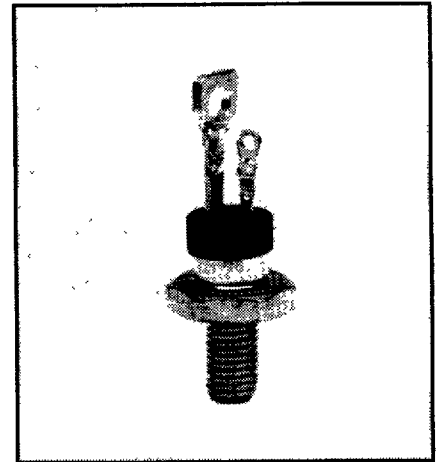
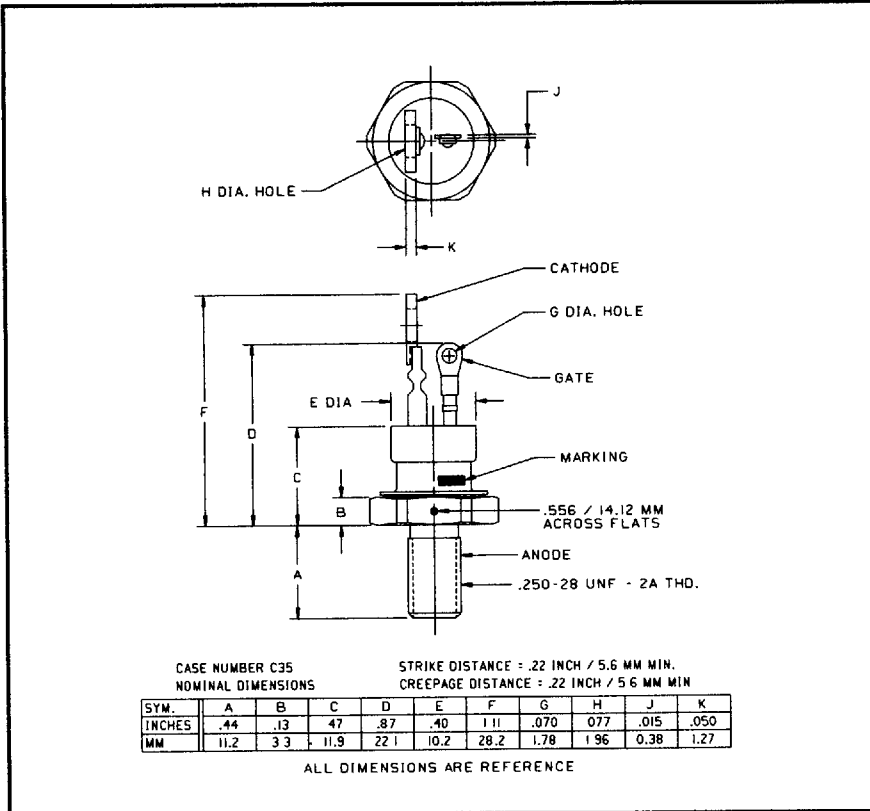


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Phase Control SCR
35 Amperes Average
1200 Volts

POWEREX INC



C137
Phase Control SCR
35 Amperes Average, 1200 Volts

C137 (Outline Drawing)

Ordering Information:

Select the complete five or six digit part number you desire from the table, i.e. C137PB is a 1200 Volt, 35 Ampere Phase Control SCR.

Type	Voltage		Current $I_T(av)$
	V_{RRM}	Code	
C137	500	E	35
	600	M	
	700	S	
	800	N	
	900	T	
	1000	P	
	1200	PB	

Features:

- Minimum dv/dt Rating of 100 V/ μ sec
- Maximum di/dt Rating of 150 A/ μ sec When Switching from 600V
- High Surge Current Capability for Overcurrent Protection

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C137**Phase Control SCR**

35 Amperes Average, 1200 Volts

Absolute Maximum Ratings

Characteristics	Symbol	C137	Units
RMS Forward Current	$I_T(\text{rms})$	35	Amperes
Average Forward Current	$I_T(\text{av})$	—	Amperes
One Cycle Surge Current	I_{TSM}	10	Amperes
Minimum Rate of Rise of On-State Current (Non-repetitive)	di/dt	75	Amperes/ μs
i^2t (for Fusing), Time = 1.0 milliseconds	i^2t	300	A^2sec
i^2t (for Fusing), Time = 8.3 milliseconds	i^2t	540	A^2sec
Peak Gate Power Dissipation	P_{GM}	60	Watts
Average Gate Power Dissipation	$P_{G(\text{av})}$	1.0	Watts
Storage Temperature	T_{stg}	to +150	$^{\circ}\text{C}$
Operating Temperature	T_j	to +125	$^{\circ}\text{C}$
Mounting Torque		30	in-lb
		35	cm-Kg

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C137

Phase Control SCR

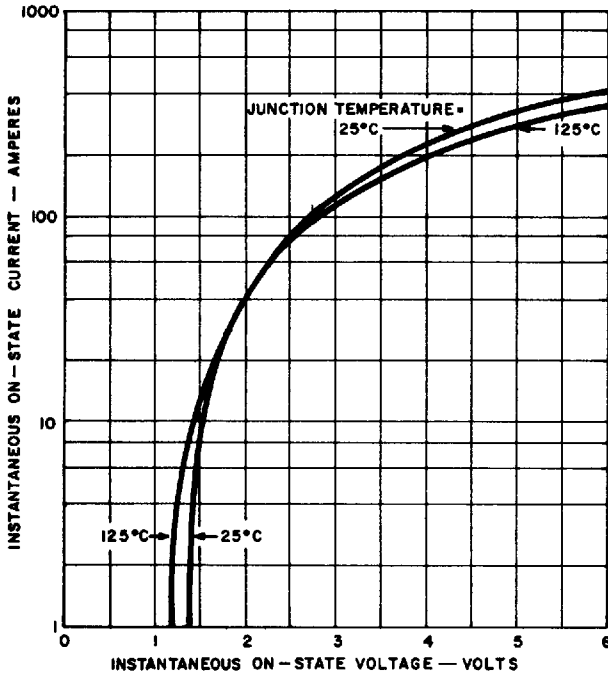
35 Amperes Average, 1200 Volts

Electrical and Thermal Characteristics

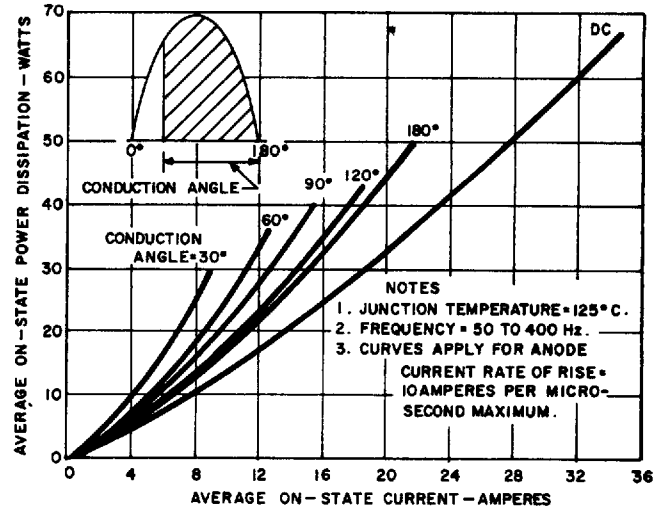
Characteristics	Symbol	Test Conditions	C137	Units
Current - Conducting State Maximums				
Peak On-state Voltage	V_{TM}	$T_C = 25^\circ\text{C}$, $I_{TM} = 70\text{A}$, 1msec Wide Pulse, Duty Cycle $\leq 2\%$	2.3	Volts
Voltage - Blocking State Maximums				
Rep. Peak Forward Blocking Voltage (Rated Limit)	V_{DRM}		1200	Volts
Repetitive Peak Reverse Voltage (Rated Limit)	V_{RRM}		1200	Volts
Non-Rep. Trans. Peak Rev. Voltage (Rated Limit)	V_{RSM}		1400	Volts
Forward Leakage Current	I_{DRM}	$T_C = 125^\circ\text{C}$, $V_{DRM} = \text{Rated}$	1.7	mA
Reverse Leakage Current	I_{RRM}	$T_C = 125^\circ\text{C}$, $V_{RRM} = \text{Rated}$	1.7	mA
Switching				
Typical Turn-off Time	t_q	$I_{TM} = 10\text{A}$, $di/dt = 10\text{ A}/\mu\text{sec}$, $T_C = 125^\circ\text{C}$	—	μsec
Minimum Critical dv/dt Exponential to V_{DRM}	dv/dt	$T_C = 125^\circ\text{C}$	100	$\text{V}/\mu\text{sec}$
Thermal				
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$		1.0	$^\circ\text{C}/\text{Watt}$
Gate - Maximum Parameters				
Gate Current to Trigger	I_{GT}	$T_C = 25^\circ\text{C}$, $V_D = 6V_{dc}$, $R_L = 12\text{ ohms}$	40	mA
Gate Voltage to Trigger	V_{GT}	$T_C = 25^\circ\text{C}$, $V_D = 6V_{dc}$, $R_L = 12\text{ ohms}$	2.2	Volts
Peak Negative Gate Voltage	V_{GM}		10	Volts
Peak On-state Voltage	V_{TM}	$T_C = 25^\circ\text{C}$, $I_{TM} = 70\text{A}$, 1msec Wide Pulse, Duty Cycle $\leq 2\%$	2.3	Volts
Holding Current	I_H	Anode Supply = $24V_{dc}$, $T_C = 25^\circ\text{C}$, Gate Supply = 10V, 20 ohms, Forward Current Pulse = 0.5A, 0.1 to 10 msec Wide	100	mA
Peak Forward Gate Current	I_{GTM}		4	Amperes
Peak Reverse Gate Voltage	V_{GRM}		5	Volts

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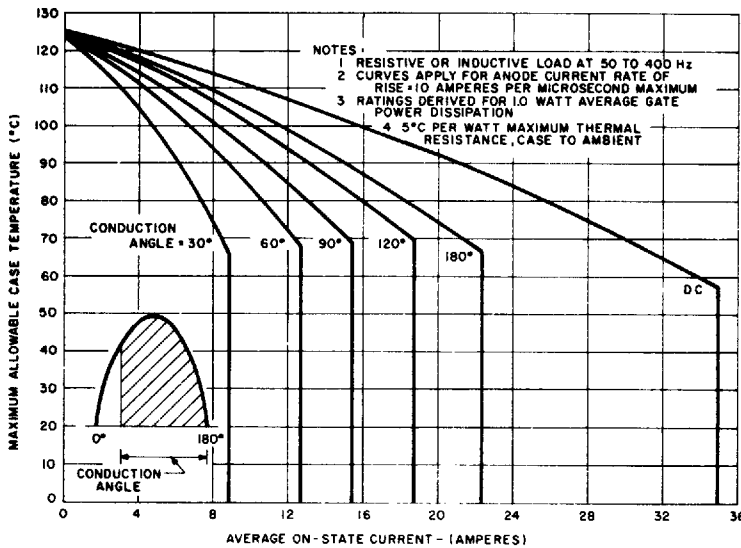
C137 (R)
Phase Control SCR
 35 Amperes Average, 1200 Volts



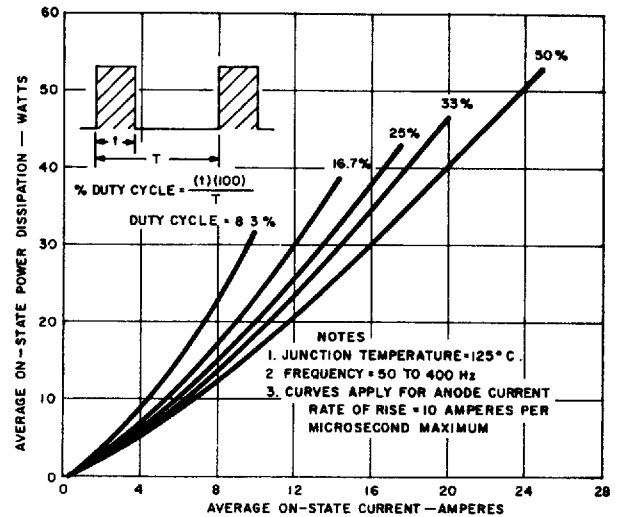
MAXIMUM ON-STATE CHARACTERISTICS



MAXIMUM ON-STATE POWER DISSIPATION FOR HALF WAVE RECTIFIED SINE WAVE OF CURRENT



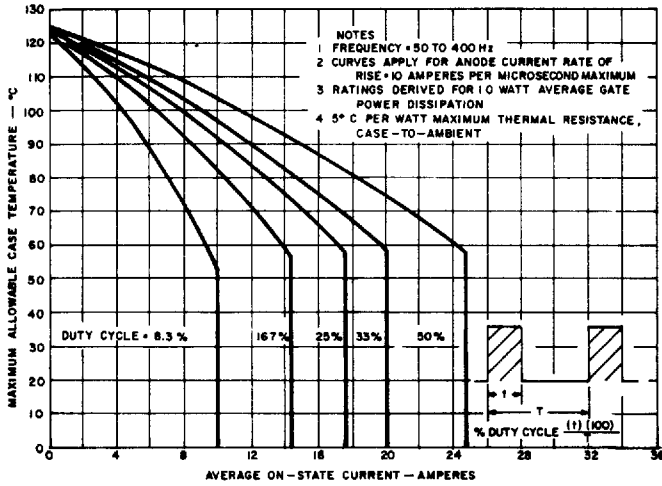
MAXIMUM ALLOWABLE CASE TEMPERATURE FOR HALF WAVE RECTIFIED SINE WAVE OF CURRENT



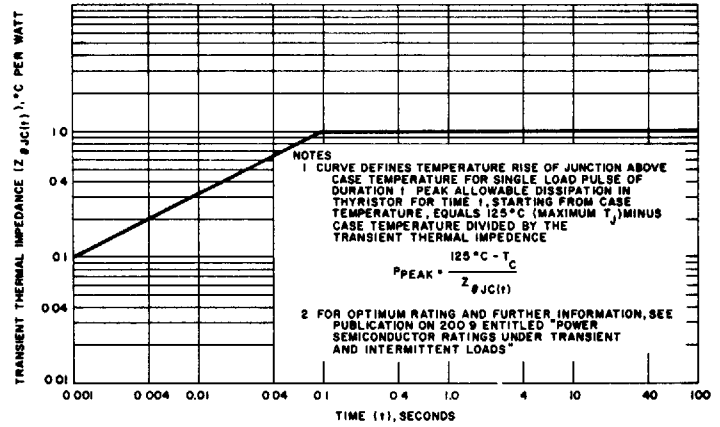
MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

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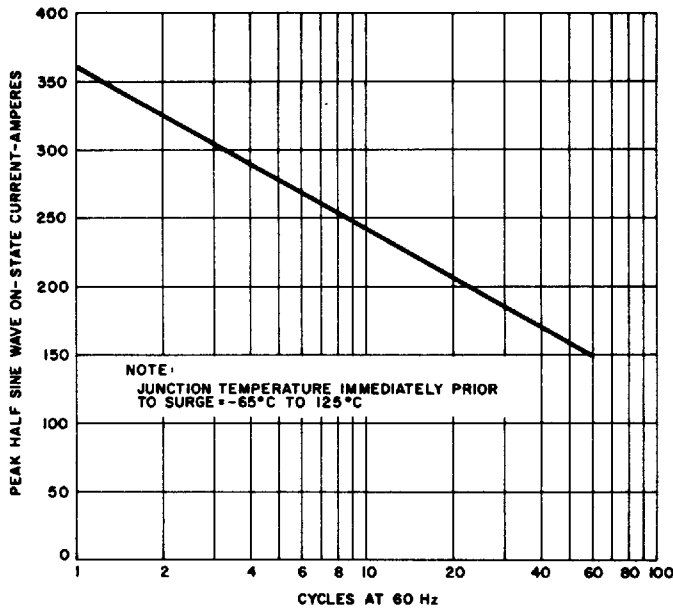
C137 (R)
Phase Control SCR
 35 Amperes Average, 1200 Volts



MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM



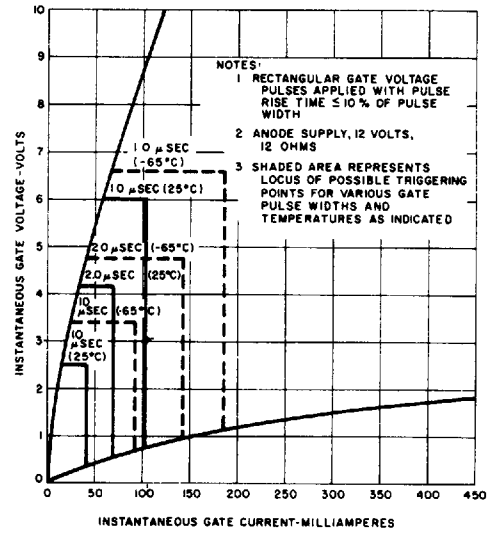
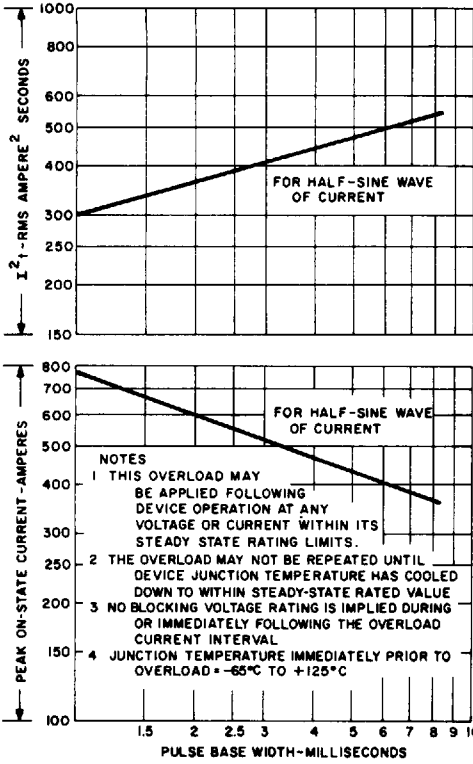
MAXIMUM TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE



MAXIMUM ALLOWABLE SURGE (NON-REPETITIVE) ON-STATE CURRENT

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C137 (R)
Phase Control SCR
 35 Amperes Average, 1200 Volts



PULSE GATE TRIGGER CHARACTERISTICS

MAXIMUM ALLOWABLE SUB-CYCLE SURGE (NON-REPETITIVE) ON-STATE CURRENT AND I²T RATING