

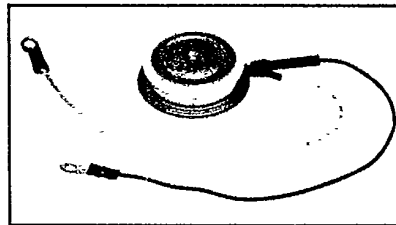
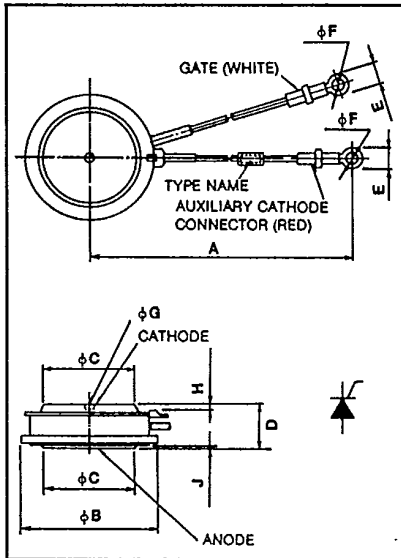


FT300DM

T-25-19

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
 300 Amperes Avg
 1400-1800 Volts



FT300DM
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 300 Amperes/1400-1800 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 nine digit part number you desire from the table - i.e. FT300DM-32 is a 1600 Volt, 300 Ampere Phase Control SCR.

FT300DM
 Outline Drawing

| Dimensions | Inches | Metric |
|-----------------|-------------|------------|
| A | 12.60 ± .30 | 320 ± 8 |
| φB | 1.968 Max | 50 Max |
| φC | 1.220 | 31 |
| D | .57 ± .02 | 14.5 ± 0.5 |
| E | .30 | 7.5 |
| φF | .169 | 4.3 |
| φG ¹ | .138 | 3.5 |
| H | .04 Min | 1.0 Min |
| J | .02 Min | .04 Min |

¹Depth .04 in. or 1 mm

| Type | Voltage* | | Current I _r (avg) |
|---------|--------------------------------------|------|---------------------------------|
| | V _{DRM} V _{RRM} | Code | |
| FT300DM | 1400 | -28 | 300 |
| | 1600 | -32 | |
| | 1800 | -36 | |

*Voltage classes 32 and 36 are standard products.



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Absolute Maximum Ratings

| | Symbol | FT300DM | Units |
|---|--------------|-------------------|--------------------|
| RMS On-State Current | $I_{T(RMS)}$ | 470 | Amperes |
| Average On-State Current | $I_{T(av)}$ | 300 | Amperes |
| Peak One-Cycle Surge (Non Repetitive) On-State Current (60Hz) | I_{TSM} | 7000 | Amperes |
| Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz) | I_{TSM} | 6400 | Amperes |
| Critical Rate-of-Rise of On-State Current (Non-Repetitive) | di/dt | 500 | Amperes/ μ s |
| Critical Rate-of-Rise of On-State Current (Repetitive) | di/dt | 200 | Amperes/ μ s |
| I^2t (for Fusing), one cycle at 60Hz | I^2t | 2.0×10^5 | A ² sec |
| Peak Gate Power Dissipation | P_{GM} | 10 | Watts |
| Average Gate Power Dissipation | $P_{G(av)}$ | 3 | Watts |
| Storage Temperature | T_{STG} | -40 to 150 | °C |
| Operating Temperature | T_J | -40 to 125 | °C |
| Mounting Force [ⓐ] | | 1760 to 2425 | lb. |
| Mounting Force [ⓐ] | | 800 to 1100 | kg |

[ⓐ] Consult recommended mounting procedures.



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Electrical and Thermal Characteristics

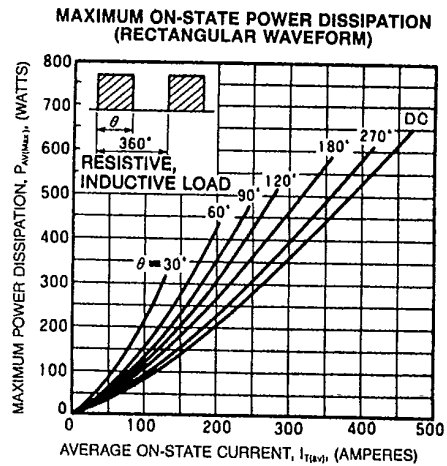
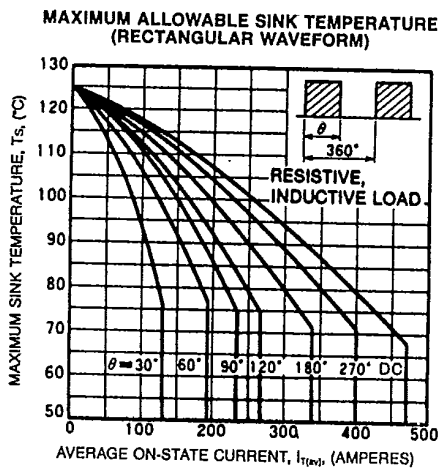
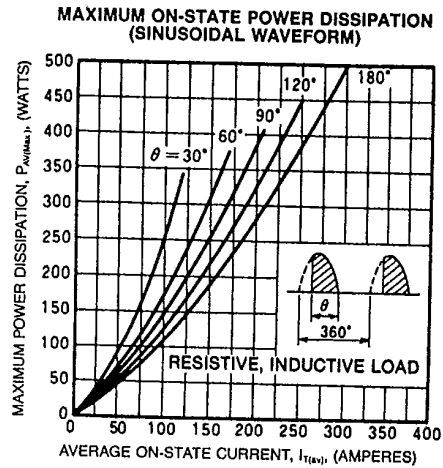
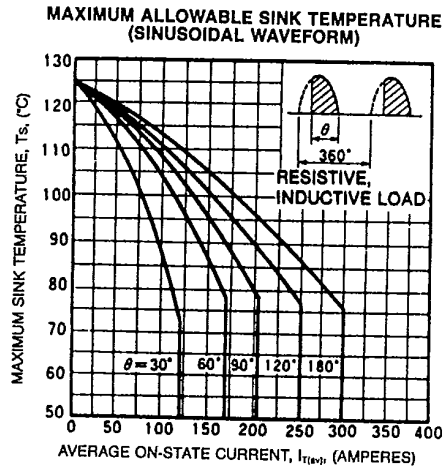
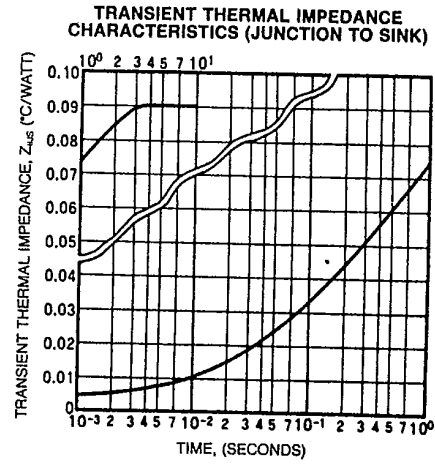
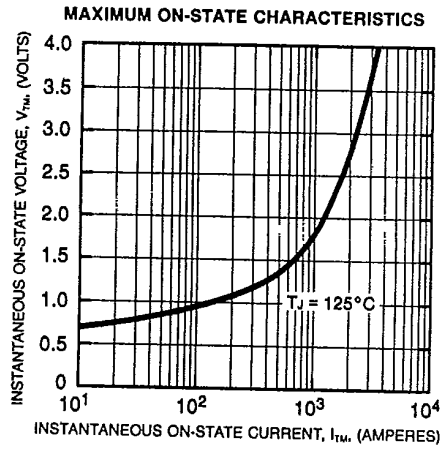
| Characteristics | Symbol | Test Conditions | FT300DM | Units |
|--|-----------------|--|---------|------------------------------|
| Voltage—Blocking State Maximums | | | | |
| Forward Leakage, Peak | I_{DRM} | $T_J = 125^\circ\text{C}$, V_{DRM} applied | 30 | mA |
| Reverse Leakage, Peak | I_{RRM} | $T_J = 125^\circ\text{C}$, V_{RRM} applied | 30 | mA |
| Current—Conducting State Maximums | | | | |
| Peak On-State Voltage | V_{TM} | $I_{TM} = 940\text{A}$, $T_J = 125^\circ\text{C}$ | 1.90 | Volts |
| Switching | | | | |
| Min. Critical dv/dt exponential to V_{DRM} | dv/dt | $T_J = 125^\circ\text{C}$, $V_D = \frac{1}{2}V_{DRM}$ | 350 | V/ μsec |
| Thermal | | | | |
| Maximum Thermal Resistance, [ⓐ] double sided cooling Junction to Sink | $R_{\theta JS}$ | | .09 | $^\circ\text{C}/\text{Watt}$ |
| Gate—Maximum Parameters | | | | |
| Gate Current to Trigger | I_{GT} | $V_D = 6\text{V}$, $T_J = 25^\circ\text{C}$, $R_L = 2\Omega$ | 200 | mA |
| Gate Voltage to Trigger | V_{GT} | $V_D = 6\text{V}$, $T_J = 25^\circ\text{C}$, $R_L = 2\Omega$ | 2.5 | Volts |
| Non-Triggering Gate Voltage | V_{GDM} | $T_J = 125^\circ\text{C}$, $V_D = 1/2V_{DRM}$ | .2 | Volts |
| Peak Forward Gate Current | I_{GTM} | | 4 | Amperes |
| Peak Reverse Gate Voltage | V_{GRM} | | 5 | Volts |

[ⓐ] Consult recommended mounting procedures.



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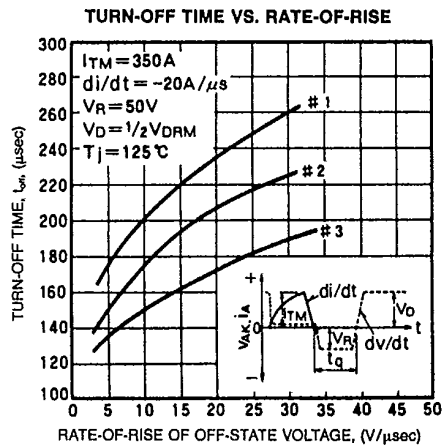
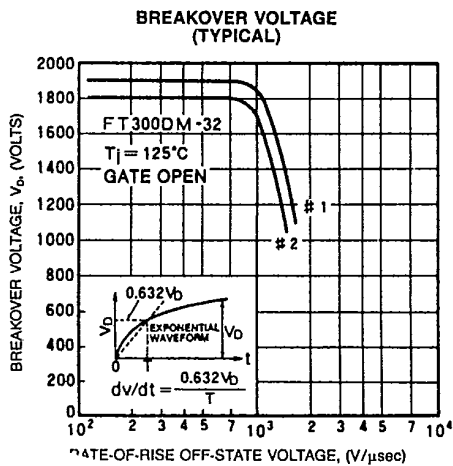
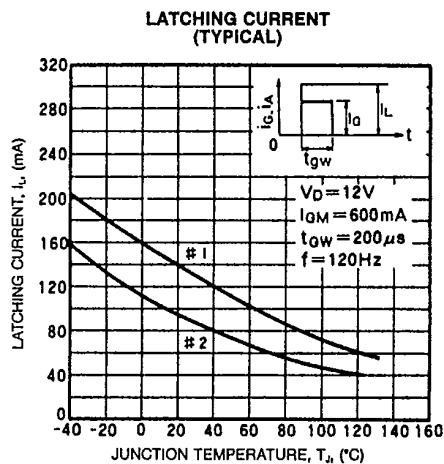
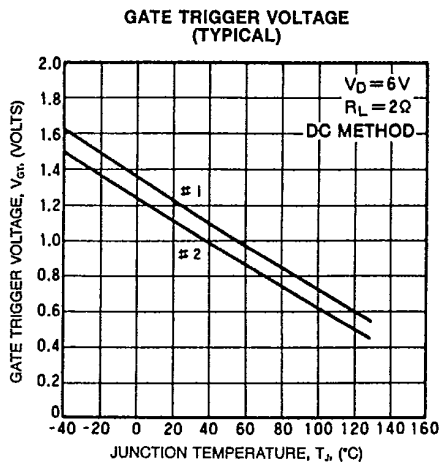
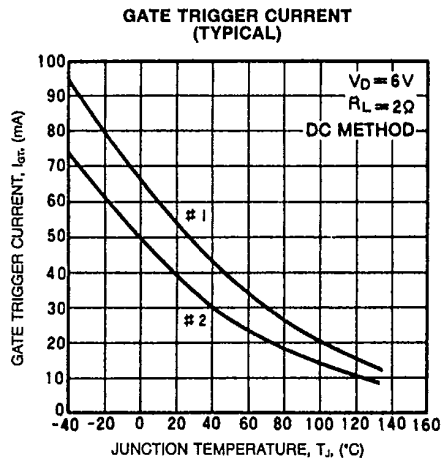
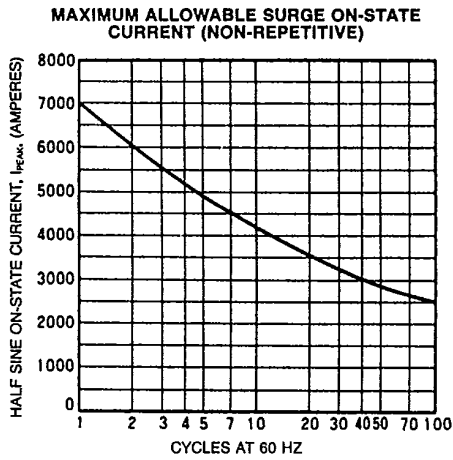
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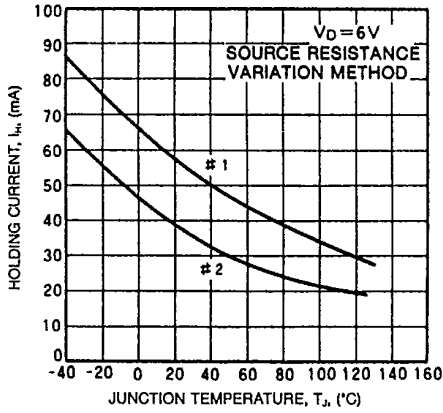




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HOLDING CURRENT (TYPICAL)



GATE CHARACTERISTICS

