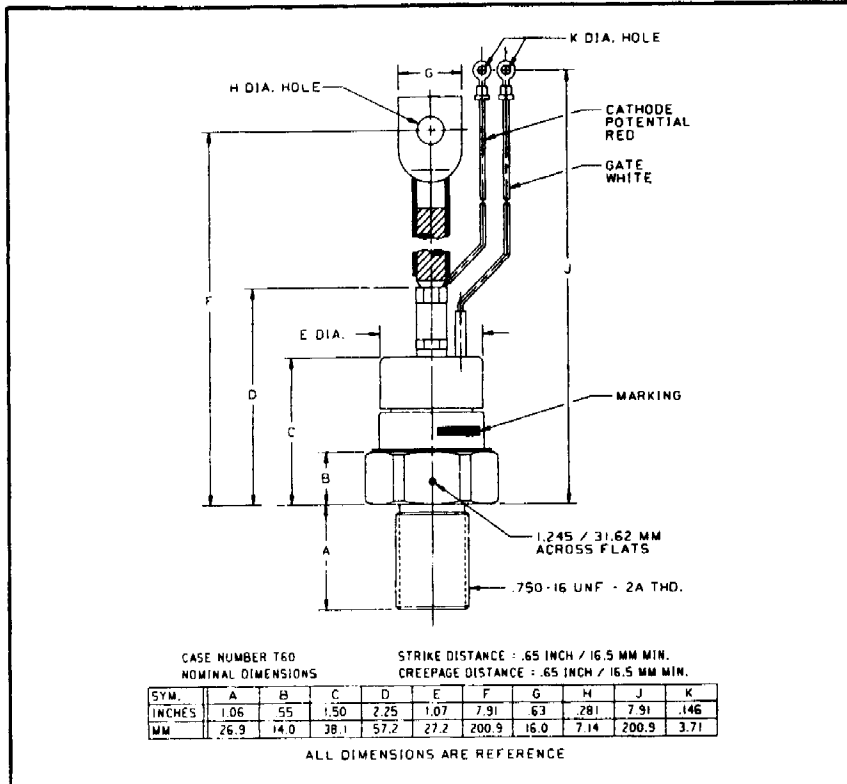


**Phase Control SCR**  
175 Amperes Average  
1200 Volts

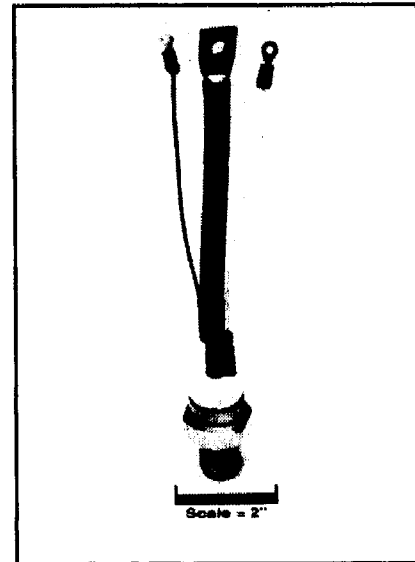


2N3884-2N3895 (Outline Drawing)

**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		



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

**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

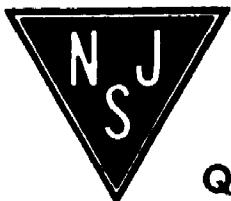
**Applications:**

- Power Supplies
- Battery Chargers
- Motor Control

**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	$I_{DFM}$	$T_J = 125^\circ\text{C}, V_{DFM} = \text{rated}$	25	mA
Reverse Leakage, Peak	$I_{RFM}$	$T_J = 125^\circ\text{C}, V_{RFM} = \text{rated}$	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	$t_t$	$I_T = 150\text{A}, T_J = 125^\circ\text{C},$ $di_T/dt = 12.5\text{A}/\mu\text{sec},$ reapplied $dv/dt = 20\text{V}/\mu\text{sec}$ linear to $0.8 V_{DFM}$	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 $V_{DFM}$	$dv/dt$	$T_J = 125^\circ\text{C}$	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	$V_{GDM}$	$T_J = 125^\circ\text{C}, V = \text{rated } V_{DFM}$	.15	Volts
Peak Forward Gate Current	$I_{GTM}$		4	Amperes
Peak Reverse Gate Voltage	$V_{GRM}$		5	Volts



Quality Semi-Conductors

# New Jersey Semi-Conductor Products, Inc.

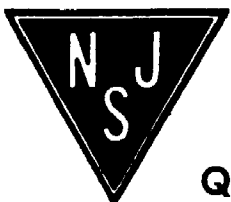
20 STERN AVE.  
SPRINGFIELD, NEW JERSEY 07081  
U.S.A.

TELEPHONE: (973) 376-2922  
(212) 227-6005  
FAX: (973) 376-8960

**2N3884-2N3885**  
**Phase Control SCR**  
175Amperes Average, 1200 Volts

## Absolute Maximum Ratings

	Symbol	2N3884-3885	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 <sup>2</sup> sec
Peak Gate Power Dissipation	$P_{GM}$	15	Watts
Average Gate Power Dissipation	$P_{GM(av)}$	3	Watts
Storage Temperature	$T_{STG}$	-40 to 150	°C
Operating Temperature	$T_J$	-40 to 125	°C
Mounting Torque		300	in.-lb.
Mounting Torque		340	kg-cm



Quality Semi-Conductors