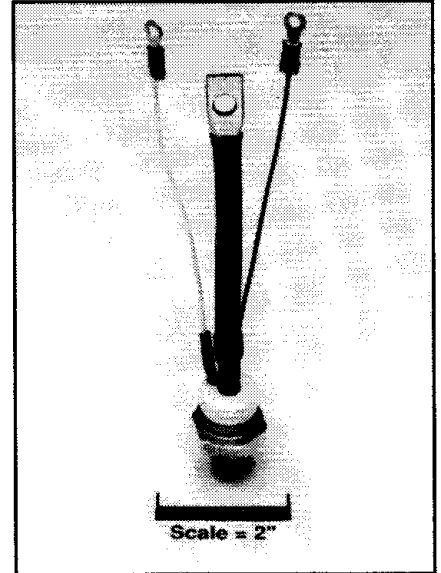
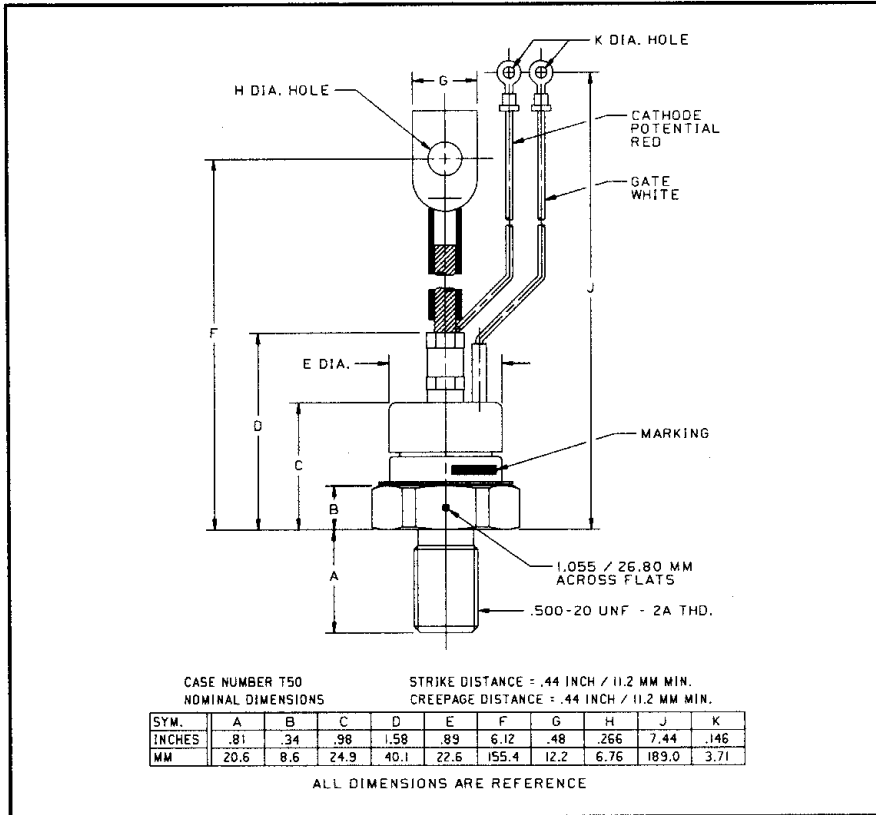


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**Phase Control SCR**  
 40-80 Amperes (63-125 RMS)  
 1600 Volts



**T500 Phase Control SCR**  
 40-80 Amperes (63-125 RMS),  
 1600 Volts

T500, TO-94 (Outline Drawing) Also Available with Flag Lead, TO-83 Package

### Ordering Information:

Select the complete part number you desire from the following table:

Type	Voltage *		Current		Turn-off		Gate Current		Leads	
	V <sub>DRM</sub> & V <sub>RRM</sub> (Volts)	Code	I <sub>T(av)</sub> (A)	Code	t <sub>q</sub> (μsec)	Code	I <sub>GT</sub> (mA)	Code	Case	Code
T500	700	07	40	40	100 (Typ.)	0	100	5	TO-94	AQ
	800	08								
	900	09								
	1000	10								
	1100	11	80	80	TO-83	AB				
	1200	12								
	1300	13								
	1400	14								
	1500	15								
	1600	16								

### Features:

- Center Fired, di/dynamic Gate
- All Diffused Design
- Low V<sub>TM</sub>
- Compression Bonded Encapsulation
- Low Thermal Impedance
- High Surge Current Capability
- Low Gate Current

### Applications:

- Phase control
- Motor Control
- Power Supplies

\* For 600V and Below, see T510  
 \*\* For Lower I<sub>GT</sub> Consult Factory

**Example:** Type T500 rated at 80A average with V<sub>DRM</sub> = 1600V, I<sub>GT</sub> = 150MA, and standard flexible lead, order as:

Type	Voltage	Current	Turn-off	Gate Current	Leads
T 5 0 0	1 6	8 0	0	4	A Q

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## Absolute Maximum Ratings

Characteristics	Symbol	T500_40	T500_80	Units
RMS Forward Current	$I_{T(rms)}$	63	125	Amperes
Average Forward Current	$I_{T(av)}$	40	80	Amperes
One-half Cycle Surge Current	$I_{TSM}$	1200	1800	Amperes
3 Cycle Surge Current	$I_{TSM}$	950	1300	Amperes
10 Cycle Surge Current	$I_{TSM}$	800	1170	Amperes
Minimum Rate of Rise of On-State Current (Non-repetitive)	$di/dt$	800	800	Amperes/ $\mu$ s
$i^2t$ (for Fusing), $\geq 8.3$ milliseconds	$i^2t$	6000	13500	$A^2sec$
Peak Gate Power Dissipation	$P_{GM}$	16	16	Watts
Average Gate Power Dissipation	$P_{G(av)}$	3	3	Watts
Storage Temperature	$T_{stg}$	-40 to +150	-40 to +150	$^{\circ}C$
Operating Temperature	$T_j$	-40 to +125	-40 to +125	$^{\circ}C$
Mounting Torque		130	130	in-lb

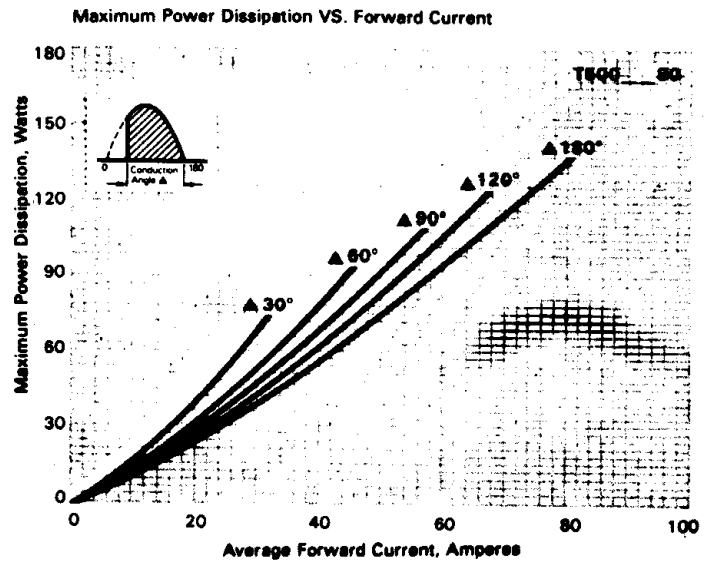
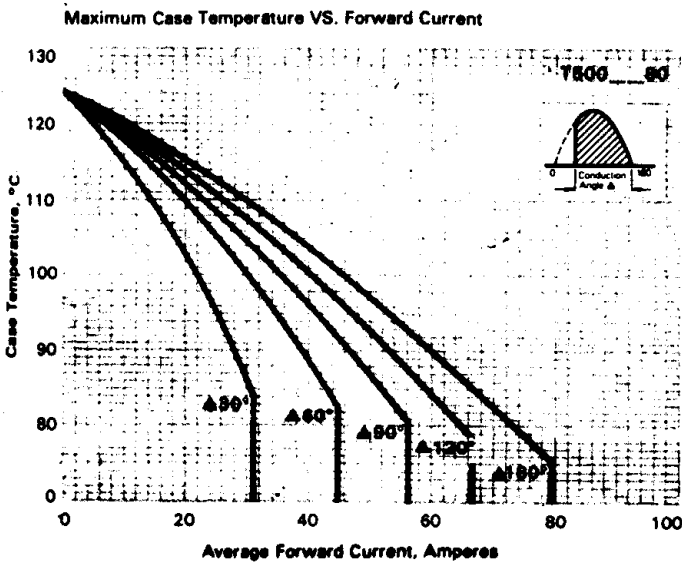
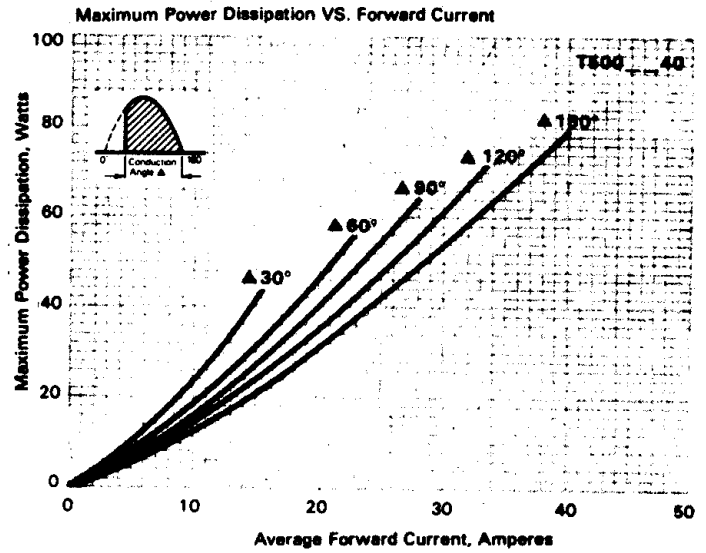
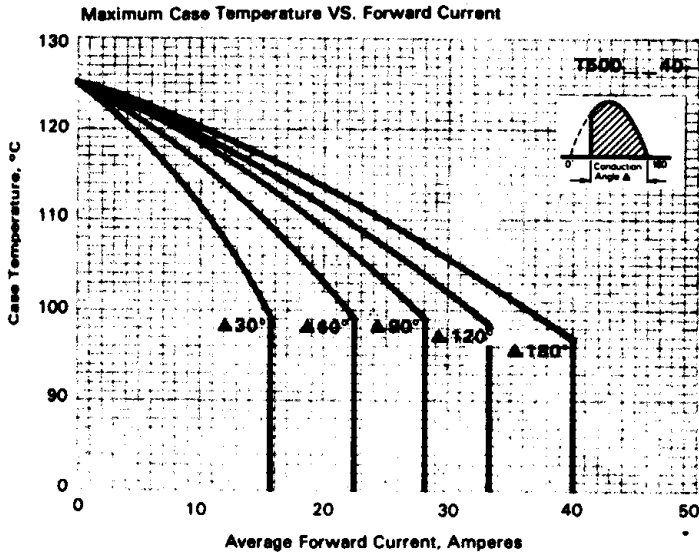
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## Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	T500 _ 40	T500 _ 80	Units
<b>Current - Conducting State Maximums</b>					
Forward Voltage Drop	$V_{TM}$	$T_j = 25^\circ\text{C}$ , $I_{TM} = 500\text{A}$	3.7	2.2	Volts
<b>Voltage - Blocking State Maximums</b>					
Rep. Peak Forward Blocking Voltage (Rated Limit)	$V_{DRM}$		1600	1600	Volts
Repetitive Peak Reverse Voltage (Rated Limit)	$V_{RRM}$		1600	1600	Volts
Non-Rep. Trans. Peak Rev. Voltage (Rated Limit)	$V_{RSM}$	$t_p \leq 5.0 \text{ msec}$	1800	1800	Volts
Forward Leakage Current	$I_{DRM}$	$T_j = 125^\circ\text{C}$ , $V_{DRM} = \text{Rated}$	10	10	mA
Reverse Leakage Current	$I_{RRM}$	$T_j = 125^\circ\text{C}$ , $V_{RRM} = \text{Rated}$	10	10	mA
<b>Switching</b>					
Typical Turn-off Time	$t_q$	$I_T = 50\text{A}$ , $di_R/dt = 5 \text{ A}/\mu\text{sec}$ , reapplied $dv/dt = 20\text{V}/\mu\text{sec}$ linear to $0.8 V_{DRM}$ , $T_j = 125^\circ\text{C}$	100	100	$\mu\text{sec}$
Typical Turn-on Time	$t_{on}$	$I_T = 100\text{A}$ , $V_D = 100\text{V}$	4	4	$\mu\text{sec}$
Minimum Critical $dv/dt$ Exponential to $V_{DRM}$	$dv/dt$	$T_j = 125^\circ\text{C}$	300	300	$\text{V}/\mu\text{sec}$
<b>Thermal</b>					
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$		0.28	0.28	$^\circ\text{C}/\text{Watt}$
Maximum Resistance, Case to Sink (Lubricated)	$R_{\theta(c-s)}$		0.12	0.12	$^\circ\text{C}/\text{Watt}$
<b>Gate - Maximum Parameters</b>					
Gate Current to Trigger	$I_{GT}$	$T_j = 25^\circ\text{C}$ , $V_D = 12\text{V}$	(See Ordering Information)		mA
Gate Voltage to Trigger	$V_{GT}$	$T_j = 25^\circ\text{C}$ , $V_D = 12\text{V}$	3	3	Volts
Non-Triggering Gate Voltage	$V_{GDM}$	$T_j = 125^\circ\text{C}$ , $V_{DRM} = \text{Rated}$	0.15	0.15	Volts
Peak Forward Gate Current	$I_{GTM}$		4	4	Amperes
Peak Reverse Gate Voltage	$V_{GRM}$		5	5	Volts

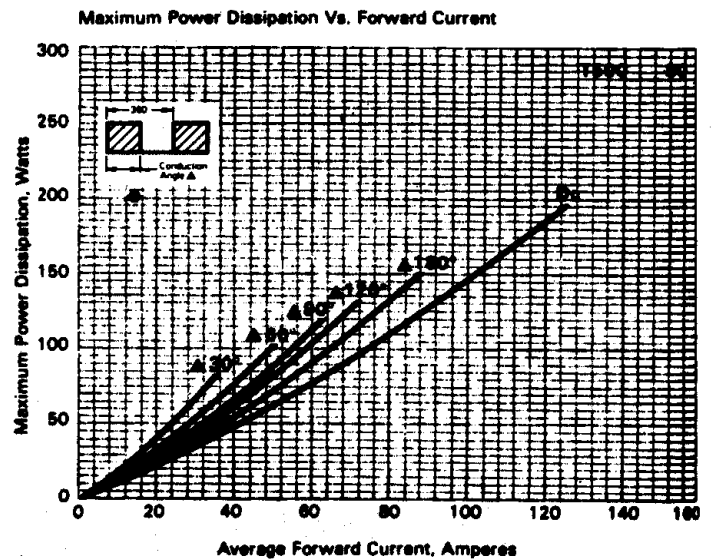
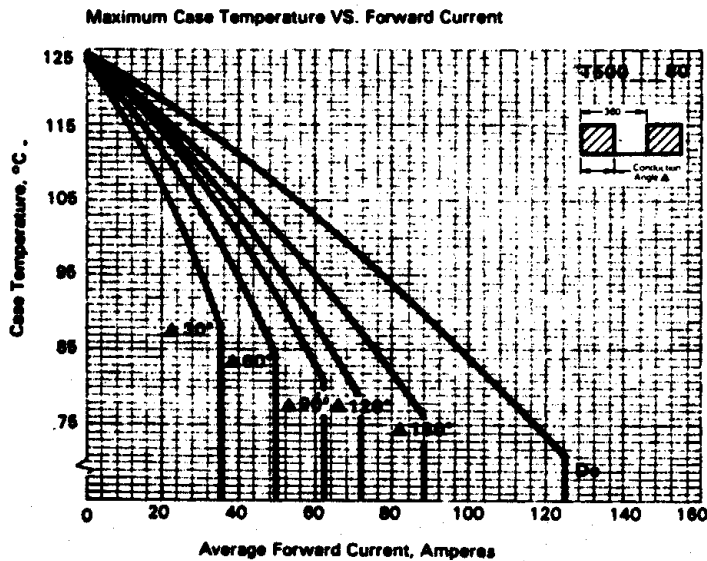
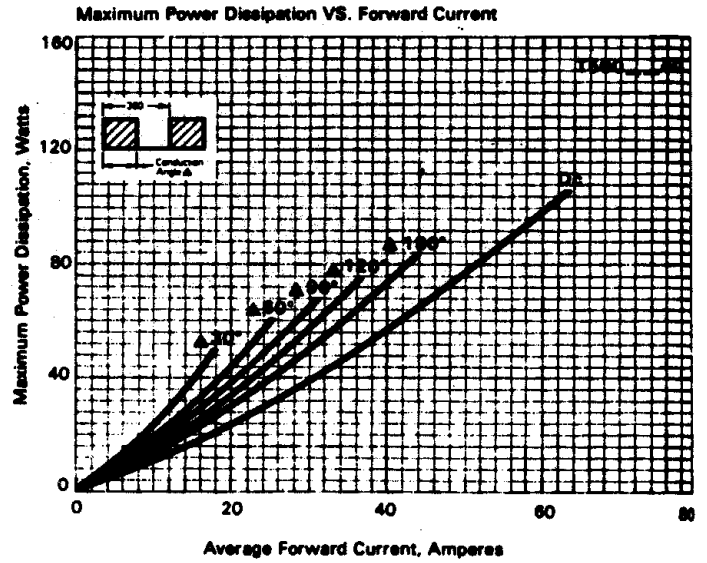
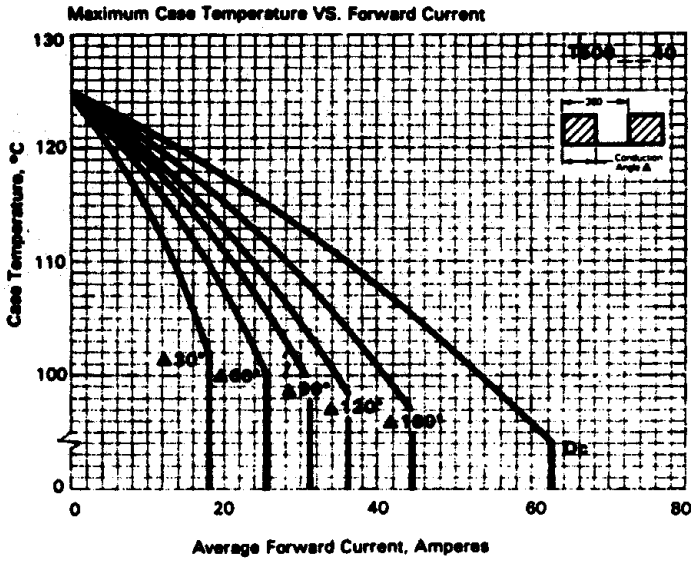
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