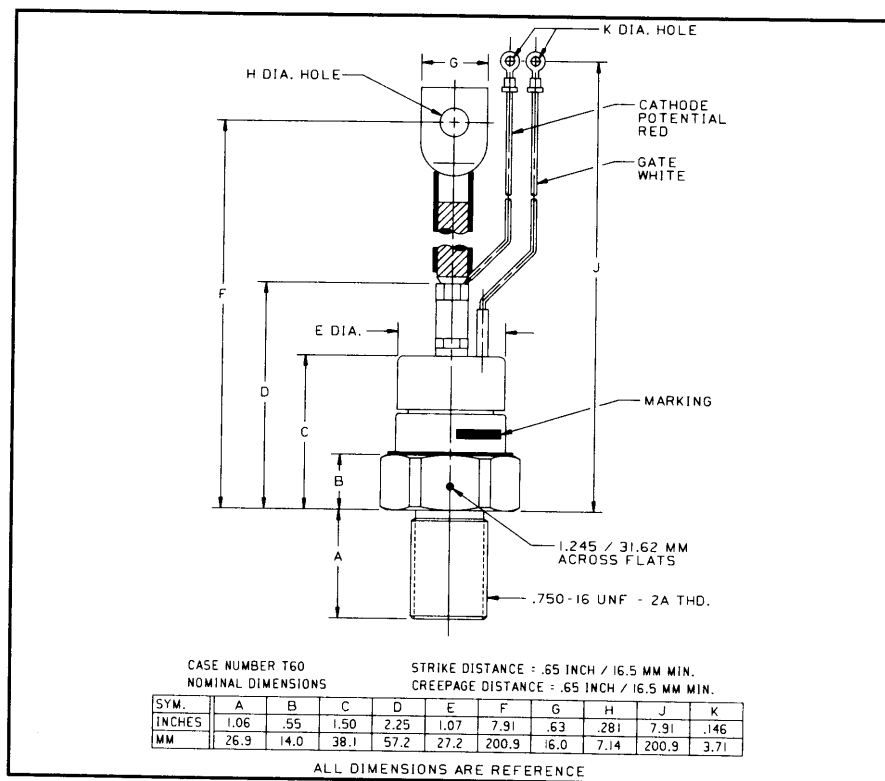
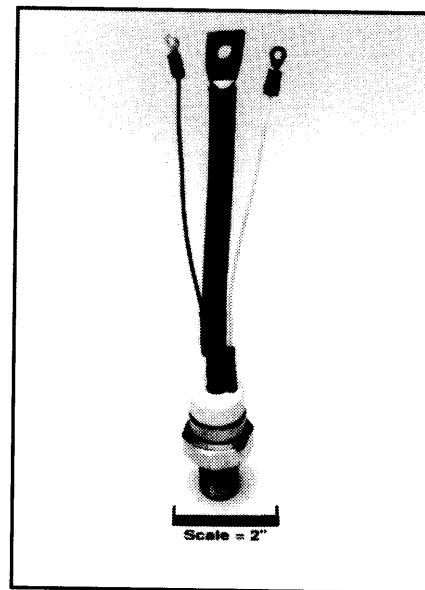


### Phase Control SCR 190 Amperes Average 600 Volts



C180\_\_X500 (Outline Drawing)



C180\_\_X500 Phase Control SCR  
190 Amperes Average, 600 Volts

#### Ordering Information:

Select the complete nine digit part number you desire from the table, i.e. C180MX500 is a 600 Volt, 190 Ampere Phase Control SCR.

| Type       | Voltage                              |      | Current |
|------------|--------------------------------------|------|---------|
|            | V <sub>DRM</sub><br>V <sub>RRM</sub> | Code |         |
| C180__X500 | 100                                  | A    | 190     |
|            | 200                                  | B    |         |
|            | 300                                  | C    |         |
|            | 400                                  | D    |         |
|            | 500                                  | E    |         |
|            | 600                                  | M    |         |

#### Description:

Powerex Silicon Controlled Rectifiers (SCR) are designed for phase control applications. These are all-diffused, compression bonded encapsulated (CBE) 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 I<sup>2</sup>t Ratings

#### Applications:

- ☐ Power Supplies
- ☐ Battery Chargers
- ☐ Motor Control

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

C180\_X500  
 Phase Control SCR  
 190 Amperes Average, 600 Volts

## Absolute Maximum Ratings

|                                                               | Symbol       | C180_X500  | Units                  |
|---------------------------------------------------------------|--------------|------------|------------------------|
| RMS On-State Current @ $T_C = 92^\circ\text{C}$               | $I_{T(RMS)}$ | 300        | Amperes                |
| Average On-State Current @ $T_C = 92^\circ\text{C}$           | $I_{T(av)}$  | 190        | Amperes                |
| Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz) | $I_{TSM}$    | 5500       | Amperes                |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz) | $I_{TSM}$    | 5000       | Amperes                |
| Critical Rate-of-Rise of On-State Current (Non-Repetitive)    | $di/dt$      | 800        | Amperes/ $\mu\text{s}$ |
| Critical Rate-of-Rise of On-State Current (Repetitive)        | $di/dt$      | 150        | Amperes/ $\mu\text{s}$ |
| $I^2t$ (for Fusing), 8.3 milliseconds                         | $I^2t$       | 125,000    | $\text{A}^2\text{sec}$ |
| Peak Gate Power Dissipation                                   | $P_{GM}$     | 10         | Watts                  |
| Average Gate Power Dissipation                                | $P_{G(av)}$  | 2          | Watts                  |
| Storage Temperature                                           | $T_{STG}$    | -40 to 150 | $^\circ\text{C}$       |
| Operating Temperature                                         | $T_J$        | -40 to 125 | $^\circ\text{C}$       |
| Mounting Torque                                               |              | 250 to 300 | in.-lb.                |
| Mounting Torque                                               |              | 28 to 34   | N-M                    |

## Electrical and Thermal Characteristics

| Characteristics                                | Symbol          | Test Conditions                                                                                                                                                                            | C180_X500 | Units                        |
|------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------|
| <b>Voltage—Blocking State Maximums</b>         |                 |                                                                                                                                                                                            |           |                              |
| Forward Leakage, Peak                          | $I_{DRM}$       | $T_J = 125^\circ\text{C}$ , $V_{DRM} = \text{Rated}$                                                                                                                                       | 20        | mA                           |
| Reverse Leakage, Peak                          | $I_{RRM}$       | $T_J = 125^\circ\text{C}$ , $V_{RRM} = \text{Rated}$                                                                                                                                       | 20        | mA                           |
| <b>Current—Conducting State Maximums</b>       |                 |                                                                                                                                                                                            |           |                              |
| Peak On-State Voltage                          | $V_{TM}$        | $T_J = 25^\circ\text{C}$ , $I_{TM} = 900\text{A Peak}$                                                                                                                                     | 1.75      | Volts                        |
| <b>Switching</b>                               |                 |                                                                                                                                                                                            |           |                              |
| Typical Turn-Off Time                          | $t_q$           | $I_T = 150\text{A}$ , $T_J = 125^\circ\text{C}$ , $di_R/dt = 12.5\text{A}/\mu\text{sec}$<br>Reapplied $dv/dt = 20\text{V}/\mu\text{sec}$ , Linear to<br>$0.8 V_{DRM}$ , $V_R = 50\text{V}$ | 100       | $\mu\text{sec}$              |
| Typical Delay Time                             | $t_d$           | $I_T = 100\text{A}$ , $V_{DRM} = \text{rated}$ ;<br>Gate supply: 10V, open circuit;<br>$R_L = 25\Omega$ , 0.1 $\mu\text{sec}$ rise time                                                    | 1.0       | $\mu\text{sec}$              |
| Min. Critical $dv/dt$ exponential to $V_{DRM}$ | $dv/dt$         | $T_J = 125^\circ\text{C}$ , Gate Open                                                                                                                                                      | 200       | $\text{V}/\mu\text{sec}$     |
| <b>Thermal</b>                                 |                 |                                                                                                                                                                                            |           |                              |
| Maximum Thermal Resistance<br>Junction to Case | $R_{\theta JC}$ |                                                                                                                                                                                            | 0.14      | $^\circ\text{C}/\text{Watt}$ |
| Case to Sink, Lubricated                       | $R_{\theta CS}$ |                                                                                                                                                                                            | 0.075     | $^\circ\text{C}/\text{Watt}$ |
| <b>Gate—Maximum Parameters</b>                 |                 |                                                                                                                                                                                            |           |                              |
| Gate Current to Trigger                        | $I_{GT}$        | $T_C = 25^\circ\text{C}$ ; $V_D = 6\text{Vdc}$ , $R_L = 3\Omega$                                                                                                                           | 150       | mA                           |
| Gate Voltage to Trigger                        | $V_{GT}$        | $T_C = -40^\circ\text{C}$ to $125^\circ\text{C}$ , $V_D = 6\text{Vdc}$ , $R_L = 3\Omega$                                                                                                   | 3.0       | Volts                        |
| Non-Triggering Gate Voltage                    | $V_{GDM}$       | $T_J = 125^\circ\text{C}$ , Rated $V_{DRM}$ , $R_L = 1000\Omega$                                                                                                                           | 0.15      | Volts                        |
| Peak Forward Gate Current                      | $I_{GTM}$       |                                                                                                                                                                                            | 10        | Amperes                      |
| Peak Reverse Gate Voltage                      | $V_{GRM}$       |                                                                                                                                                                                            | 5         | Volts                        |

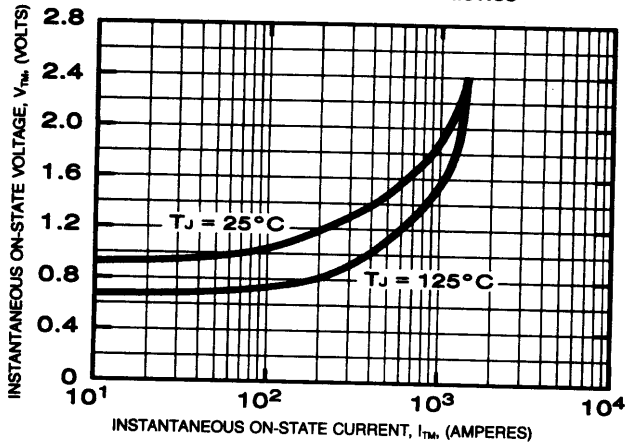
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

C180 X500

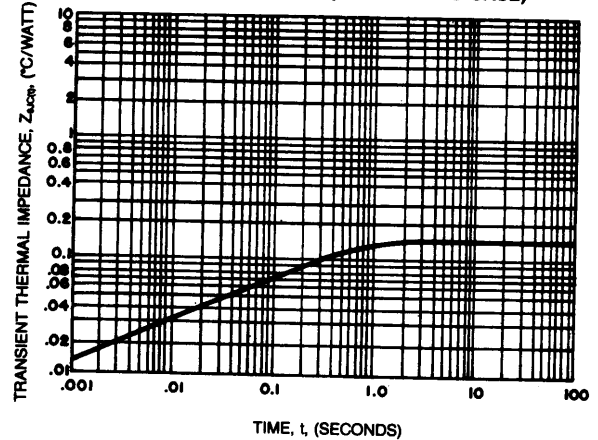
Phase Control SCR

190 Amperes Average, 600 Volts

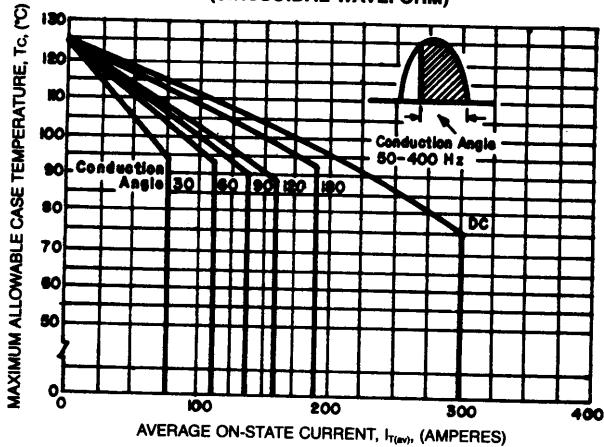
MAXIMUM ON-STATE CHARACTERISTICS



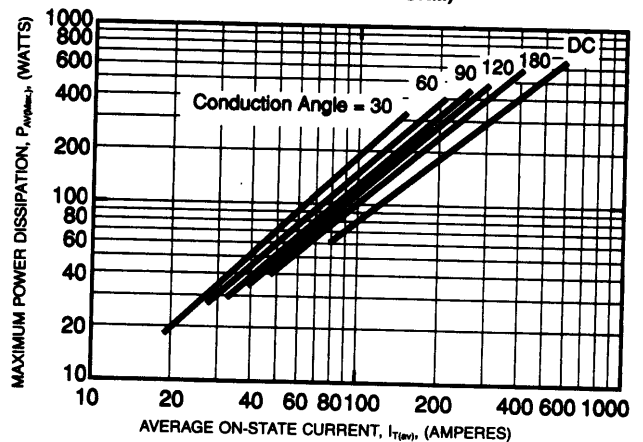
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



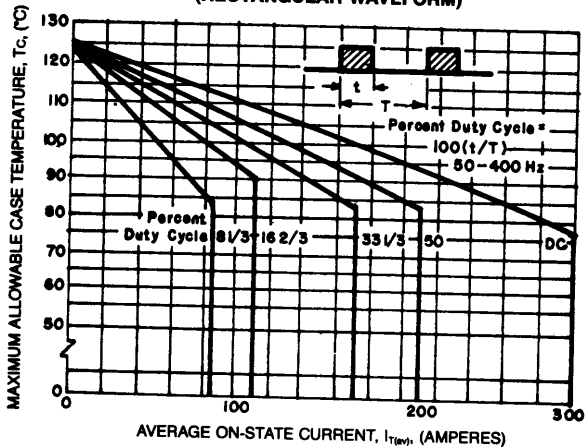
MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)



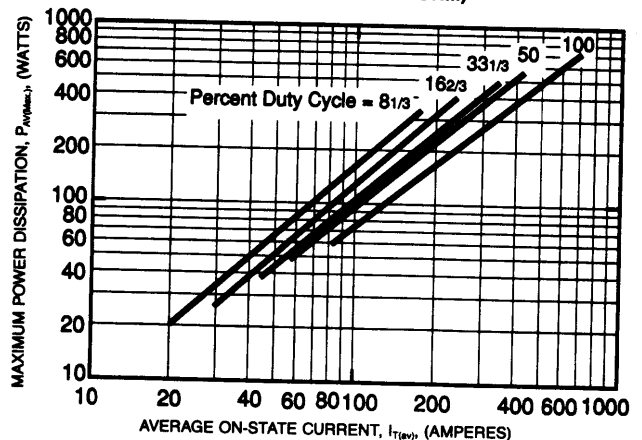
MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)



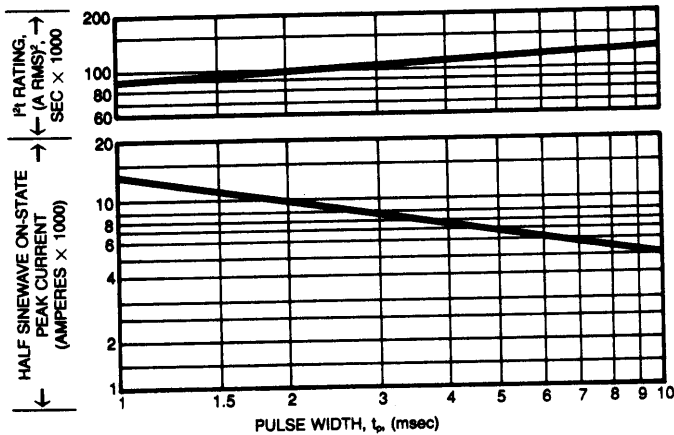
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

C180\_X500

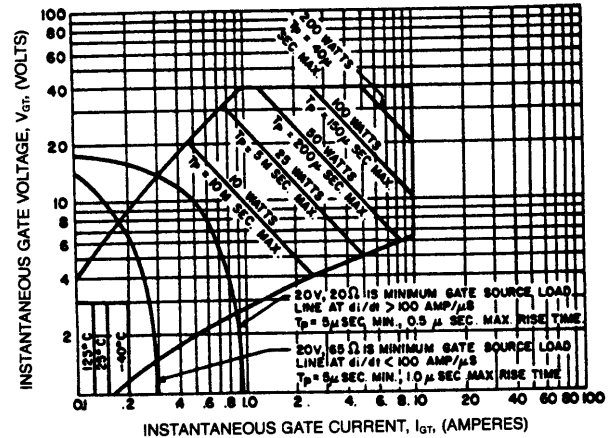
Phase Control SCR

190 Amperes Average, 600 Volts

SUB-CYCLE SURGE AND  $P_t$  RATINGS  
 (RATED LOAD CONDITIONS)



GATE CHARACTERISTICS



NOTES:

1. Maximum allowable gate power dissipation = 2 watts.
2. The locus of possible DC trigger points lie outside the boundaries shown at various case temperatures.
3.  $T_p$  = rectangular gate current pulse width.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)