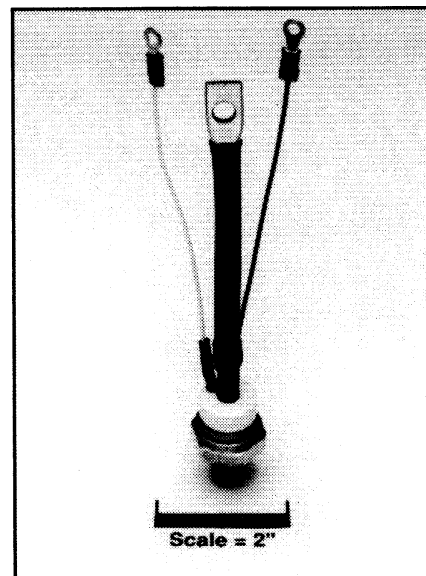
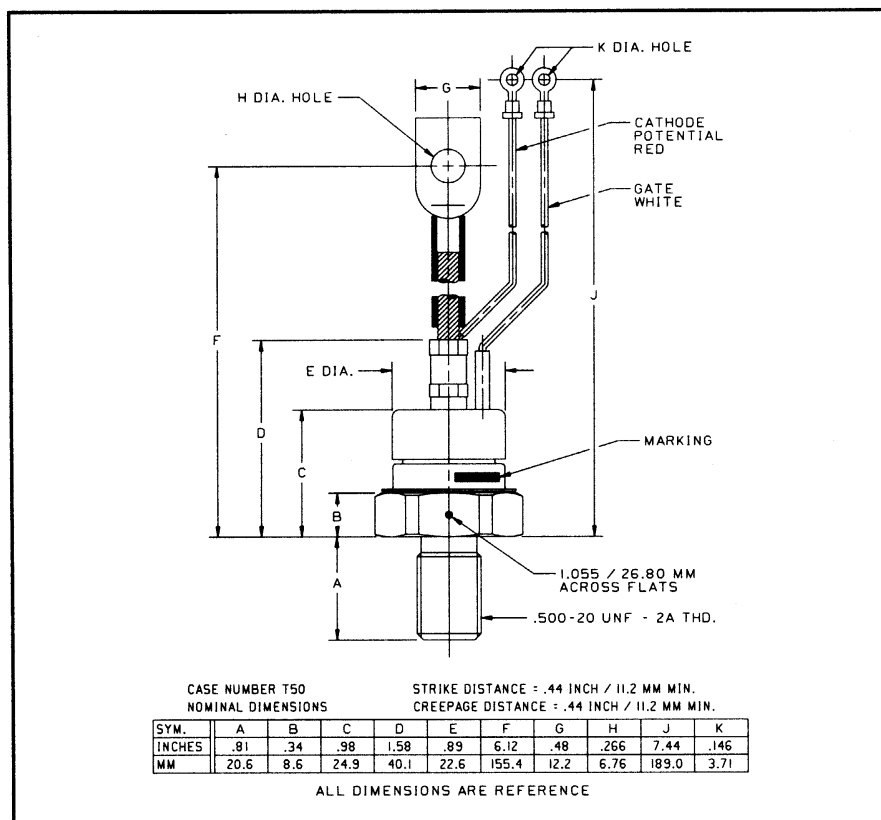


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Phase Control SCR 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 _{DRM} & V _{RRM} (Volts)	Code	I _{T(av)} (A)	Code	t _q (μsec)	Code	I _{GT} (mA)	Code	Case	Code
T500	700	07	40	40	100 (Typ.)	0	100	5	TO-94	AQ
	800	08					150	4		
	900	09					**			
	1000	10								
	1100	11								
	1200	12	80	80					TO-83	AB
	1300	13								
	1400	14								
	1500	15								
	1600	16								

* For 600V and Below, see T510

** For Lower I_{GT} Consult Factory

Example: Type T500 rated at 80A average with V_{DRM} = 1600V, I_{GT} = 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

Features:

- ☐ Center Fired, di/namic Gate
- ☐ All Diffused Design
- ☐ Low V_{TM}
- ☐ Compression Bonded Encapsulation
- ☐ Low Thermal Impedance
- ☐ High Surge Current Capability
- ☐ Low Gate Current

Applications:

- ☐ Phase control
- ☐ Motor Control
- ☐ Power Supplies



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

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

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/ μs
I^2t (for Fusing), ≥ 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

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

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

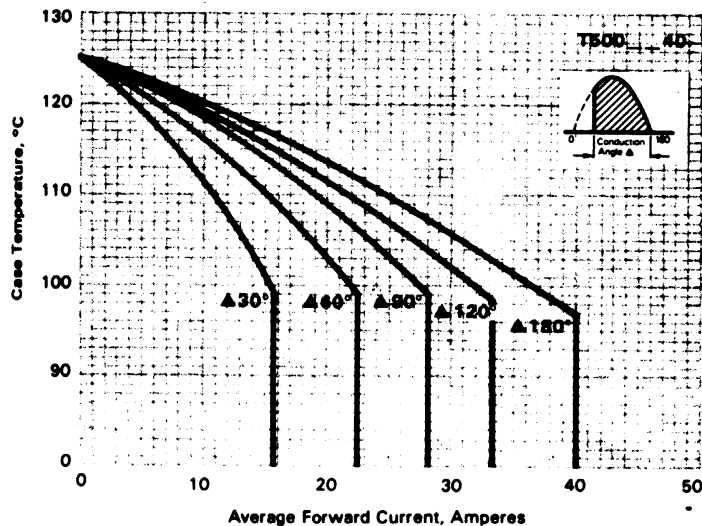
Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	T500 _ 40	T500 _ 80	Units
Current - Conducting State Maximums					
Forward Voltage Drop	V_{TM}	$T_j = 25^\circ\text{C}$, $I_{TM} = 500\text{A}$	3.7	2.2	Volts
Voltage - Blocking State Maximums					
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
Switching					
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	μsec
Typical Turn-on Time	t_{on}	$I_T = 100\text{A}$, $V_D = 100\text{V}$	4	4	μsec
Minimum Critical dv/dt Exponential to V_{DRM}	dv/dt	$T_j = 125^\circ\text{C}$	300	300	$\text{V}/\mu\text{sec}$
Thermal					
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	$^\circ\text{C}/\text{Watt}$
Gate - Maximum Parameters					
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

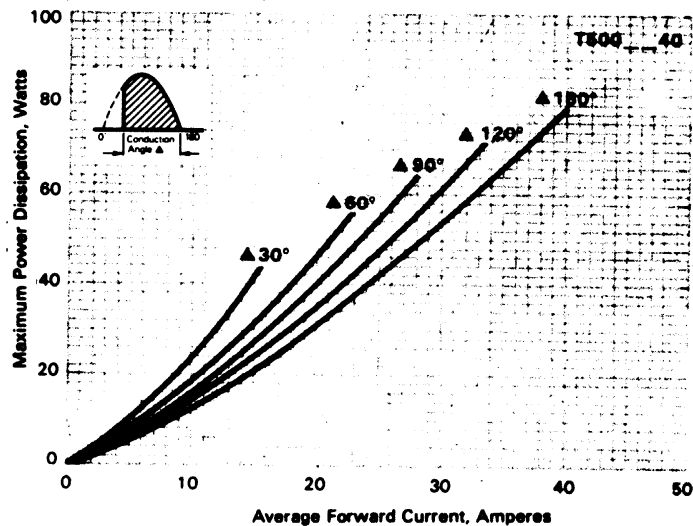
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

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

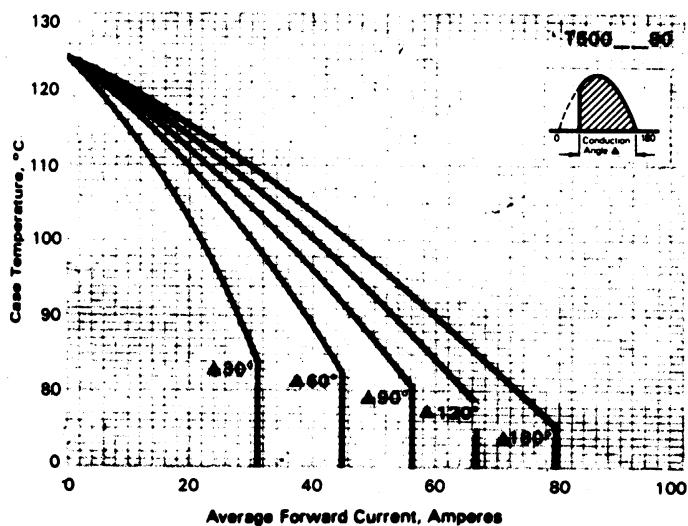
Maximum Case Temperature VS. Forward Current



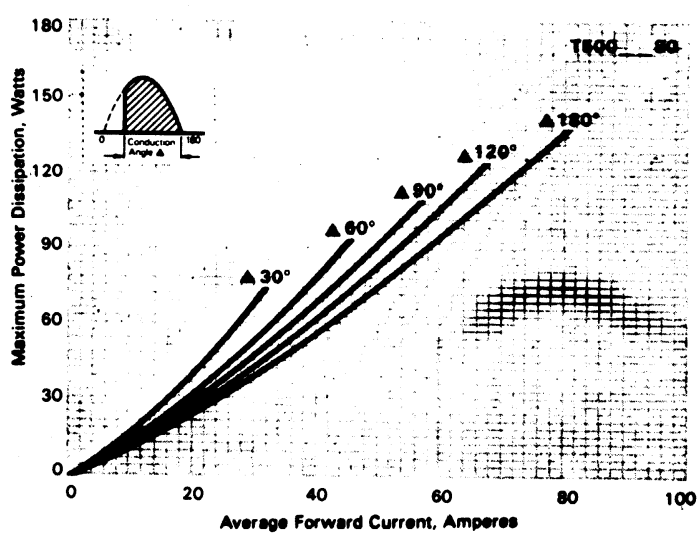
Maximum Power Dissipation VS. Forward Current



Maximum Case Temperature VS. Forward Current

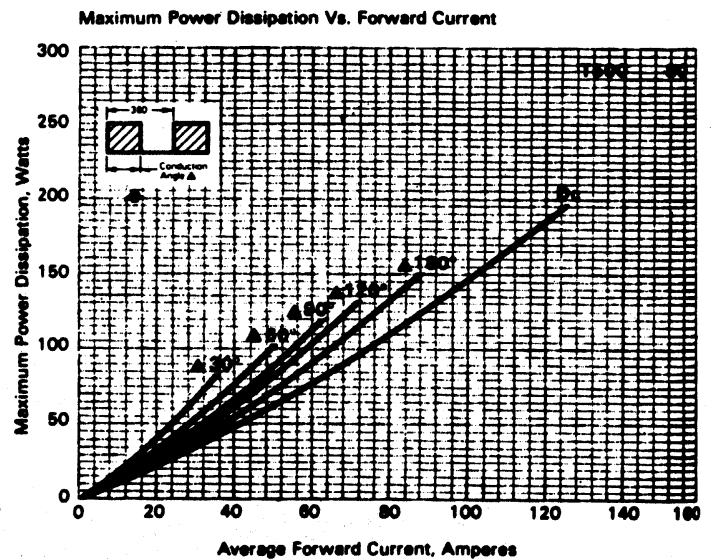
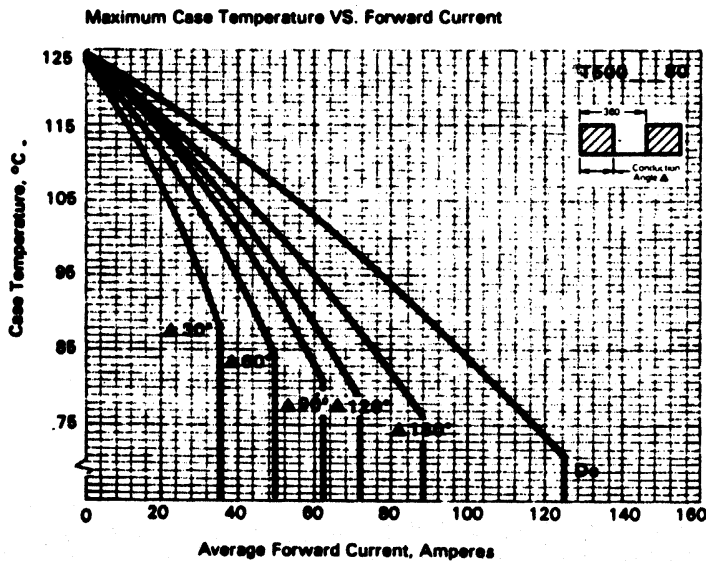
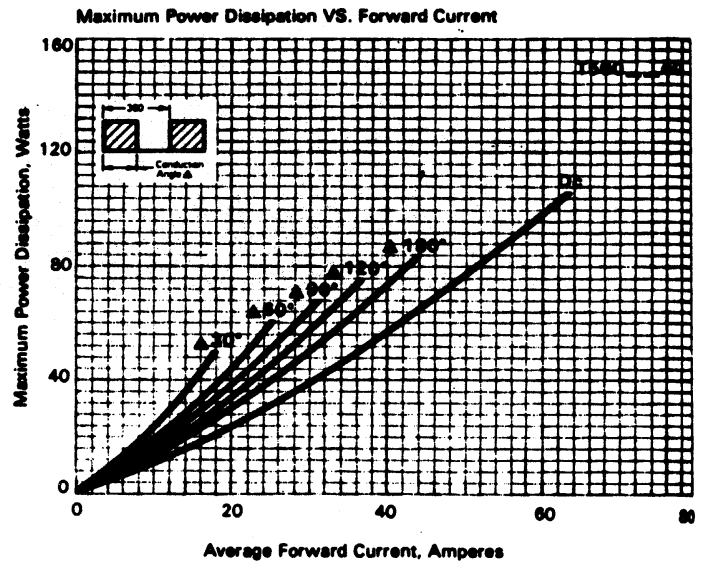
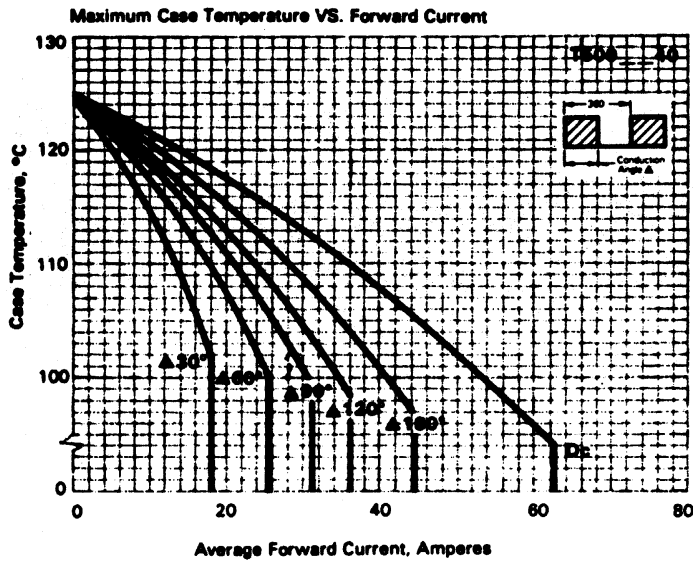


Maximum Power Dissipation VS. Forward Current



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

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



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

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

