


PHASE CONTROL SCR

| | |
|---|--|
|  | $V_T < 1.45V @ 40A$ $I_{TSM} = 400A$ $V_R / V_D = 1200V$ |
|---|--|

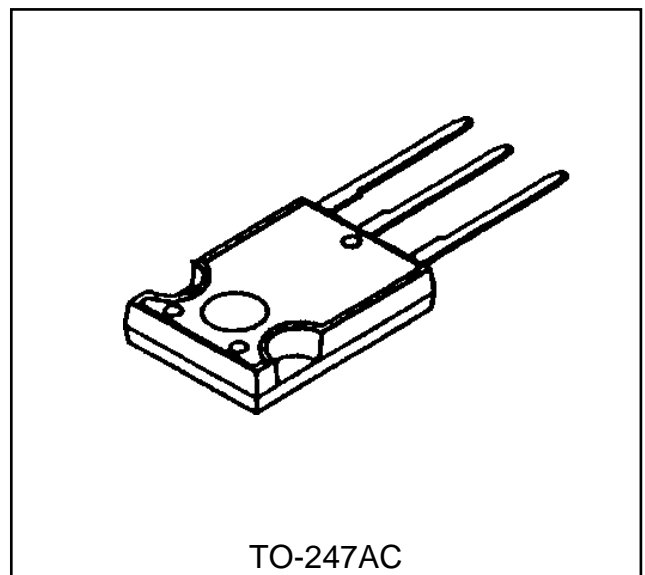
Description/Features

The 40TPS... new series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications. The glass passivation technology used has reliable operation up to 125° C junction temperature.

Typical applications are in input rectification (soft start) and these products are designed to be used with International Rectifier input diodes, switches and output rectifiers which are available in identical package outlines.

Major Ratings and Characteristics

| Characteristics | 40TPS... | Units |
|---------------------------------|--------------|------------|
| $I_{T(AV)}$ Sinusoidal waveform | 35 | A |
| I_{RMS} | 55 | A |
| V_{RRM} / V_{DRM} | 800 and 1200 | V |
| I_{TSM} | 400 | A |
| $V_T @ 40 A, T_J = 25^\circ C$ | 1.45 | V |
| dv/dt | 500 | V/ μs |
| di/dt | 150 | A/ μs |
| T_J | -40 to 125 | °C |



Voltage Ratings

| Part Number | V_{RRM}/V_{DRM} , max. repetitive peak and off-state voltage V | V_{RSM} , maximum non repetitive peak reverse voltage V | I_{RRM}/I_{DRM} 125°C mA |
|-------------|---|--|----------------------------------|
| 40TPS08 | 800 | 900 | 5 |
| 40TPS12 | 1200 | 1300 | |

Absolute Maximum Ratings

| Parameters | 40TPS.. | Units | Conditions | |
|---|---------|---------------|--|--------------------------------------|
| $I_{T(AV)}$ Max. Average On-state Current | 35 | A | 50% duty cycle @ $T_C = 85^\circ\text{C}$, sinusoidal wave form | |
| $I_{T(RMS)}$ Max. Continuous RMS On-state Current. As AC switch | 55 | | | |
| I_{TSM} Max. Peak One Cycle Non-Repetitive Surge Current | 335 | A^2s | 10ms Sine pulse, rated V_{RRM} applied | Initial $T_J = T_{J\text{ max.}}$ |
| | 400 | | 10ms Sine pulse, no voltage reapplied | |
| I^2t Max. I^2t for fusing | 560 | | 10ms Sine pulse, rated V_{RRM} applied | |
| | 800 | | 10ms Sine pulse, no voltage reapplied | |
| $I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing | 8000 | $A^2\sqrt{s}$ | t = 0.1 to 10ms, no voltage reapplied | |
| $V_{T(TO)1}$ Low level value of threshold Voltage | 1.02 | V | $T_J = 125^\circ\text{C}$ | |
| $V_{T(TO)2}$ High level value of threshold Voltage | 1.23 | | | |
| r_{t1} Low level value of On-state slope resistance | 9.74 | | | |
| r_{t2} High level value of On-state slope resistance | 7.50 | | | |
| V_{TM} Max. Peak On-state Voltage | 1.85 | V | @ 110A, $T_J = 25^\circ\text{C}$ | |
| di/dt Max. rate of rise of turned-on Current | 150 | A/μs | $T_J = 25^\circ\text{C}$ | |
| I_H Max. holding Current | 200 | mA | $V_R = \text{rated } V_{RRM}/V_{DRM}$ | |
| I_L Max. latching Current | 400 | | | |
| I_{RRM}/I_{DRM} Max. Reverse and Direct Leakage Current | 0.5 | | | |
| | 5.0 | | $T_J = 125^\circ\text{C}$ | |
| dv/dt Max. rate of rise of off-state Voltage | 500 | V/μs | $T_J = 125^\circ\text{C}$ | |

Triggering

| Parameters | 40TPS.. | Units | Conditions | |
|--|---------|-------|--|-------------------------------------|
| P_{GM} Max. peak Gate Power | 10 | W | | |
| $P_{G(AV)}$ Max. average Gate Power | 2.5 | | | |
| I_{GM} Max. peak Gate Current | 2.5 | A | | |
| $-V_{GM}$ Max. peak negative Gate Voltage | 10 | V | $T_J = -40^{\circ}\text{C}$ | Anode supply = 6V resistive load |
| V_{GT} Max. required DC Gate Voltage to trigger | 4.0 | | $T_J = 25^{\circ}\text{C}$ | |
| | 2.5 | | $T_J = 125^{\circ}\text{C}$ | |
| | 1.7 | | | |
| I_{GT} Max. required DC Gate Current to trigger | 270 | mA | $T_J = -40^{\circ}\text{C}$ | |
| | 150 | | $T_J = 25^{\circ}\text{C}$ | |
| | 80 | | $T_J = 125^{\circ}\text{C}$ | |
| V_{GD} Max. DC Gate Voltage not to trigger | 0.25 | V | $T_J = 125^{\circ}\text{C}$, $V_{DRM} = \text{rated value}$ | |
| I_{GD} Max. DC Gate Current not to trigger | 6 | mA | | |

Thermal-Mechanical Specifications

| Parameters | 40TPS.. | Units | Conditions | |
|---|-------------|----------------------|--------------------------------------|--|
| T_J Max. Junction Temperature Range | - 40 to 150 | $^{\circ}\text{C}$ | | |
| T_{stg} Max. Storage Temperature Range | - 40 to 150 | | | |
| R_{thJC} Max. Thermal Resistance Junction to Case | 0.6 | $^{\circ}\text{C/W}$ | DC operation | |
| R_{thJA} Max. Thermal Resistance Junction to Ambient | 40 | | Mounting surface, smooth and greased | |
| R_{thCS} Max. Thermal Resistance Case to Heatsink | 0.2 | | | |
| wt Approximate Weight | 6 (0.21) | g (oz.) | | |
| T Mounting Torque | Min. | 6 (5) | kg-cm | |
| | Max. | 12 (10) | (lbf-in) | |
| Case Style | (TO-247) | | | |

[查询"40TPS..SERIES"供应商](#)

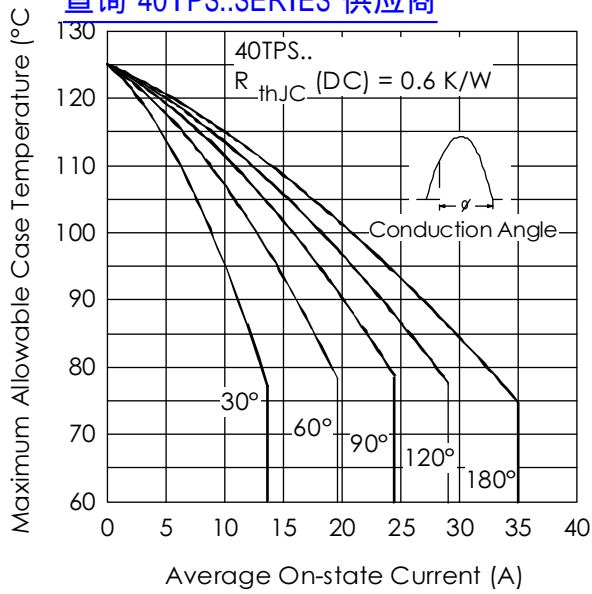


Fig. 1 - Current Rating Characteristics

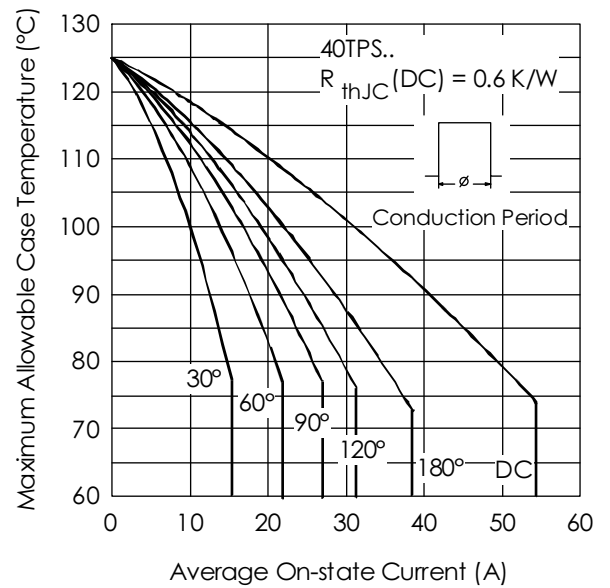


Fig. 2 - Current Rating Characteristics

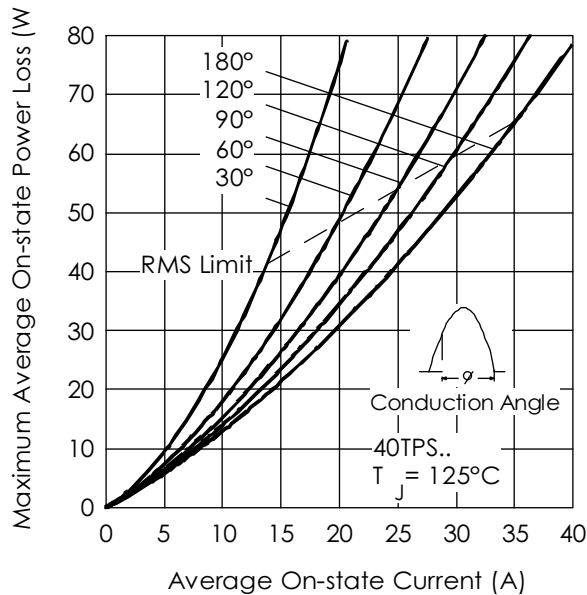


Fig. 3 - On-state Power Loss Characteristics

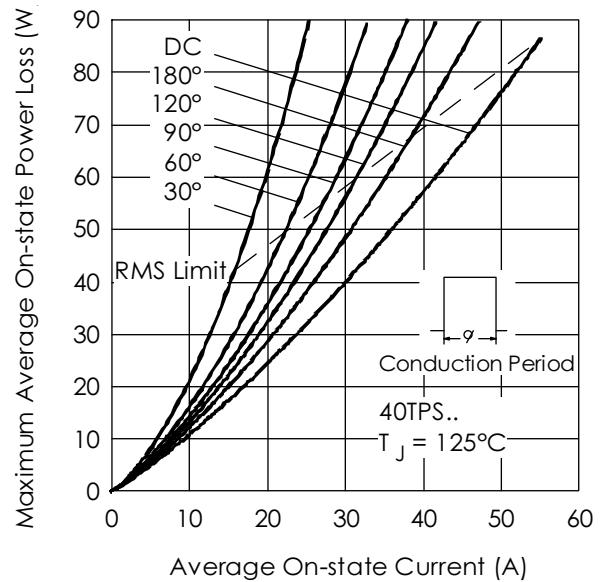


Fig. 4 - On-state Power Loss Characteristics

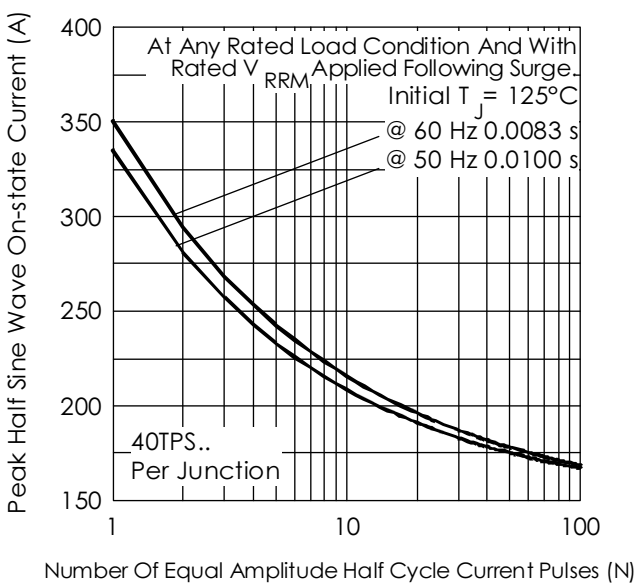


Fig. 5 - Maximum Non-Repetitive Surge Current

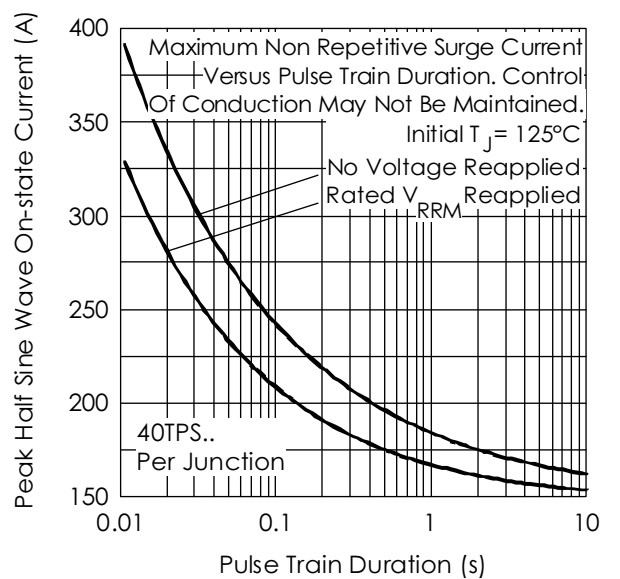


Fig. 6 - Maximum Non-Repetitive Surge Current

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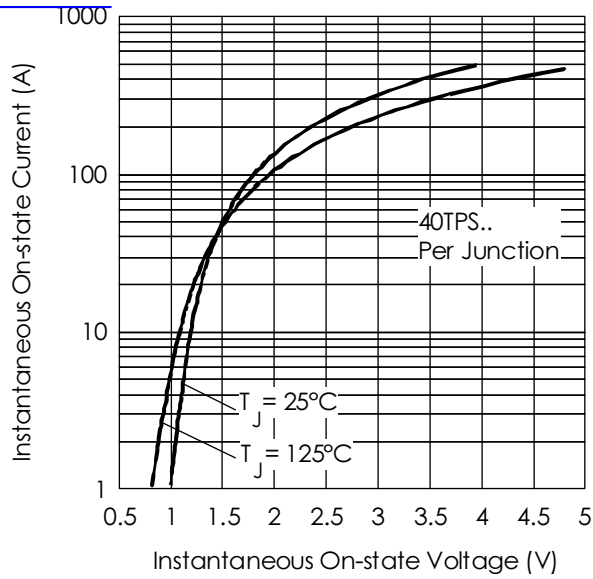


Fig. 7 - On-state Voltage Drop Characteristics

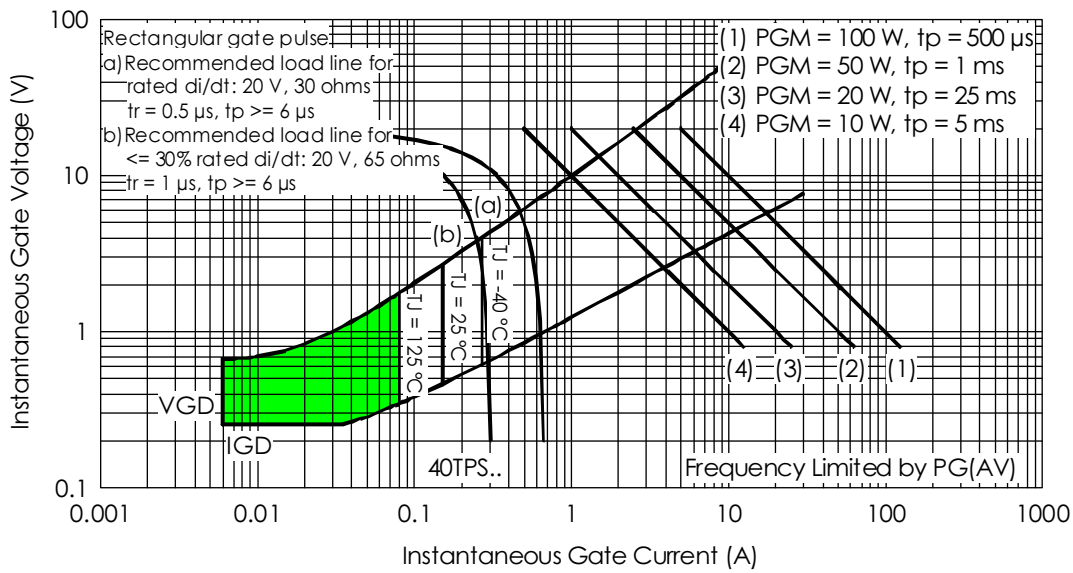


Fig. 8 - Gate Characteristics

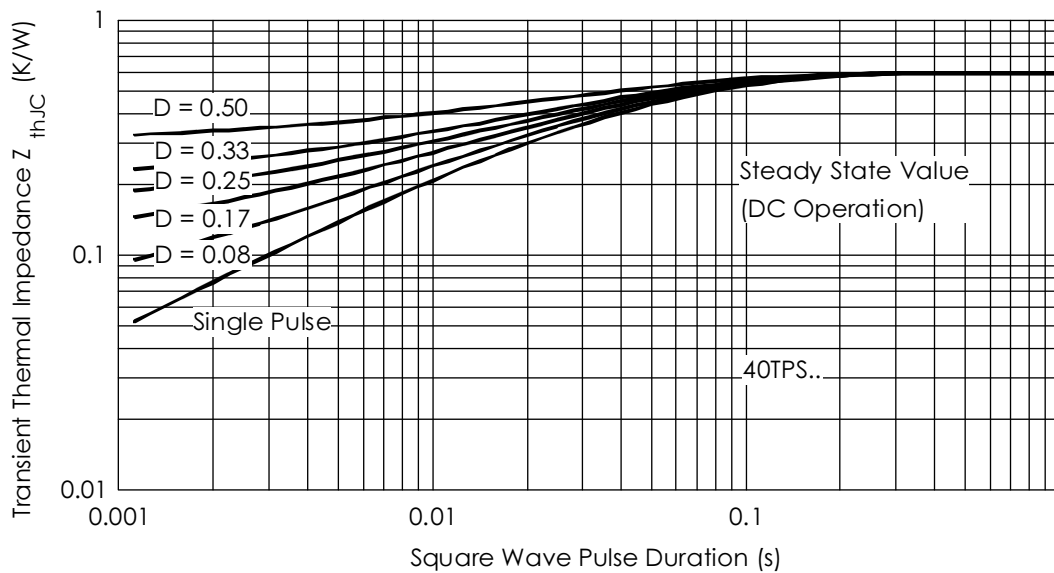
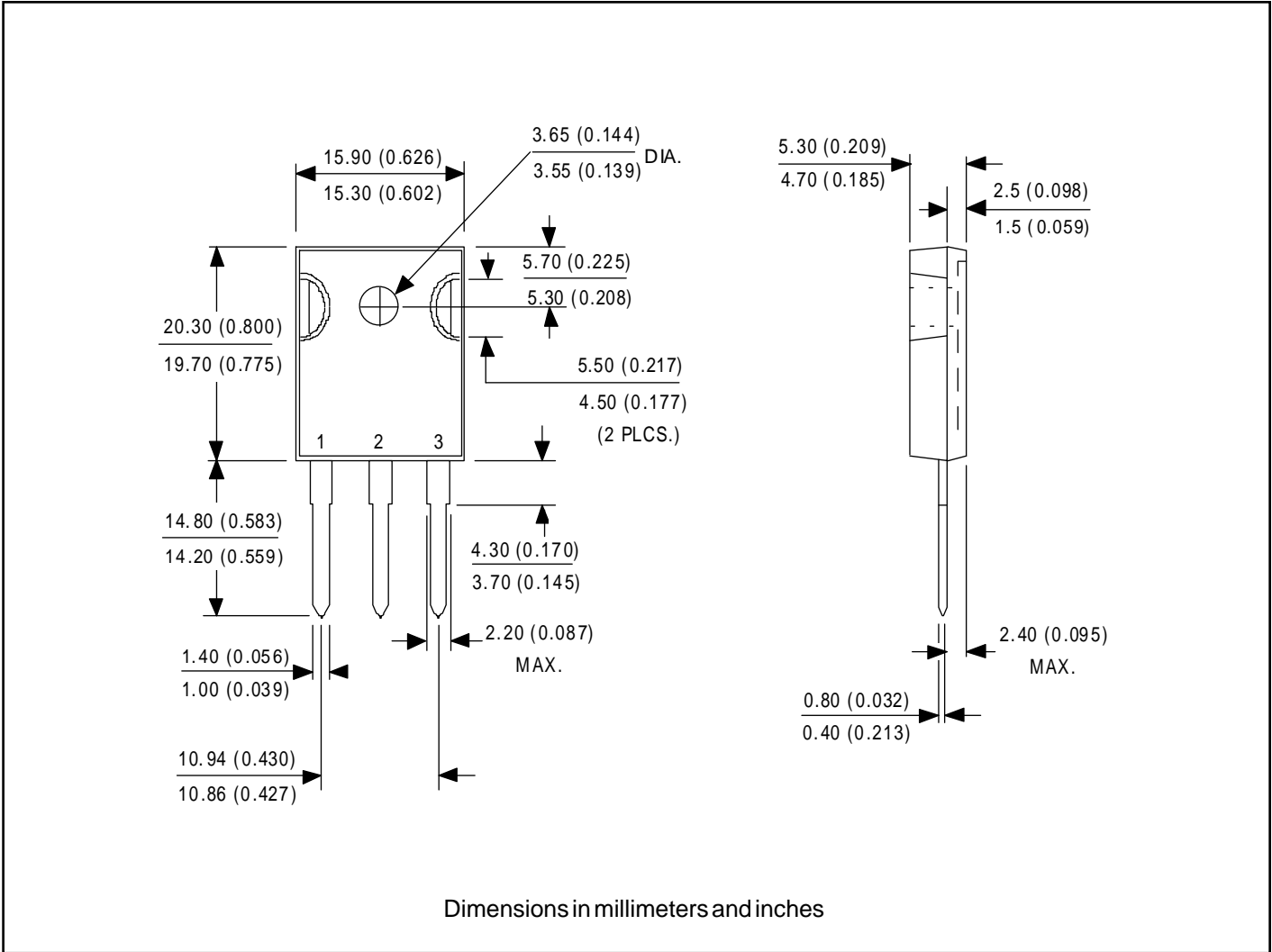


Fig. 9 - Thermal Impedance Z_{thJC} Characteristics



Ordering Information Table

Device Code

| | | | | |
|----|---|---|---|----|
| 40 | T | P | S | 12 |
| ① | ② | ③ | ④ | ⑤ |

- 1** - Current Rating
- 2** - Circuit Configuration
T = Thyristor
- 3** - Package
T = TO-247
- 4** - Type of Silicon
S = Standard Recovery Rectifier
- 5** - Voltage code: Code x 100 = V_{RRM}

| | |
|----|---------|
| 08 | = 800V |
| 12 | = 1200V |