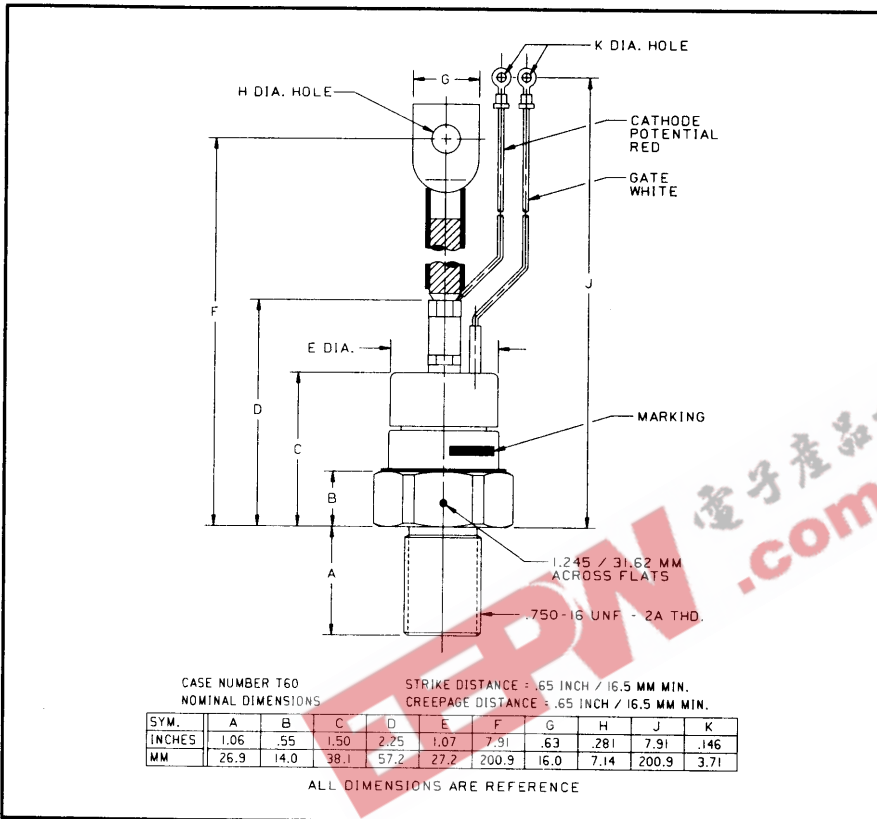
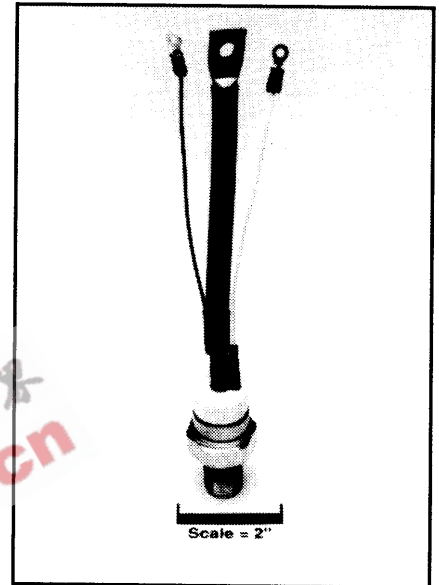


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

**Phase Control SCR**  
 175 Amperes Average  
 1200 Volts



2N3884-2N3895 (Outline Drawing)



2N3884-2N3895  
 Phase Control SCR  
 175 Amperes Average, 1200 Volts

### Ordering Information:

Select the complete six digit part number you desire from the table, i.e. 2N3895 is a 1200 Volt, 175 Ampere Phase Control SCR.

Type	Voltage		Current
	$V_{DRM}$	$V_{RRM}$	
2N3884	50		175
2N3885	100		
2N3886	200		
2N3887	300		
2N3888	400		
2N3889	500		
2N3890	600		
2N3891	700		
2N3892	800		
2N3893	900		
2N3894	1000		
2N3895	1200		

### 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  $I^2t$  Ratings

### Applications:

- Power Supplies
- Battery Chargers
- Motor Control



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### Absolute Maximum Ratings

	Symbol	2N3884-3895	Units
RMS On-State Current	$I_{T(RMS)}$	275	Amperes
Average On-State Current	$I_{T(av)}$	175	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	$I_{TSM}$	4500	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	$I_{TSM}$	4100	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)	$di/dt$	150	Amperes/ $\mu$ s
$I^2t$ (for Fusing), 8.3 milliseconds	$I^2t$	84,000	$A^2sec$
Peak Gate Power Dissipation	$P_{GM}$	15	Watts
Average Gate Power Dissipation	$P_{G(av)}$	3	Watts
Storage Temperature	$T_{STG}$	-40 to 150	$^{\circ}C$
Operating Temperature	$T_J$	-40 to 125	$^{\circ}C$
Mounting Torque		300	in.-lb.
Mounting Torque		340	kg-cm

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2N3884-2N3895

Phase Control SCR

175 Amperes Average, 1200 Volts

### Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	2N3884-3895	Units
<b>Voltage—Blocking State Maximums</b>				
Forward Leakage, Peak	$I_{DRM}$	$T_J = 125^\circ\text{C}$ , $V_{DRM} = \text{rated}$	25	mA
Reverse Leakage, Peak	$I_{RRM}$	$T_J = 125^\circ\text{C}$ , $V_{RRM} = \text{rated}$	25	mA
<b>Current—Conducting State Maximums</b>				
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 625\text{A}$ , $T_J = 25^\circ\text{C}$	1.55	Volts
<b>Switching</b>				
Typical Turn-Off Time	$t_q$	$I_T = 150\text{A}$ , $T_J = 125^\circ\text{C}$ , $di_T/dt = 12.5\text{A}/\mu\text{sec}$ , reapplied $dv/dt = 20\text{V}/\mu\text{sec}$ linear to $0.8 V_{DRM}$	100	$\mu\text{sec}$
Typical Turn-On Time	$t_{on}$	$I_T = 100\text{A}$ , $V_D = 100\text{V}$	5	$\mu\text{sec}$
Min. Critical $dv/dt$ exponential to $V_{DRM}$	$dv/dt$	$T_J = 125^\circ\text{C}$	300	$\text{V}/\mu\text{sec}$
<b>Thermal</b>				
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$		.13	$^\circ\text{C}/\text{Watt}$
Case to Sink, Lubricated	$R_{\theta CS}$		.075	$^\circ\text{C}/\text{Watt}$
<b>Gate—Maximum Parameters</b>				
Gate Current to Trigger	$I_{GT}$	$T_J = 25^\circ\text{C}$ , $V_D = 12\text{V}$	150	mA
Gate Voltage to Trigger	$V_{GT}$	$T_J = 25^\circ\text{C}$ , $V_D = 12\text{V}$	3	Volts
Non-Triggering Gate Voltage	$V_{GDM}$	$T_J = 125^\circ\text{C}$ , $V = \text{rated } V_{DRM}$	.15	Volts
Peak Forward Gate Current	$I_{GTM}$		4	Amperes
Peak Reverse Gate Voltage	$V_{GRM}$		5	Volts



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