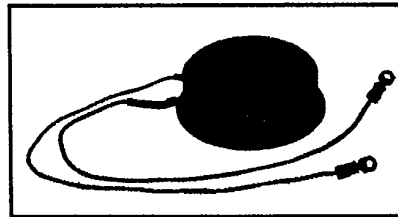
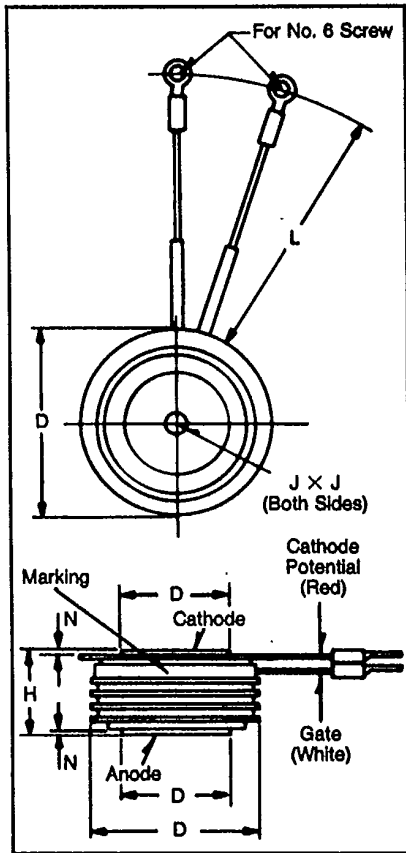




T9G0

Powerex, Inc. Hillis Street, Youngwood, Pennsylvania 15897 (412) 925-7272
 Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

Phase Control SCR
 1000-1200 Amperes Avg
 100-2200 Volts



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Phase Control SCR
 1000-1200 Amperes/100-2200 Volts

Description

Powerex Silicon Controlled Rectifiers (SCR) are designed for phase control applications. These are all-diffused, Press-Pak (Pow-R-Disc) devices employing the field-proven amplifying (di/namic) gate.

Features:

- Low On-State Voltage
- High di/dt
- High dv/dt
- Hermetic Packaging
- Excellent Surge and I²t Ratings

Applications:

- Power Supplies
- Battery Chargers
- Motor Control
- Light Dimmers
- VAR Generators

Ordering Information

Example: Select the complete eight digit part number you desire from the table - i.e. T9G01210 is a 1200 Volt, 1000 Ampere Phase Control SCR.

T9G
Outline Drawing

| Dimensions | Inches | | Millimeters | |
|-----------------|--------|-------|-------------|--------|
| | Min. | Max. | Min. | Max. |
| φD | 2.850 | 2.900 | 72.39 | 73.66 |
| φD ₁ | 1.845 | 1.855 | 46.86 | 47.12 |
| φD ₂ | 2.560 | 2.640 | 65.02 | 67.06 |
| H | 1.03 | 1.07 | 26.16 | 27.18 |
| φJ | .135 | .145 | 3.43 | 3.68 |
| J ₁ | .075 | .090 | 1.91 | 2.29 |
| L | 11.50 | 12.50 | 292.10 | 317.50 |
| N | .050 | — | 1.27 | — |

Creep Distance—1.20 in. min. (30.48 mm)
 Strike Distance—.70 in. min. (17.78 mm).
 (In accordance with NEMA standards.)
 Finish—Nickel Plate.
 Approx. Weight—1 lb. (454 g).
 1. Dimension "H" is a clamped dimension.

| Type | Voltage | | Current | |
|------|------------------|------|----------------------|------|
| | V _{onm} | Code | I _r (avg) | Code |
| T9G0 | 100 | 01 | 1000 | 10 |
| | 200 | 02 | 1200 | 12 |
| | 400 | 04 | | |
| | 600 | 06 | | |
| | 800 | 08 | | |
| | 1000 | 10 | | |
| | 1200 | 12 | | |
| | 1400 | 14 | | |
| | 1600 | 16 | | |
| | 1800 | 18 | | |
| 2000 | 20 | | | |
| 2200 | 22 | | | |



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Absolute Maximum Ratings

| | Symbol | T9G0 _ _ 10 | T9G0 _ _ 12 | Units |
|---|--------------------|--------------|--------------|--------------------|
| RMS On-State Current | $I_{T(RMS)}$ | 1590 | 1880 | Amperes |
| Average On-State Current | $I_{T(av)}$ | 1000 | 1200 | Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz) [ⓐ] | I_{TSM} | 17,000 | 27,000 | Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz) [ⓐ] | I_{TSM} | 15,500 | 24,650 | Amperes |
| Critical Rate-of-Rise of On-State Current (Non-Repetitive) [ⓐ] [ⓑ] [ⓒ] | di/dt | 300 | 300 | Amperes/μs |
| Critical Rate-of-Rise of On-State Current (Repetitive) | di/dt | 150 | 150 | Amperes/μs |
| I ² t (for Fusing), One Cycle at 60Hz | I ² t | 1,203,000 | 3,040,000 | A ² sec |
| Peak Gate Power Dissipation | P _{GM} | 16 | 16 | Watts |
| Average Gate Power Dissipation | P _{G(av)} | 3 | 3 | Watts |
| Storage Temperature | T _{STG} | -40 to 150 | -40 to 150 | °C |
| Operating Temperature | T _J | -40 to 125 | -40 to 125 | °C |
| Mounting Force [ⓐ] | | 5000 to 5500 | 5000 to 5500 | lb. |
| Mounting Force [ⓐ] | | 2270 to 2500 | 2270 to 2500 | kg |

Electrical and Thermal Characteristics

| | Symbol | Test Conditions | T9G0 _ _ 10 | T9G0 _ _ 12 | Units |
|--|------------------|--|-------------|-------------|---------|
| Current—Conducting State Maximums | | | | | |
| Peak On-State Voltage | V _{TM} | I _{TM} = 1500A, T _J = 25°C | 1.75 | 1.35 | Volts |
| T9G0 | | | | | |
| Voltage—Blocking State Maximums[ⓐ] | | | | | |
| Forward Leakage, Peak | I _{DRM} | T _J = 125°C, V _{DRM} = rated | 75 | | mA |
| Reverse Leakage, Peak | I _{RRM} | T _J = 125°C, V _{RRM} = rated | 75 | | mA |
| Switching | | | | | |
| Typical Turn-Off Time | t _q | I _T = 250A, T _J = 125°C, di _R /dt = 50A/μsec, reapplied dv/dt = 20V/μsec linear to 0.8V _{DRM} | 350 | | μsec |
| Typical Turn-On Time [ⓐ] | t _{on} | I _{TM} = 1000A, V _D = 450V | 3 | | μsec |
| Min. Critical dv/dt exponential to V _{DRM} [ⓐ] | dv/dt | T _J = 125°C | 300 | | V/μsec |
| Thermal | | | | | |
| Maximum Thermal Resistance, [ⓐ] double sided cooling Junction to Case | R _{θJC} | | .023 | | °C/Watt |
| Case to Sink, Lubricated | R _{θCS} | | .0075 | | °C/Watt |
| Gate—Maximum Parameters | | | | | |
| Gate Current to Trigger | I _{GT} | T _J = 25°C, V _D = 12V | 200 | | mA |
| Gate Voltage to Trigger | V _{GT} | T _J = 25°C, V _D = 12V | 3.0 | | Volts |
| Non-Triggering Gate Voltage | V _{GDM} | T _J = 125°C, rated V _{DRM} | .15 | | Volts |
| Peak Forward Gate Current | I _{GTM} | | 4 | | Amperes |
| Peak Reverse Gate Voltage | V _{GRM} | | 5 | | Volts |

ⓐ Consult recommended mounting procedures.

ⓑ Applies for zero or negative gate bias.

ⓒ Per JEDEC RS-397, 5.2.2.1.

ⓓ With recommended gate drive.

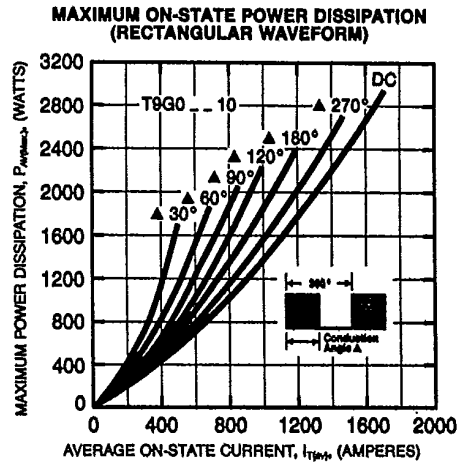
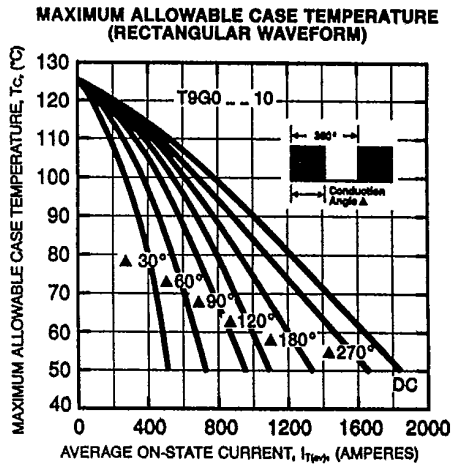
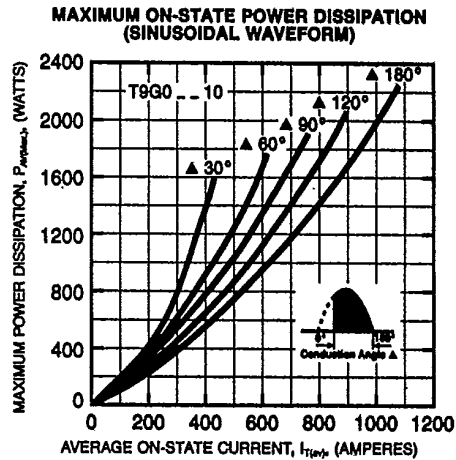
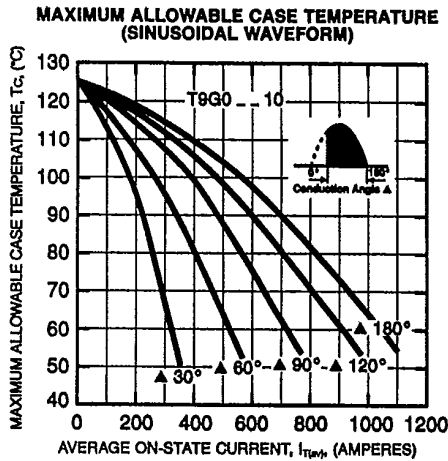
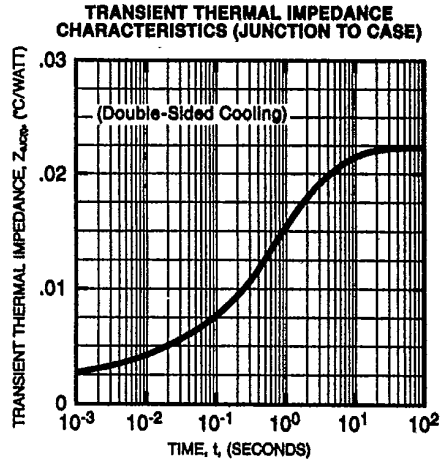
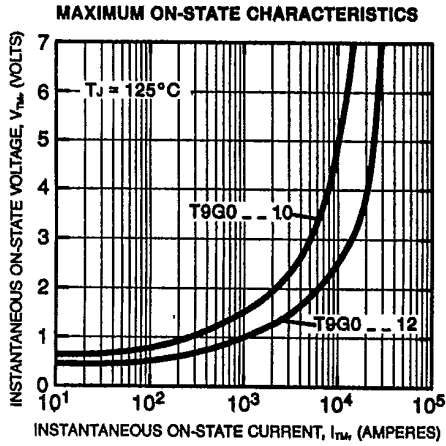
ⓔ Higher dv/dt ratings available, consult factory.

ⓕ Per JEDEC standard RS-397, 5.2.2.6.



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