




TECCOR
ELECTRONICS, INC.

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TELEX 79-1600

SCR's 1-70 AMPS

NON-SENSITIVE GATE

General Information

The Teccor Electronics line of thyristor SCR semiconductors are half-wave unidirectional gate-controlled rectifiers which complement Teccor's line of sensitive gate SCR's. Teccor offers devices with current ratings from 1-70 Amps and Voltage ratings from 30-600 Volts with gate sensitivities from 10-50 milliamps. If gate currents in the 1-500 microamp ranges are required, please consult Teccor's sensitive gate SCR technical data sheets.

Electrically Isolated Packages

Teccor's SCR's are available in a choice of 8 different device packages. Four of the 8 packages are offered in electrically isolated construction where the case or tab is internally isolated to allow




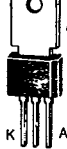

the use of low cost assembly and convenient packaging techniques.

The Teccor line of SCR's features glass passivated device junctions to insure long term device reliability and parameter stability. Teccor's glass offers a rugged, reliable barrier against junction contamination.

Features

- Electrically Isolated Packages
- High Voltage Capability — 30-600 Volts
- High Surge Capability — up to 950 Amps
- Glass Passivated Chip

SCR's—Non Sensitive Gate


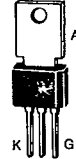
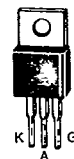
| TYPE | Part Number | | | | | IT | | VDRM & VRRM | IGT | | IDRM & IRRM | | | VTM | VGT | |
|---|---|---|---|---|---|----------------------------------|--------|---|--|--|-------------|-----|--|--|------------|-----|
| | Isolated | | Non-Isolated | | | Maximum On-State Current (1) (2) | | Repetitive Peak Off-State Forward & Reverse Voltage | DC Gate-Trigger Current VD = 12 VDC RL = 60Ω (4) (12) | Peak Off-State Forward & Reverse Current @ VDRM & VRRM | | | Peak On-State Voltage at Max Rated RMS Current TC = 25°C (3) | DC Gate-Trigger Voltage VD = 12 VDC RL = 60Ω (8) (13) | | |
| |  |  |  |  |  | Amps | | | | mA | | | | Volts | | |
| | TO-92 | TO-220AB | TO-202AB | TO-202AB | NON-ISOLATED TO-220AB | IT(RMS) | IT(AV) | Volts | | mV | | | Volts | TC = 25°C | TC = 125°C | |
| FOR DIMENSIONAL OUTLINES & PACKAGE VARIATIONS SEE PAGE 67 | | | | | | MAX | MAX | MIN | MIN | MAX | MAXIMUM | | | MAX | MAX | MIN |
| 1 Amp | | S031E | | | | 1.0 | 0.64 | 30 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S051E | | | | 1.0 | 0.64 | 50 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S101E | | | | 1.0 | 0.64 | 100 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S201E | | | | 1.0 | 0.64 | 200 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S401E | | | | 1.0 | 0.64 | 400 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S601E | | | | 1.0 | 0.64 | 600 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| 1.6 Amps | | S0301L | | | | 1.6 | 1.0 | 30 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S0501L | | | | 1.6 | 1.0 | 50 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S1001L | | | | 1.6 | 1.0 | 100 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S2001L | | | | 1.6 | 1.0 | 200 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S4001L | | | | 1.6 | 1.0 | 400 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S6001L | | | | 1.6 | 1.0 | 600 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| 3 Amps | | S0303L | | | | 3.0 | 1.9 | 30 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S0503L | | | | 3.0 | 1.9 | 50 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S1003L | | | | 3.0 | 1.9 | 100 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S2003L | | | | 3.0 | 1.9 | 200 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S4003L | | | | 3.0 | 1.9 | 400 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S6003L | | | | 3.0 | 1.9 | 600 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| 4 Amps | | | S0304F1 | S0304N1 | | 4.0 | 2.5 | 30 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | | S0504F1 | S0504N1 | | 4.0 | 2.5 | 50 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | | S1004F1 | S1004N1 | | 4.0 | 2.5 | 100 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | | S2004F1 | S2004N1 | | 4.0 | 2.5 | 200 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | | S4004F1 | S4004N1 | | 4.0 | 2.5 | 400 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | | S6004F1 | S6004N1 | | 4.0 | 2.5 | 600 | 1 | 10 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| 6 Amps | | S0306L | S0306F1 | | | 6.0 | 3.8 | 30 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S0506L | S0506F1 | | | 6.0 | 3.8 | 50 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S1006L | S1006F1 | | | 6.0 | 3.8 | 100 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S2006L | S2006F1 | | | 6.0 | 3.8 | 200 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S4006L | S4006F1 | | | 6.0 | 3.8 | 400 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S6006L | S6006F1 | | | 6.0 | 3.8 | 600 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| 8 Amps | | S0308L | S0308F1 | | S0308R | 8.0 | 5.1 | 30 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S0508L | S0508F1 | | S0508R | 8.0 | 5.1 | 50 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S1008L | S1008F1 | | S1008R | 8.0 | 5.1 | 100 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S2008L | S2008F1 | | S2008R | 8.0 | 5.1 | 200 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S4008L | S4008F1 | | S4008R | 8.0 | 5.1 | 400 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | S6008L | S6008F1 | | S6008R | 8.0 | 5.1 | 600 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | | | | C122F | 8.0 | 5.1 | 50 | | 25 | 0.1 | 0.5 | | 1.83 | 1.5 | 0.2 |
| | | | | | C122A | 8.0 | 5.1 | 100 | | 25 | 0.1 | 0.5 | | 1.83 | 1.5 | 0.2 |
| | | | | | C122B | 8.0 | 5.1 | 200 | | 25 | 0.1 | 0.5 | | 1.83 | 1.5 | 0.2 |
| | | | | | C122C | 8.0 | 5.1 | 300 | | 25 | 0.1 | 0.5 | | 1.83 | 1.5 | 0.2 |
| | | | | | C122D | 8.0 | 5.1 | 400 | | 25 | 0.1 | 0.5 | | 1.83 | 1.5 | 0.2 |
| | | | | | C122E | 8.0 | 5.1 | 500 | | 25 | 0.1 | 0.5 | | 1.83 | 1.5 | 0.2 |
| | | | | C122M | 8.0 | 5.1 | 600 | | 25 | 0.1 | 0.5 | | 1.83 | 1.5 | 0.2 | |

GENERAL NOTES

- Teccor's 2N6394 Series, 2N6400 Series, and 2N6504 Series devices conform to all JEDEC registered data.
- All measurements are made at 60 Hz with a resistive load at an ambient temperature of +25°C unless otherwise specified.
- Operating temperature range (TJ) is -65°C to +125°C for TO-92 devices, 0°C to +125°C for Fastpak, and -40°C to +125°C for all other packages.

- Storage temperature range (TS) is -65°C to +150°C for TO-92 devices, -40°C to +150°C for TO-202 and TO-220 devices, -20°C to +125°C for Fastpak and -40°C to +125°C for all others.
- Lead solder temperature is a maximum of 230°C for 10 seconds maximum; 1/16" from case.
- The case temperature (TC) is measured as shown on dimensional outline drawings. See "package dimensions" section of catalog.

SCR's—Non Sensitive Gate

| TYPE | Part Number | | | IT | | VDRM & VRRM | IGT | | IDRM & IRRM | | | VTM | VGT | |
|---|---|---|---|---------|--------|---|---|--|-------------|------------|--|---|------------|-----|
| | Isolated | Non-Isolated | | Amps | | Repetitive Peak Off-State Forward & Reverse Voltage | DC Gate-Trigger Current VD = 12 VDC RL = 60Ω (4) | Peak Off-State Forward & Reverse Current @ VDRM & VRRM | | | Peak On-State Voltage at Max Rated RMS Current TC = 25°C (3) | DC Gate-Trigger Voltage VD = 12 VDC RL = 60Ω (8) | | |
| |  |  |  | IT(RMS) | IT(AV) | | | mA | | | | Volts | | |
| | TO-220AB | TO-202AB | NON-ISOLATED TO-220AB | | | Volts | mA | TC = 25°C | TC = 100°C | TC = 125°C | Volts | TC = 25°C | TC = 125°C | |
| FOR DIMENSIONAL OUTLINES & PACKAGE VARIATIONS SEE PAGE 67 | | | | MAX | MAX | MIN | MIN | MAX | MAXIMUM | | | MAX | MAX | MIN |
| 10 Amps | S0310L | S0310F1 | | 10 | 6.4 | 30 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | S0510L | S0510F1 | | 10 | 6.4 | 50 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | S1010L | S1010F1 | | 10 | 6.4 | 100 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | S2010L | S2010F1 | | 10 | 6.4 | 200 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | S4010L | S4010F1 | | 10 | 6.4 | 400 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | S6010L | S6010F1 | | 10 | 6.4 | 600 | 1 | 15 | .01 | 0.2 | 0.5 | 1.6 | 1.5 | 0.2 |
| | | | S2800F | 10 | 6.4 | 50 | | 15 | | 2.0 | | 2.0* | 1.5 | |
| | | | S2800A | 10 | 6.4 | 100 | | 15 | | 2.0 | | 2.0* | 1.5 | |
| | | | S2800B | 10 | 6.4 | 200 | | 15 | | 2.0 | | 2.0* | 1.5 | |
| | | | S2800C | 10 | 6.4 | 300 | | 15 | | 2.0 | | 2.0* | 1.5 | |
| 12 Amps | S0312L | | S0312R | 12 | 7.6 | 30 | 1 | 20 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S0512L | | S0512R | 12 | 7.6 | 50 | 1 | 20 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S1012L | | S1012R | 12 | 7.6 | 100 | 1 | 20 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S2012L | | S2012R | 12 | 7.6 | 200 | 1 | 20 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S4012L | | S4012R | 12 | 7.6 | 400 | 1 | 20 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S6012L | | S6012R | 12 | 7.6 | 600 | 1 | 20 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | 2N6394 | 12 | 7.6 | 50 | | 30 | .01 | | 2.0 | 2.2 | 1.5 | 0.2 |
| | | | 2N6395 | 12 | 7.6 | 100 | | 30 | .01 | | 2.0 | 2.2 | 1.5 | 0.2 |
| | | | 2N6396 | 12 | 7.6 | 200 | | 30 | .01 | | 2.0 | 2.2 | 1.5 | 0.2 |
| | | | 2N6397 | 12 | 7.6 | 400 | | 30 | .01 | | 2.0 | 2.2 | 1.5 | 0.2 |
| 15 Amps | S0315L | | | 15 | 9.5 | 30 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S0515L | | | 15 | 9.5 | 50 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S1015L | | | 15 | 9.5 | 100 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S2015L | | | 15 | 9.5 | 200 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S4015L | | | 15 | 9.5 | 400 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S6015L | | | 15 | 9.5 | 600 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| 16 Amps | | | S0316R | 16 | 10 | 30 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | S0516R | 16 | 10 | 50 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | S1016R | 16 | 10 | 100 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | S2016R | 16 | 10 | 200 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | S4016R | 16 | 10 | 400 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | S6016R | 16 | 10 | 600 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | 2N6400 | 16 | 10 | 50 | | 30 | .01 | | 2.0 | 1.7 | 1.5 | 0.2 |
| | | | 2N6401 | 16 | 10 | 100 | | 30 | .01 | | 2.0 | 1.7 | 1.5 | 0.2 |
| | | | 2N6402 | 16 | 10 | 200 | | 30 | .01 | | 2.0 | 1.7 | 1.5 | 0.2 |
| | | | 2N6403 | 16 | 10 | 400 | | 30 | .01 | | 2.0 | 1.7 | 1.5 | 0.2 |
| 20 Amps | | | 2N6404 | 16 | 10 | 600 | | 30 | .01 | | 2.0 | 1.7 | 1.5 | 0.2 |
| | S0320L | | | 20 | 13 | 30 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S0520L | | | 20 | 13 | 50 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S1020L | | | 20 | 13 | 100 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S2020L | | | 20 | 13 | 200 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | S4020L | | | 20 | 13 | 400 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |
| | | | S6020L | 20 | 13 | 600 | 1 | 30 | .01 | 0.5 | 1.0 | 1.6 | 1.5 | 0.2 |

*VTM @ IT = 30Apk





GENERAL NOTES

- Teccor's 2N6394 Series, 2N6400 Series, and 2N6504 Series devices conform to all JEDEC registered data.
- All measurements are made at 60 Hz with a resistive load at an ambient temperature of +25°C unless otherwise specified.
- Operating temperature range (TJ) is -65°C to +125°C for TO-92 devices, 0°C to +125°C for Fastpak, and -40°C to +125°C for all other packages.
- Storage temperature range (TS) is -65°C to +150°C for TO-92 devices, -40°C to +150°C for TO-202 and TO-220 devices, -20°C to +125°C for Fastpaks and -40°C to +125°C for all others.
- Lead solder temperature is a maximum of 230°C for 10 seconds maximum; 1/16" from case.
- The case temperature (TC) is measured as shown on dimensional outline drawings. See "package dimensions" section of catalog.

NOTES FOR JEDEC DEVICES

- 2N6400-6405 series of devices also conform to the following specifications
 - Maximum VGT = 2.5 volts @ -40°C
 - Maximum IH = 60 milliamps @ -40°C
- 2N6504-6508 series of devices also conform to the following specifications:
 - Maximum VGT = 1.5 volts @ -40°C
 - Maximum IGT = 75 milliamps @ -40°C
 - Maximum IH = 40 milliamps @ -40°C

SCR's—Non Sensitive Gate

| TYPE | Part Number | | | | | IT | | VDRM & VRRM | | IGT | | IDRM & IRRM | | | VTM | | VGT | |
|---|---|---|-----------------------|---|---|--------------------------------------|--|---|--|--------|-----------|---|--|------------|-----------|------------|-----|--|
| | Isolated | | FASTPAK TO-3 BASE | Non-Isolated | | Maximum On-State Current (1) Amps | Repetitive Peak Off-State Forward & Reverse Voltage Volts | DC Gate-Trigger Current VD = 12 VDC RL = 60Ω (4) mA | Peak Off-State Forward & Reverse Current @ VDRM & VRRM mA | | | Peak On-State Voltage at Max Rated RMS Current TC = 25°C (3) Volts | DC Gate-Trigger Voltage VD = 12 VDC RL = 60Ω (8) Volts | | | | | |
| |  |  | |  |  | | | | IT(RMS) | IT(AV) | TC = 25°C | | TC = 100°C | TC = 125°C | TC = 25°C | TC = 125°C | | |
| | TO-220AB | TO-218 | NON-ISOLATED TO-220AB | NON-ISOLATED TO-218 | | | | | | | | | | | | | | |
| FOR DIMENSIONAL OUTLINES & PACKAGE VARIATIONS SEE PAGE 67 | | | | | | MAX | MAX | MIN | MIN | MAX | MAXIMUM | | | MAX | MAX | MIN | | |
| 25 Amps | | S0325L | | S0325R | 25 | 16 | 30 | 1 | 30 | .01 | 1.0 | 2.0 | 1.6 | 1.5 | 0.2 | | | |
| | | S0525L | | S0525R | 25 | 16 | 50 | 1 | 30 | .01 | 1.0 | 2.0 | 1.6 | 1.5 | 0.2 | | | |
| | | S1025L | | S1025R | 25 | 16 | 100 | 1 | 30 | .01 | 1.0 | 2.0 | 1.6 | 1.5 | 0.2 | | | |
| | | S2025L | | S2025R | 25 | 16 | 200 | 1 | 30 | .01 | 1.0 | 2.0 | 1.6 | 1.5 | 0.2 | | | |
| | | S4025L | | S4025R | 25 | 16 | 400 | 1 | 30 | .01 | 1.0 | 2.0 | 1.6 | 1.5 | 0.2 | | | |
| | | S6025L | | S6025R | 25 | 16 | 600 | 1 | 30 | .01 | 1.0 | 2.0 | 1.6 | 1.5 | 0.2 | | | |
| | | | | 2N6504 | 25 | 16 | 50 | | 40 | .01 | | 2.0 | 1.8 | | | 0.2 | | |
| | | | | 2N6505 | 25 | 16 | 100 | | 40 | .01 | | 2.0 | 1.8 | | | 0.2 | | |
| | | | | 2N6506 | 25 | 16 | 200 | | 40 | .01 | | 2.0 | 1.8 | | | 0.2 | | |
| | | | | 2N6507 | 25 | 16 | 400 | | 40 | .01 | | 2.0 | 1.8 | | | 0.2 | | |
| | | | 2N6508 | 25 | 16 | 600 | | 40 | .01 | | 2.0 | 1.8 | | | 0.2 | | | |
| 35 Amps | | S0335J | | S0335W | 35 | 22 | 30 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S0535J | | S0535W | 35 | 22 | 50 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S1035J | | S1035W | 35 | 22 | 100 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S2035J | | S2035W | 35 | 22 | 200 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S4035J | | S4035W | 35 | 22 | 400 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S6035J | | S6035W | 35 | 22 | 600 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| 50 Amps | | S0550J | | | 50 | 32 | 50 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S1050J | | | 50 | 32 | 100 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S2050J | | | 50 | 32 | 200 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S4050J | | | 50 | 32 | 400 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | S6050J | | | 50 | 32 | 600 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| 55 Amps | | | | S0555W | 55 | 35 | 50 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | | | S1055W | 55 | 35 | 100 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | | | S2055W | 55 | 35 | 200 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | | | S4055W | 55 | 35 | 400 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| | | | | S6055W | 55 | 35 | 600 | 5 | 40 | .01 | 1.0 | 2.0 | 1.8 | 1.5 | 0.2 | | | |
| 65 Amps | | | | S0565P | 65 | 41 | 50 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S1065P | 65 | 41 | 100 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S2065P | 65 | 41 | 200 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S4065P | 65 | 41 | 400 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S6065P | 65 | 41 | 600 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | S0565J | | | 65 | 41 | 50 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | S1065J | | | 65 | 41 | 100 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | S2065J | | | 65 | 41 | 200 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | S4065J | | | 65 | 41 | 400 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | S6065J | | | 65 | 41 | 600 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| 70 Amps | | | | S0570W | 70 | 45 | 50 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S1070W | 70 | 45 | 100 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S2070W | 70 | 45 | 200 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S4070W | 70 | 45 | 400 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |
| | | | | S6070W | 70 | 45 | 600 | 5 | 50 | .02 | 1.5 | 3.0 | 1.8 | 2.0 | 0.2 | | | |

GENERAL NOTES

- Teccor's 2N6394 Series, 2N6400 Series, and 2N6504 Series devices conform to all JEDEC registered data.
- All measurements are made at 60 Hz with a resistive load at an ambient temperature of +25°C unless otherwise specified.
- Operating temperature range (TJ) is -65°C to +125°C for TO-92 devices, 0°C to +125°C for Fastpak, and -40°C to +125°C for all other packages.
- Storage temperature range (TS) is -65°C to +150°C for TO-92 devices, -40°C to +150°C for TO-202 and TO-220 devices, -20°C to +125°C for Fastpaks, and -40°C to +125°C for all others.
- Lead solder temperature is a maximum of 230°C for 10 seconds maximum; 1/16" from case.
- The case temperature (TC) is measured as shown on dimensional outline drawings. See "package dimensions" section of catalog.

NOTES FOR JEDEC DEVICES

- 2N6400-6405 series of devices also conform to the following specifications
 - Maximum VGT = 2.5 volts @ -40°C
 - Maximum IH = 60 milliamps @ -40°C
- 2N6504-6508 series of devices also conform to the following specifications
 - Maximum VGT = 1.5 volts @ -40°C
 - Maximum IGT = 75 milliamps @ -40°C
 - Maximum IH = 40 milliamps @ -40°C

Electrical Specifications









| IH | IGM | PGM | PG(AV) | ITSM | | dv/dt | | I ² t | di/dt | t _{gt} | t _q |
|-----|------|-------|--------|------|------|------------|------------|-----------------------|-------|-----------------|----------------|
| | | | | Amps | | Volts/μs | | | | | |
| | | | | 60Hz | 50Hz | TC = 100°C | TC = 125°C | | | | |
| mA | Amps | Watts | Watts | MAX | MAX | MIN | MIN | Amps ² sec | μs | μs | μs |
| MAX | | | | MAX | MAX | MIN | MIN | | | MAX | MAX |
| 40 | 3.5 | 35 | 0.8 | 350 | 300 | 250 | 175 | 510 | 150 | 2.0 | 35 |
| 40 | 3.5 | 35 | 0.8 | 350 | 300 | 250 | 175 | 510 | 150 | 2.0 | 35 |
| 40 | 3.5 | 35 | 0.8 | 350 | 300 | 250 | 175 | 510 | 150 | 2.0 | 35 |
| 40 | 3.5 | 35 | 0.8 | 350 | 300 | 250 | 175 | 510 | 150 | 2.0 | 35 |
| 40 | 3.5 | 35 | 0.8 | 350 | 300 | 250 | 175 | 510 | 150 | 2.0 | 35 |
| 40 | 3.5 | 35 | 0.8 | 350 | 300 | 200 | 150 | 510 | 150 | 2.0 | 35 |
| | 2.0 | 20 | 0.5 | 300 | 255 | | | 375 | 150 | 2.0 | |
| | 2.0 | 20 | 0.5 | 300 | 255 | | | 375 | 150 | 2.0 | |
| | 2.0 | 20 | 0.5 | 300 | 255 | | | 375 | 150 | 2.0 | |
| | 2.0 | 20 | 0.5 | 300 | 255 | | | 375 | 150 | 2.0 | |
| | 2.0 | 20 | 0.5 | 300 | 255 | | | 375 | 150 | 2.0 | |
| | 2.0 | 20 | 0.5 | 300 | 255 | | | 375 | 150 | 2.0 | |
| 50 | 3.5 | 35 | 0.8 | 500 | 425 | 250 | 175 | 1035 | 150 | 2.0 | 35 |
| 50 | 3.5 | 35 | 0.8 | 500 | 425 | 250 | 175 | 1035 | 150 | 2.0 | 35 |
| 50 | 3.5 | 35 | 0.8 | 500 | 425 | 250 | 175 | 1035 | 150 | 2.0 | 35 |
| 50 | 3.5 | 35 | 0.8 | 500 | 425 | 250 | 175 | 1035 | 150 | 2.0 | 35 |
| 50 | 3.5 | 35 | 0.8 | 500 | 425 | 250 | 175 | 1035 | 150 | 2.0 | 35 |
| 50 | 3.5 | 35 | 0.8 | 500 | 425 | 200 | 150 | 1035 | 150 | 2.0 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 375 | 250 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 425 | 300 | 1750 | 175 | 2.5 | 35 |
| 50 | 4.0 | 40 | 0.8 | 650 | 550 | 375 | 250 | 1750 | 175 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 900 | 750 | 425 | 300 | 3360 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 900 | 750 | 425 | 300 | 3360 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 900 | 750 | 425 | 300 | 3360 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 900 | 750 | 425 | 300 | 3360 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 900 | 750 | 375 | 250 | 3360 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 375 | 250 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 425 | 300 | 3745 | 200 | 2.5 | 35 |
| 50 | 5.0 | 50 | 1.0 | 950 | 800 | 375 | 250 | 3745 | 200 | 2.5 | 35 |

NOTES TO ELECTRICAL SPECIFICATIONS

- (1) See Figures 2 and 3 for current rating at specified operating case temperature.
- (2) See Figure 1 for free air current rating
- (3) See Figure 6 for instantaneous on-state current vs on-state voltage (typical)
- (4) See Figure 5 for I_{GT} vs TC.
- (5) See Figure 4 for I_H vs TC.
- (6) For more than one full cycle rating, see Figure 9.
- (7) See Figure 8 for t_{gt} vs I_{GT}.
- (8) See Figure 7 for V_{GT} vs TC.

- (9) Test conditions are as follows: I_T = 1 amp for ≤ 1.6 amp devices and 2 amp for ≥ 3 amp devices. Pulse duration = 50 μsec, dv/dt = 20 V/μs, di/dt = -10 amps/μs for ≤ 1.6 amp devices, and -30 amps/μs for ≥ 3 amp devices. I_{GT} = 200 mA @ turn-on
- (10) See Figure 2 (A, B, C, D, E) for maximum allowable case temperatures @ maximum rated current.
- (11) Pulse width ≤ 3 μs.
- (12) I_{GT} = 40 mA maximum @ -40°C for C122 devices.
- (13) V_{GT} = 2.0 V maximum @ -40°C for C122 devices.
- (14) Initial on-state current = 200 mA (DC) for 1 to 20 amp devices, 400 mA (DC) for 25 to 70 amp devices.

SCR's—Non Sensitive Gate

| THERMAL RESISTANCE (STEADY STATE) | | | | | | | | |
|--|---|---|---|---|--|---|---|---|
| $R_{\theta JC}/R_{\theta JA} \text{ } ^\circ\text{C/W (TYP.)}$ | | | | | | | | |
| TYPE |  |  |  |  |  |  |  |  |
| | PLASTIC TO-92 | THERMOTAB TO-220AB | TYPE 1 TO-202 | TYPE 2 TO-202 | NON-ISOLATED TO-220AB | ISOLATED TO-218X | NON-ISOLATED TO-218X | FASTPAK TO-3 BASE |
| 1.0 Amp | 50/145 | | | | | | | |
| 1.6 Amp | | 6.7 | | | | | | |
| 3.0 Amp | | 6.3/50 | | | | | | |
| 4.0 Amp | | | 5.6/45 | 9.5/70 | | | | |
| 6.0 Amp | | 4.0 | 4.3 | | | | | |
| 8.0 Amp | | 3.4 | 3.9 | | 2.1/40 | | | |
| 10.0 Amp | | 3.0 | 3.4 | | 1.9 | | | |
| 12.0 Amp | | 2.1 | | | 1.7 | | | |
| 15.0 Amp | | 1.95 | | | | | | |
| 16.0 Amp | | | | | 1.5 | | | |
| 20.0 Amp | | 1.8 | | | | | | |
| 25 Amp | | 2.5 | | | 1.1 | | | |
| 35 Amp | | | | | | .70 | .50 | |
| 50 Amp | | | | | | .80 | | |
| 55 Amp | | | | | | | .53 | |
| 65 Amp | | | | | | .86 | | .80 |
| 70 Amp | | | | | | | .60 | |

ELECTRICAL ISOLATION

Most Teccor isolated SCR packages will withstand a minimum high potential test of 2500 VAC RMS from leads to case over the device's operating temperature range. See table for standard and optional isolation ratings.

| ELECTRICAL ISOLATION FROM LEADS TO CASE | | | | | |
|---|------|----------|-------------------|-----------------|----------|
| U.L. RECOGNIZED FILE #71639 | | | | | |
| VAC (RMS) | TYPE | TO-92 | ISOLATED TO-220AB | ISOLATED TO-218 | FASTPAK |
| 1600 | | Standard | — | — | — |
| 2500 | | No | Standard | Standard | Standard |
| 4000 | | No | Optional* | No | No |

*For 4000V Isolation Use "V" Suffix

FIGURE 1A — Maximum Allowable Ambient Temperature vs RMS On-State Current

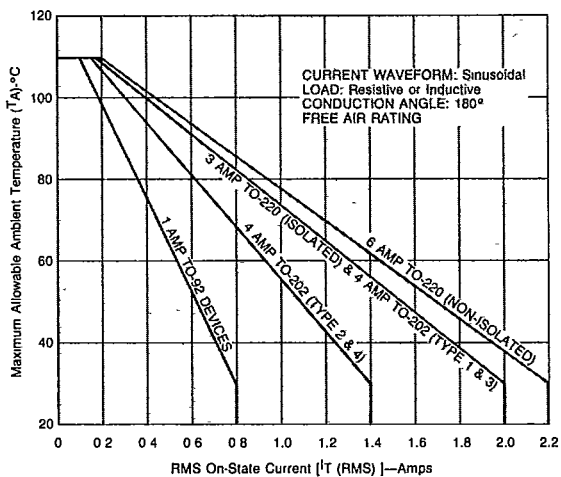
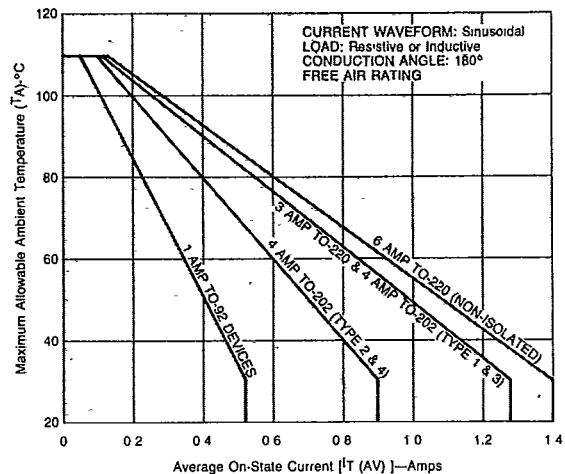


FIGURE 1B — Maximum Allowable Ambient Temperature vs Average On-State Current



SCR's—Non Sensitive Gate

FIGURE 2A — Maximum Allowable Case Temperature vs RMS On-State Current



FIGURE 2B — Maximum Allowable Case Temperature vs RMS On-State Current

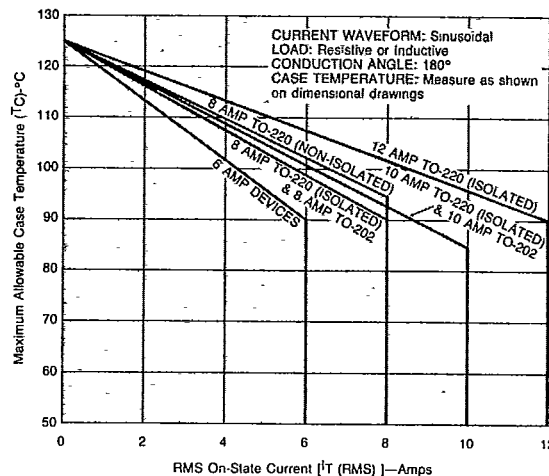


FIGURE 2C — Maximum Allowable Case Temperature vs RMS On-State Current



FIGURE 2D — Maximum Allowable Case Temperature vs RMS On-State Current

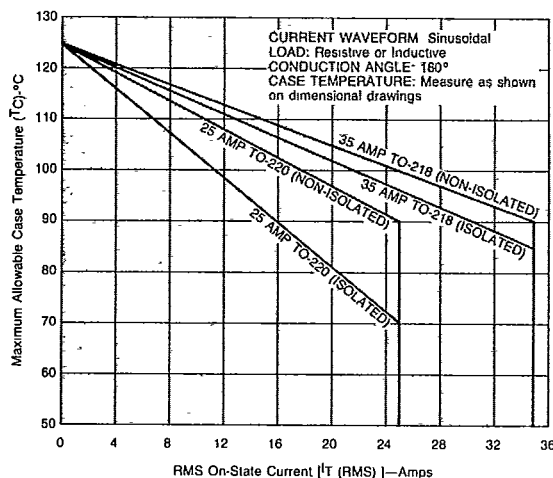
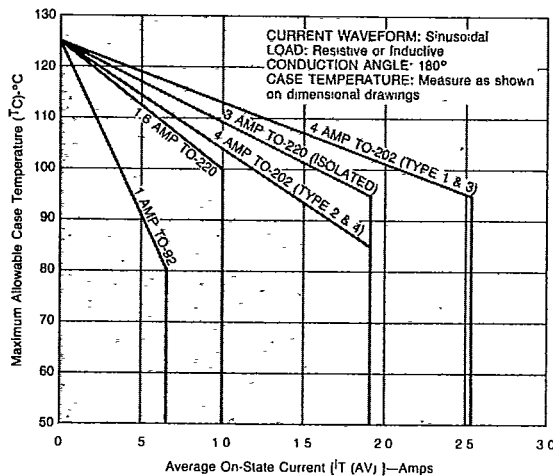


FIGURE 2E — Maximum Allowable Case Temperature vs RMS On-State Current



FIGURE 3A — Maximum Allowable Case Temperature vs Average On-State Current



SCR's—Non Sensitive Gate

FIGURE 3B — Maximum Allowable Case Temperature vs Average On-State Current



FIGURE 3C — Maximum Allowable Case Temperature vs Average On-State Current



FIGURE 3D — Maximum Allowable Case Temperature vs Average On-State Current

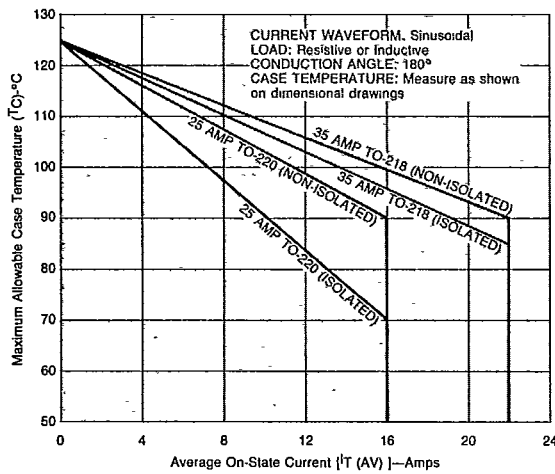


FIGURE 3E — Maximum Allowable Case Temperature vs Average On-State Current



FIGURE 4 — Normalized DC Holding Current vs Case Temperature



FIGURE 5 — Normalized DC Gate-Trigger Current vs Case Temperature



SCR's—Non Sensitive Gate

FIGURE 6A — Instantaneous On-State Current vs On-State Voltage (Typical)

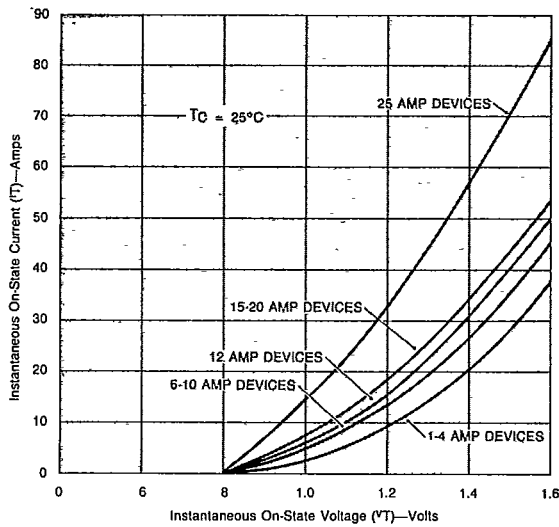


FIGURE 6B — Instantaneous On-State Current vs On-State Voltage (Typical)

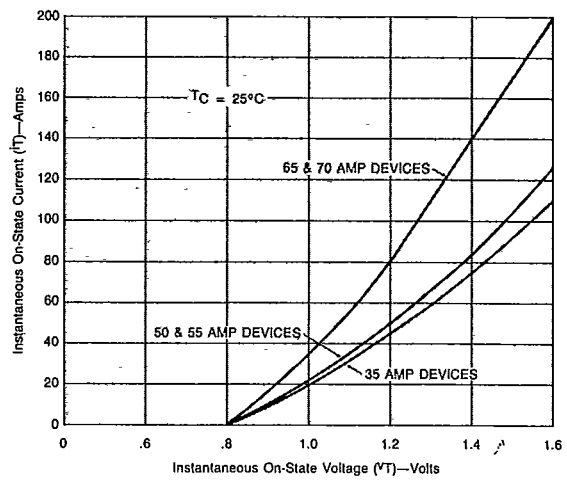


FIGURE 7 — Normalized DC Gate-Trigger Voltage vs Case Temperature

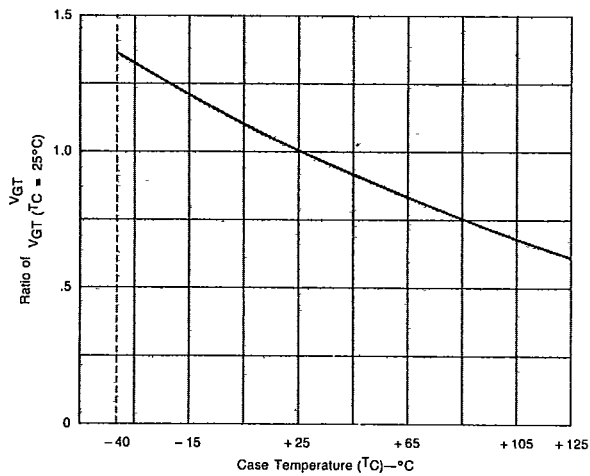


FIGURE 8 — Typical Turn-On Time vs Gate Trigger Current

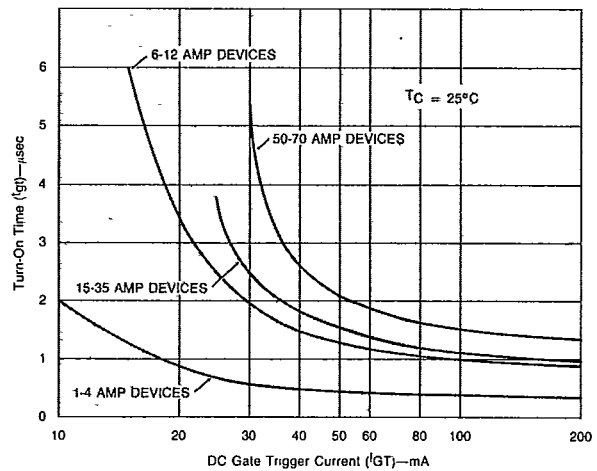


FIGURE 10A — Power Dissipation (Typical) vs RMS On-State Current

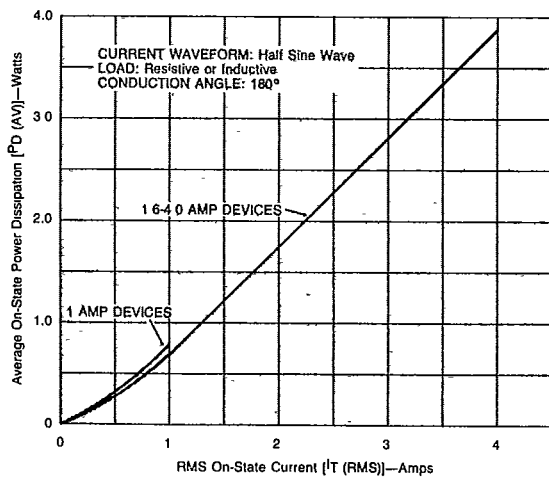
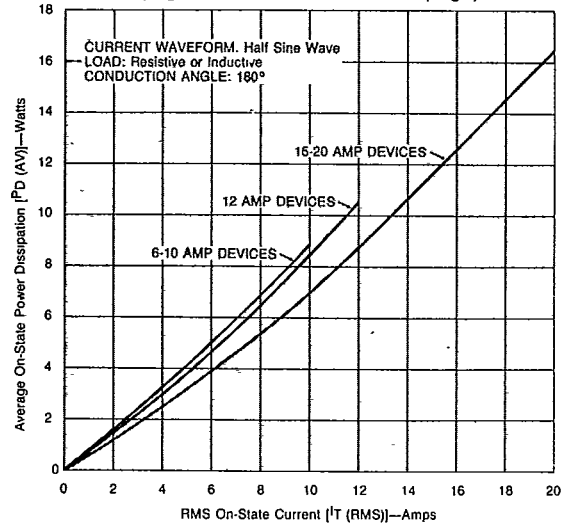


FIGURE 10B — Power Dissipation (Typical) vs RMS On-State Current
(Figures 10C & 10D on next page)



SCR's—Non Sensitive Gate

FIGURE 9 — Peak Surge Current vs Surge Current Duration



FIGURE 10C — Power Dissipation (Typical) vs RMS On-State Current

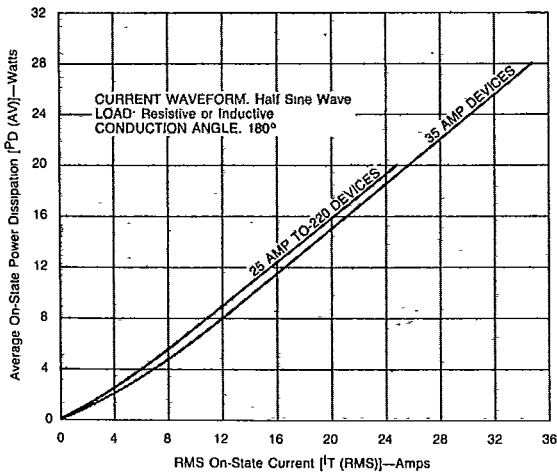


FIGURE 10D — Power Dissipation (Typical) vs RMS On-State Current

