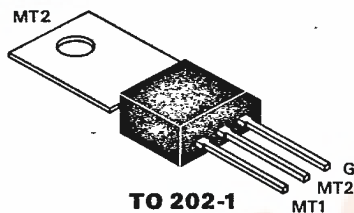


8834750 TAG SEMICONDUCTORS LTD

63C 00790 DT-25-13

TAG SEMICONDUCTORS LTD



**Z0409BE -  
 Z0409NE TRIACS**

**4.0 A 200-800 V  
 10/10/10/10 mA**

The Z0409 series of TRIAC's are high performance PNP devices diffused with TAG's proprietary Top Glass™ Process. These parts are intended for general purpose applications where moderate gate sensitivity is required.

**Absolute Maximum Ratings**  $T_A = 25^\circ\text{C}$  unless otherwise noted

| Parameter                         | Part Nr. | Symbol      | Min. | Max. | Unit                 | Test Conditions  |
|-----------------------------------|----------|-------------|------|------|----------------------|--|
| Repetitive Peak Off State Voltage | Z0409BE  | $V_{DRM}$   | 200  |      | V                    | [ $T_j = -40^\circ\text{C}$ to $125^\circ\text{C}$<br>$R_{GK} = 1\text{K}\Omega$ ] |
|                                   | Z0409DE  |             | 400  |      | V                    |  |
|                                   | Z0409ME  |             | 600  |      | V                    |  |
|                                   | Z0409NE  |             | 800  |      | V                    |  |
| On-State Current                  |          | $I_T(RMS)$  | 4.0  |      | A                    | All Conduction Angles $T_C = 75^\circ\text{C}$                                     |
| Nonrept. On-State Current         |          | $I_{TSM}$   | 25   |      | A                    | Half Cycle, 60 Hz  |
| Nonrept. On-State Current         |          | $I_{TSM}$   | 22   |      | A                    | Half Cycle, 50 Hz  |
| Fusing Current                    |          | $I^2t$      | 2.4  |      | $\text{A}^2\text{s}$ | $t = 10\text{ ms}$   |
| Peak Gate Current                 |          | $I_{GM}$    | 1.2  |      | A                    | $10\mu\text{s}$ max.   |
| Peak Gate Dissipation             |          | $P_{GM}$    | 3    |      | W                    | $10\mu\text{s}$ max.   |
| Gate Dissipation                  |          | $P_{G(AV)}$ | 0.2  |      | W                    | 20 ms max.   |
| Operating Temperature             |          | $T_j$       | -40  | 125  | $^\circ\text{C}$     |  |
| Storage Temperature               |          | $T_{stg}$   | -40  | 150  | $^\circ\text{C}$     |  |
| Soldering Temperature             |          | $T_{slid}$  |      | 250  | $^\circ\text{C}$     | 1.6 mm from case, 10 s max.  |

**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise noted

| Parameter                        | Symbol            | Min. | Max. | Unit                   | Test Conditions   |
|----------------------------------|-------------------|------|------|------------------------|---|
| Z04 Off-State Leakage Current    | $I_{DRM}$         |      | 200  | $\mu\text{A}$          | $V_D = V_{DRM}$ $R_{GK} = 1\text{K}\Omega$ $T_j = 125^\circ\text{C}$            |
| Off-State Leakage Current        | $I_{DRM}$         |      | 5    | $\mu\text{A}$          | $V_D = V_{DRM}$ $R_{GK} = 1\text{K}\Omega$ $T_j = 25^\circ\text{C}$             |
| On-State Voltage                 | $V_T$             |      | 2.10 | V                      | at $I_T = 6.0\text{ A}$ , $T_j = 25^\circ\text{C}$                              |
| On-State Threshold Voltage       | $V_{T(TO)}$       |      | 0.95 | V                      | $T_j = 125^\circ\text{C}$   |
| On-State Slope Resistance        | $r_T$             |      | 180  | $\text{m}\Omega$       | $T_j = 125^\circ\text{C}$   |
| Gate Trigger Current             | $I_{GT I+}$ (1)   |      | 10   | mA                     | $V_D = 12\text{ V}$   |
|                                  | $I_{GT I-}$ (2)   |      | 10   | mA                     | $V_D = 12\text{ V}$   |
|                                  | $I_{GT III-}$ (3) |      | 10   | mA                     | $V_D = 12\text{ V}$   |
|                                  | $I_{GT III+}$ (4) |      | 10   | mA                     | $V_D = 12\text{ V}$   |
| Gate Trigger Voltage             | $V_{GT}$          |      | 2    | V                      | $V_D = 12\text{ V}$ All Quadrants   |
| Holding Current                  | $I_H$             |      | 10   | mA                     | $R_{GK} = 1\text{K}\Omega$  |
| Critical Rate of Voltage Rise    | $dv/dt$           | 50   |      | $\text{V}/\mu\text{s}$ | $V_D = .67 \times V_{DRM}$ $R_{GK} = 1\text{K}\Omega$ $T_j = 125^\circ\text{C}$ |
| Critical Rate of Rise, Off-State | $dv/dt_c$         | 2    |      | $\text{V}/\mu\text{s}$ | $I_T = 4.0\text{ A}$ $di/dt = 1.78\text{ A/ms}$ $T_C = 75^\circ\text{C}$        |
| Thermal Resistance junc. to case | $R_{\theta jc}$   |      | 7.5  | K/W                    |   |
| Thermal Resistance junc. to amb. | $R_{\theta ja}$   |      | 60   | K/W                    |   |

