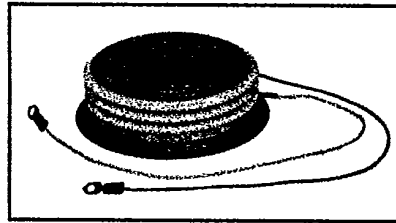
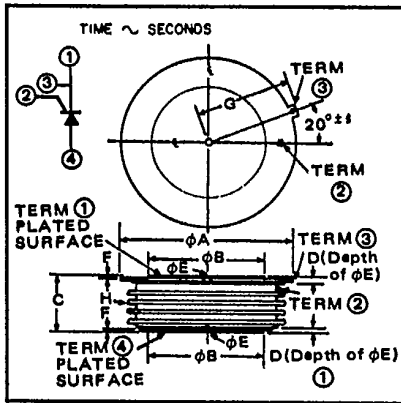




C783

Powerex, Inc. Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
 Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

Phase Control SCR
 1800 Amperes Avg
 8000-3700 Volts



C783
Phase Control SCR
 1800 Amperes/3000-3700 Volts

C783
Outline Drawing

| Dimensions | Inches | | Millimeters | |
|------------|--------|-------|-------------|--------|
| | Min. | Max. | Min. | Max. |
| ϕA | — | 4.350 | — | 110.49 |
| ϕB | 2.876 | 2.890 | 73.05 | 73.15 |
| C | 1.387 | 1.447 | 35.23 | 36.75 |
| D | .080 | — | 2.03 | — |
| ϕE | 0.136 | 0.146 | 3.45 | 3.71 |
| F | 0.20 | — | 5.08 | — |
| G | 2.403 | 2.418 | 61.16 | 61.42 |
| H | — | — | — | — |

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 six digit part number you desire from the table - i.e. C784CD is a 3400 Volt, 1800 Ampere Phase Control SCR.

| Type | Voltage | | Current |
|------|--------------------------------------|------|---------|
| | V _{ORM} V _{RRM} | Code | |
| C783 | 3000 | CP | 1800 |
| | 3100 | CA | |
| | 3200 | CB | |
| | 3300 | CC | |
| | 3400 | CD | |
| | 3500 | CE | |
| | 3600 | CM | |
| | 3700 | CS | |



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Absolute Maximum Ratings

| | Symbol | C783 | Units |
|---|--------------|-------------------|--------------------|
| RMS On-State Current | $I_{T(RMS)}$ | 2826 | Amperes |
| Average On-State Current | $I_{T(av)}$ | 1800 | Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz) | I_{TSM} | 29,000 | Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz) | I_{TSM} | 27,000 | Amperes |
| Critical Rate-of-Rise of On-State Current (Non-Repetitive) | di/dt | 600 | Amperes/ μ s |
| Critical Rate-of-Rise of On-State Current (Repetitive) | di/dt | 100 | Amperes/ μ s |
| I^2t (for Fusing), One Cycle at 60Hz | I^2t | 3.5×10^6 | A ² sec |
| Peak Gate Power Dissipation, 100 microseconds | P_{GM} | 250 | Watts |
| Average Gate Power Dissipation | $P_{G(av)}$ | 35 | Watts |
| Storage Temperature | T_{STG} | -40 to 150 | °C |
| Operating Temperature | T_J | -40 to 125 | °C |
| Mounting Force [ⓐ] | | 9000 to 10,000 | lb. |
| Mounting Force [ⓐ] | | 44 to 44.5 | kN |

[ⓐ] Consult recommended mounting procedures.



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Electrical and Thermal Characteristics

| Characteristics | Symbol | Test Conditions | C783 | Units |
|--|-----------------|--|------|------------------------------|
| Voltage—Blocking State Maximums | | | | |
| Forward Leakage, Peak | I_{DRM} | $T_J = 125^\circ\text{C}$, $V_{DRM} = \text{Rated}$ | 150 | mA |
| Reverse Leakage, Peak | I_{RRM} | $T_J = 125^\circ\text{C}$, $V_{RRM} = \text{Rated}$ | 150 | mA |
| Current—Conducting State Maximums | | | | |
| Peak On-State Voltage | V_{TM} | $T_J = 125^\circ\text{C}$, $I_{TM} = 2000\text{A}$ | 1.71 | Volts |
| Switching | | | | |
| Typical Turn-Off Time | t_q | $T_J = 125^\circ\text{C}$, $I_{TM} = 500\text{A}$ Commutating $di/dt = 25\text{A}/\mu\text{sec}$ Minimum reverse voltage, $V_R = 50\text{V}$ Reapplied $dv/dt = 20\text{V}/\mu\text{sec}$ to $0.8 V_{DRM}$ | 200 | μsec |
| Typical Delay Time | t_d | $T_J = 125^\circ\text{C}$, $V_D = 1800\text{V}$ | 3 | μsec |
| Min. Critical dv/dt exponential to V_{DRM} | dv/dt | $T_J = 125^\circ\text{C}$, $V_D = .8V_{DRM}$ | 500 | $\text{V}/\mu\text{sec}$ |
| Thermal | | | | |
| Maximum Thermal Resistance, [ⓐ] double sided cooling | | | | |
| Junction to Case | $R_{\theta JC}$ | | .012 | $^\circ\text{C}/\text{Watt}$ |
| Case to Sink, Lubricated | $R_{\theta CS}$ | | .002 | $^\circ\text{C}/\text{Watt}$ |
| Gate—Maximum Parameters | | | | |
| Gate Current to Trigger | I_{GT} | $T_J = 25^\circ\text{C}$, $V_D = 12\text{Vdc}$ | 250 | mA |
| Gate Voltage to Trigger | V_{GT} | $T_J = 25^\circ\text{C}$, $V_D = 12\text{Vdc}$ | 4.5 | Volts |
| Non-Triggering Gate Voltage | V_{GDM} | $T_J = 125^\circ\text{C}$, $V_D = 1800\text{V}$ | .8 | Volts |
| Peak Forward Gate Current | I_{GTM} | | 20 | Amperes |
| Peak Reverse Gate Voltage | V_{GRM} | | 20 | Volts |

[ⓐ] Consult recommended mounting procedures.



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