





Powerex, Inc., Hills Street, Youngwood, Pennsylvania 15697 (412) 925-7272

Powerex Europe, S.A., 428 Ave. G. Durand, BP107, 72003 LeMans, France (43) 72.75.15

C350

Phase Control SCR

115 Amperes Avg/500-1300 Volts

### Absolute Maximum Ratings

	Symbol	C350	Units
RMS On-State Current	$I_{T(RMS)}$	180	Amperes
Average On-State Current	$I_{T(av)}$	115	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	$I_{TSM}$	1600	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	$I_{TSM}$	1480	Amperes
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	$di/dt$	800	Amperes/ $\mu$ s
Critical Rate-of-Rise of On-State Current (Repetitive)	$di/dt$	500	Amperes/ $\mu$ s
$I^2t$ (for Fusing), 8.3 milliseconds	$I^2t$	10,600	A <sup>2</sup> 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	°C
Operating Temperature	$T_J$	-40 to 125	°C
Mounting Force <sup>ⓐ</sup>		720 to 880	lb.
Mounting Force <sup>ⓐ</sup>		3.20 to 3.92	kN

<sup>ⓐ</sup> Consult recommended mounting procedures.



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## Electrical and Thermal Characteristics

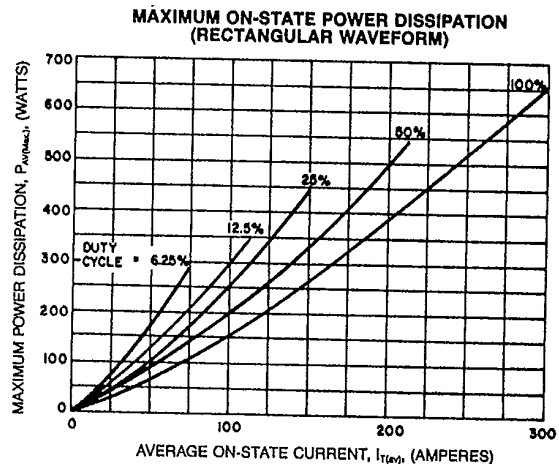
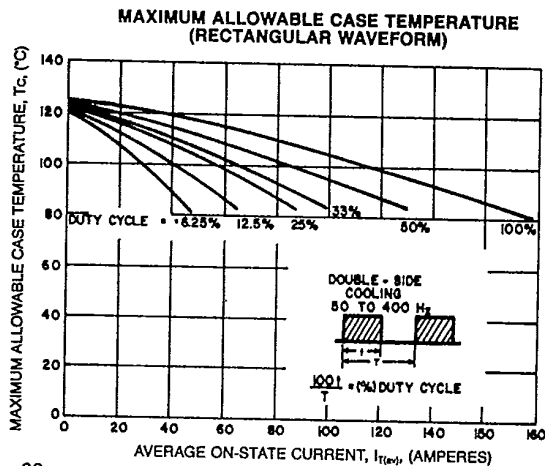
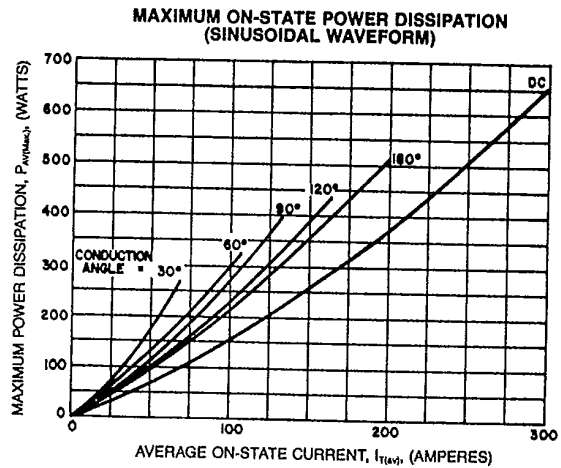
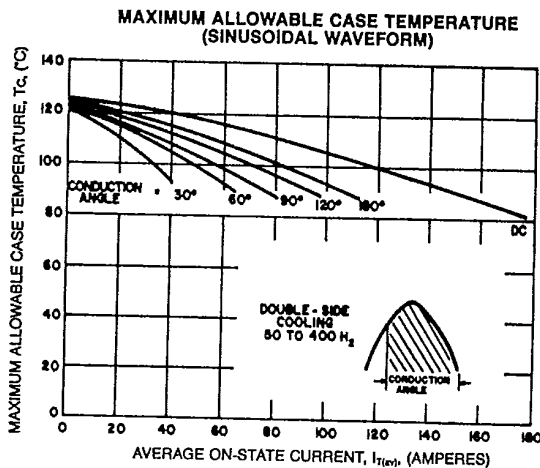
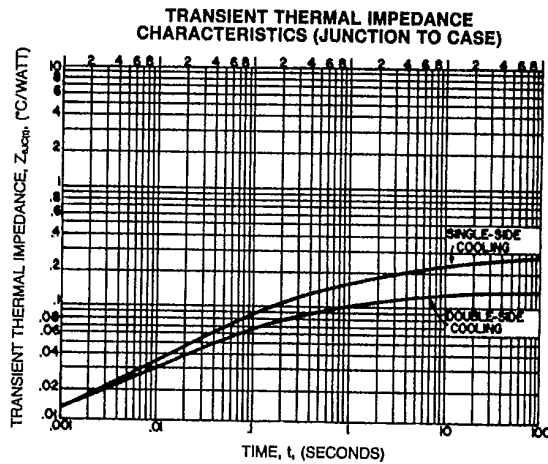
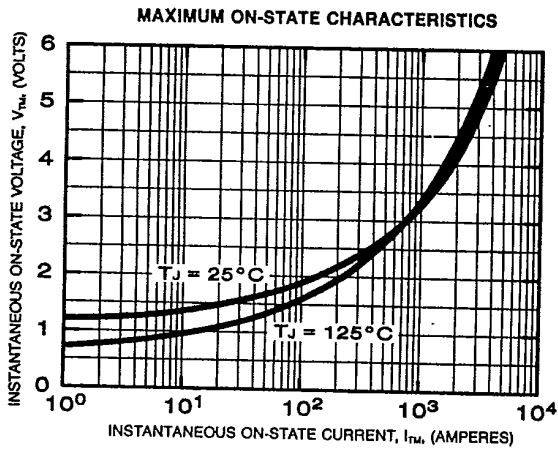
Characteristics	Symbol	Test Conditions	C350	Units
<b>Voltage—Blocking State Maximums</b>				
Forward Leakage, Peak	$I_{DRM}$	$T_J = 125^\circ\text{C}, V = V_{DRM}$	20	mA
Reverse Leakage, Peak	$I_{RRM}$	$T_J = 125^\circ\text{C}, V = V_{RRM}$	20	mA
<b>Current—Conducting State Maximums</b>				
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 500\text{A Peak}, T_C = 25^\circ\text{C}, \text{Duty Cycle} \leq 0.01\%$	2.6	Volts
<b>Switching</b>				
Typical Turn-Off Time	$t_q$	$T_J = 125^\circ\text{C}; I_{TM} = 50\text{ Amps Peak};$ $V_R = 50\text{ Volts Min.}; V_{DRM} = \text{Rated (Reapplied)};$ Rate-of-Rise of Reapplied Off-State Voltage = $20\text{V}/\mu\text{sec}$ (Linear); Gate Bias = 0 Volts, $100\Omega$ during Turn-Off Interval; Duty Cycle $\leq 0.01\%$	200	$\mu\text{sec}$
Typical Delay Time	$t_d$	$T_C = 25^\circ\text{C}, I_{TM} = 50\text{ A dc}, V_{DRM} = \text{Rated},$ Gate Supply: 10 Volt Open Circuit, 20 Ohm, 0.1 $\mu\text{sec}$ max. rise time	1.0	$\mu\text{sec}$
Min. Critical dv/dt exponential to $V_{DRM}$	dv/dt	$T_J = 125^\circ\text{C}, \text{Gate Open}$	200	V/ $\mu\text{sec}$
<b>Thermal</b>				
Maximum Thermal Resistance <sup>ⓐ</sup> , double sided cooling Junction to Case	$R_{\theta JC}$		.135	$^\circ\text{C}/\text{Watt}$
Case to Sink, Lubricated	$R_{\theta CS}$		.04	$^\circ\text{C}/\text{Watt}$
<b>Gate—Maximum Parameters</b>				
Gate Current to Trigger	$I_{GT}$	$V_D = 6\text{V}, T_C = 25^\circ\text{C}, R_L = 3\Omega$	150	mA
Gate Voltage to Trigger	$V_{GT}$	$V_D = 6\text{V}, R_L = 3\Omega, T_J = -40^\circ\text{C to } +120^\circ\text{C}$	3.0	Volts
Non-Triggerring Gate Voltage	$V_{GDM}$	$T_C = 120^\circ\text{C}, \text{Rated } V_{DRM}, R_L = 1000\Omega$	.15	Volts
Peak Forward Gate Current	$I_{GTM}$		10	Amperes
Peak Reverse Gate Voltage	$V_{GRM}$		5	Volts

<sup>ⓐ</sup> Consult recommended mounting procedures.



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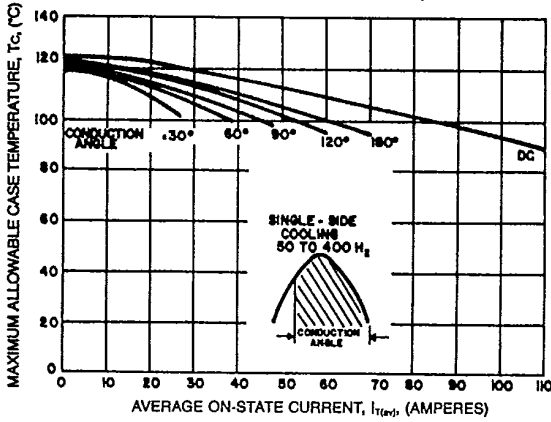




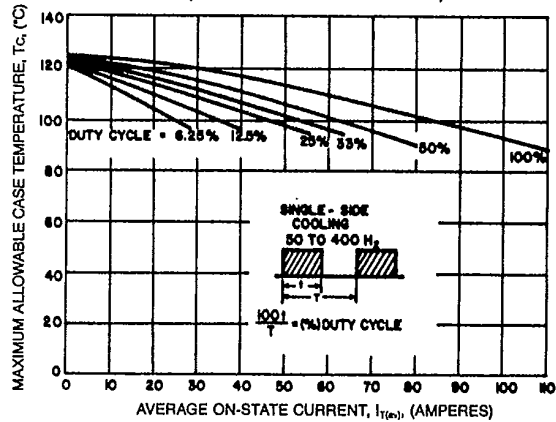
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MAXIMUM ALLOWABLE CASE TEMPERATURE  
 (SINUSOIDAL WAVEFORM)



MAXIMUM ALLOWABLE CASE TEMPERATURE  
 (RECTANGULAR WAVEFORM)



MAXIMUM ON-STATE POWER DISSIPATION  
 (SINUSOIDAL WAVEFORM EXTENDED)

