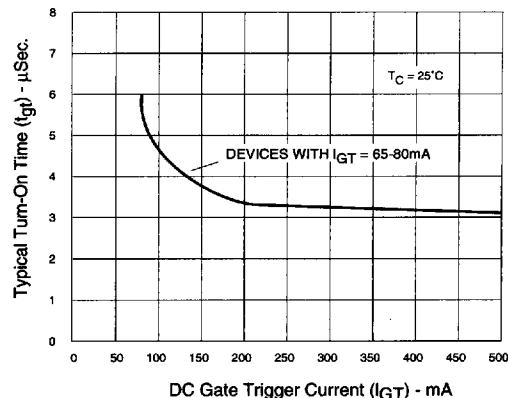


Figure 9A — Power Dissipation (Typical) vs On-State Current

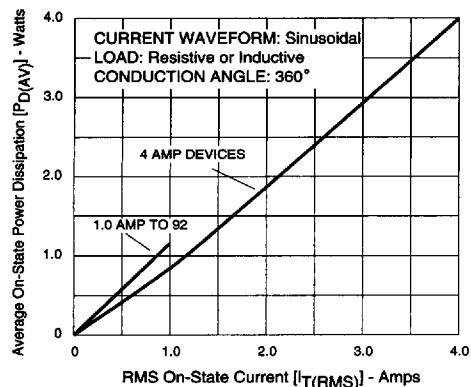


Figure 9B — Power Dissipation (Typical) vs On-State Current

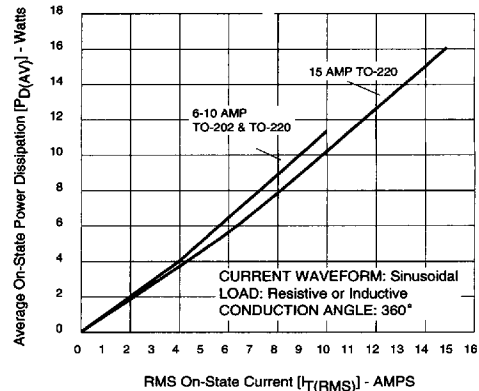


Figure 9C — Power Dissipation (Typical) vs On-State Current

