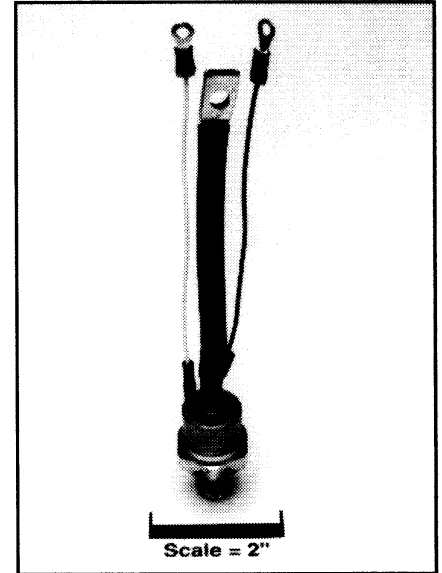
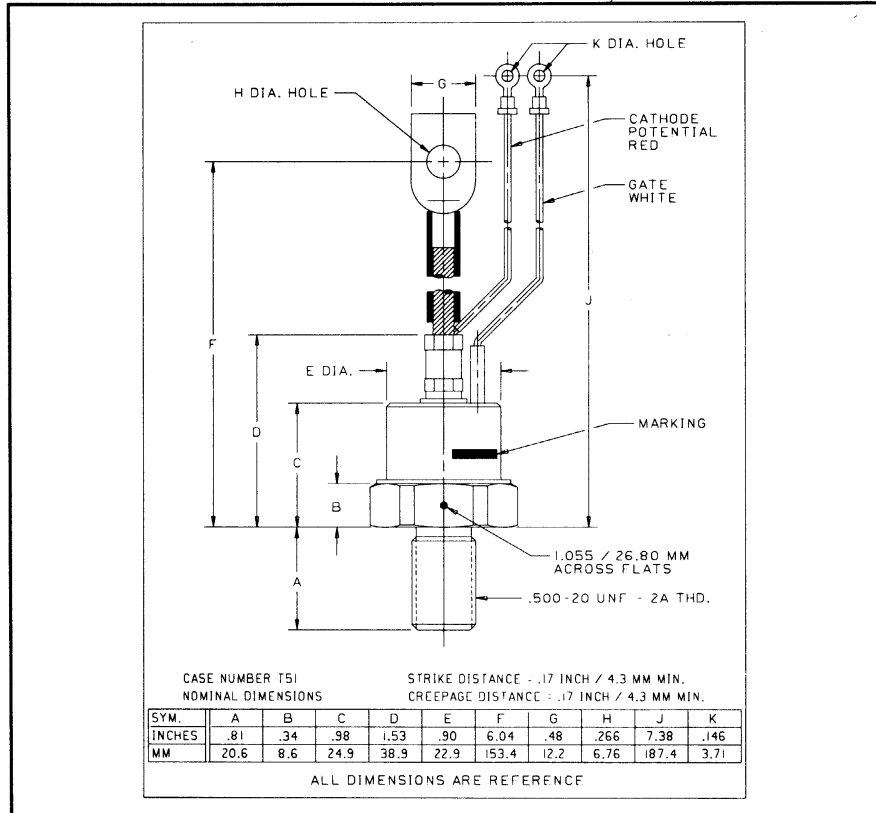


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Phase Control SCR
 50-80 Amperes (80-125 RMS)
 600 Volts



T510 Phase Control SCR
 50-80 Amperes (80-125 RMS),
 600 Volts

T510, 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	
T510	50	00	50	50	100	0	70	7	TO-94	AQ	
	100	01									
	200	02									
	300	03	80	80	(Typ.)	100	5	150	4	TO-83	AB
	400	04									
	500	05									
600	06										

* For 700V and Above, see T500

Example: Type T510 rated at 80A average with V_{DRM} = 600V, I_{GT} = 150MA, and standard flexible lead, order as:

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

Features:

- Center Fired, di/namic Gate
- All Diffused Design
- Low V_{TM}
- Compression Bonded Encapsulation
- Hermetic Glass to Metal Seal
- Low Gate Current

Applications:

- Phase control
- Power Supplies
- Light Dimmers
- Motor Control



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

T510 Phase Control SCR
50-80 Amperes (80-125 RMS),
600 Volts

Absolute Maximum Ratings

Characteristics	Symbol	T510 _ 50	T510 _ 80	Units
RMS Forward Current	$I_{T(rms)}$	80	125	Amperes
Average Forward Current	$I_{T(av)}$	50	80	Amperes
One-half Cycle Surge Current	I_{TSM}	1200	1600	Amperes
3 Cycle Surge Current	I_{TSM}	950	1250	Amperes
10 Cycle Surge Current	I_{TSM}	800	1080	Amperes
Minimum Rate of Rise of On-State Current (Non-repetitive)	di/dt	100	100	Amperes/ μs
I^2t (for Fusing), ≥ 8.3 milliseconds	I^2t	6000	10700	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

T510 Phase Control SCR
 50-80 Amperes (80-125 RMS),
 600 Volts

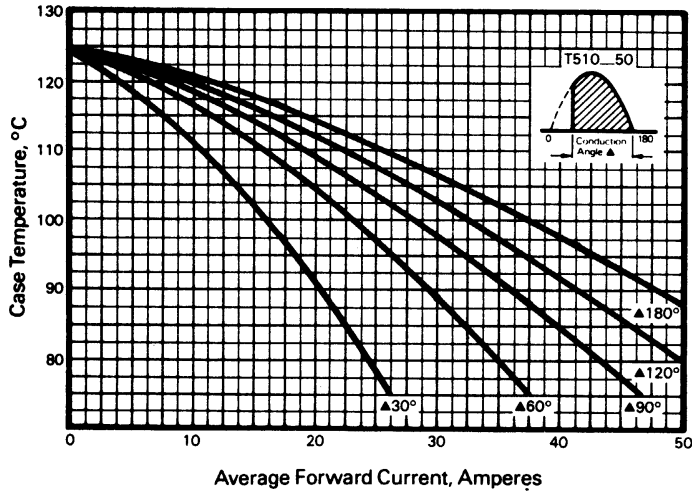
Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	T510__50	T510__80	Units
Current - Conducting State Maximums					
Forward Voltage Drop	V_{TM}	$T_j = 25^\circ\text{C}$, $I_{TM} = 500\text{A}$	3.5	2.2	Volts
Voltage - Blocking State Maximums					
Rep. Peak Forward Blocking Voltage (Rated Limit)	V_{DRM}		600	600	Volts
Repetitive Peak Reverse Voltage (Rated Limit)	V_{RRM}		600	600	Volts
Non-Rep. Trans. Peak Rev. Voltage (Rated Limit)	V_{RSM}	$t_p \leq 5.0 \text{ msec}$	700	700	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

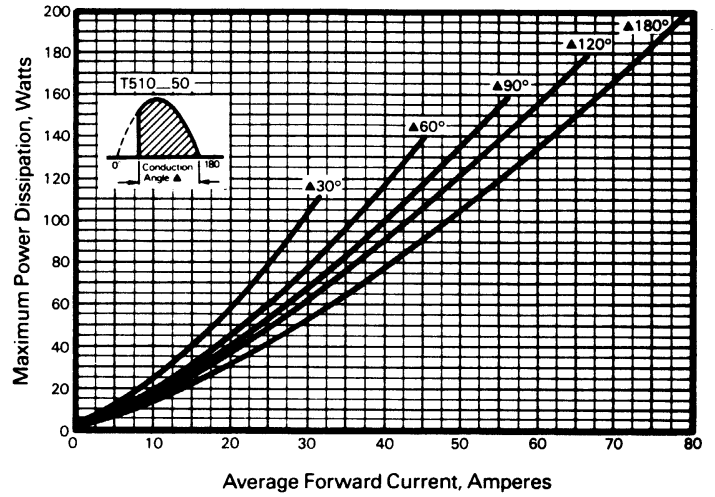
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

T510 Phase Control SCR
 50-80 Amperes (80-125 RMS),
 600 Volts

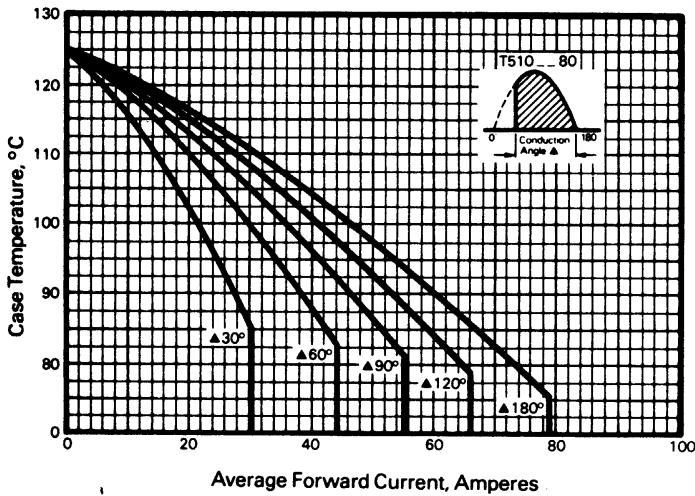
Maximum Case Temperature Vs. Forward Current



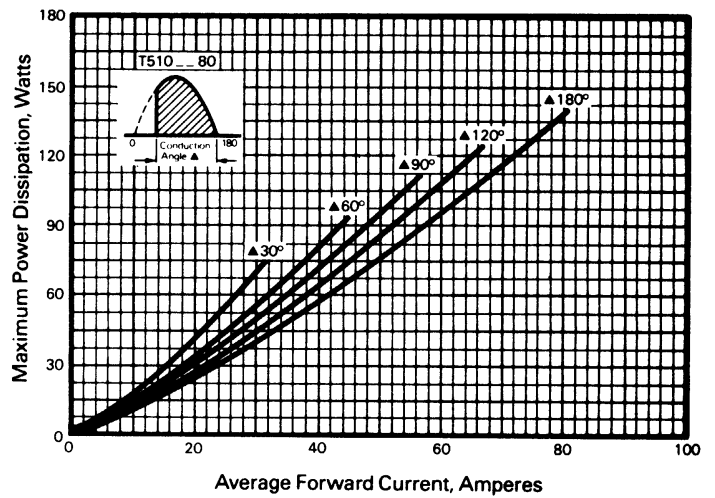
Maximum Power Dissipation Vs. Forward Current



Maximum Case Temperature Vs. Forward Current



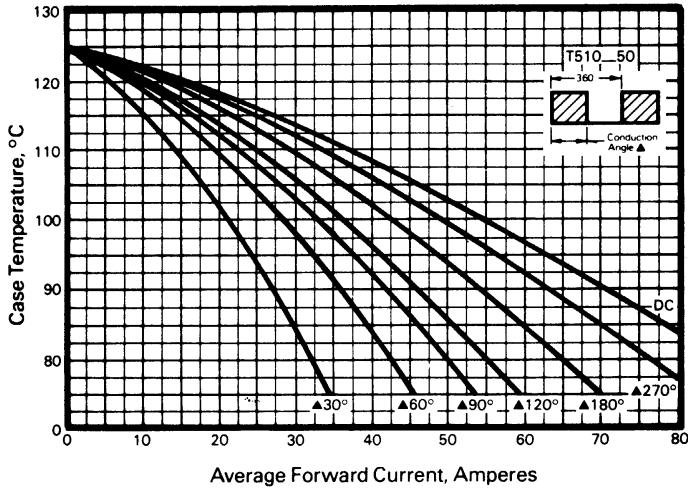
Maximum Power Dissipation Vs. Forward Current



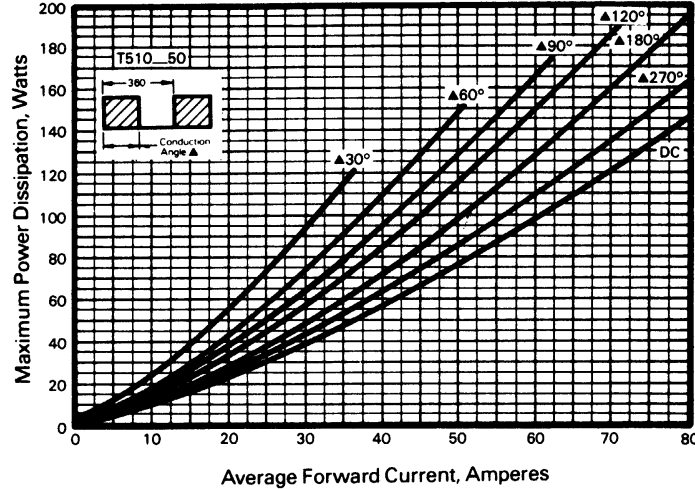
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

T510 Phase Control SCR
 50-80 Amperes (80-125 RMS),
 600 Volts

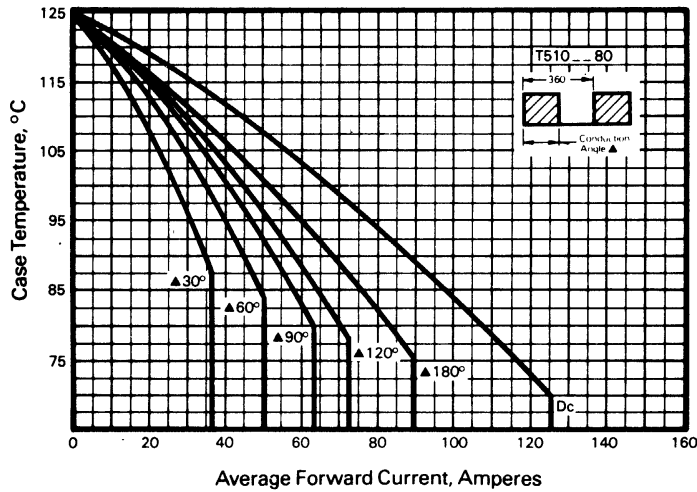
Maximum Case Temperature Vs. Forward Current



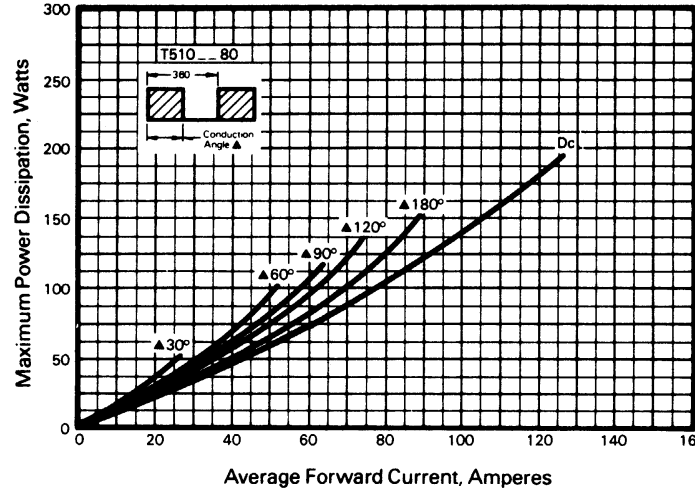
Maximum Power Dissipation Vs. Forward Current



Maximum Case Temperature Vs. Forward Current



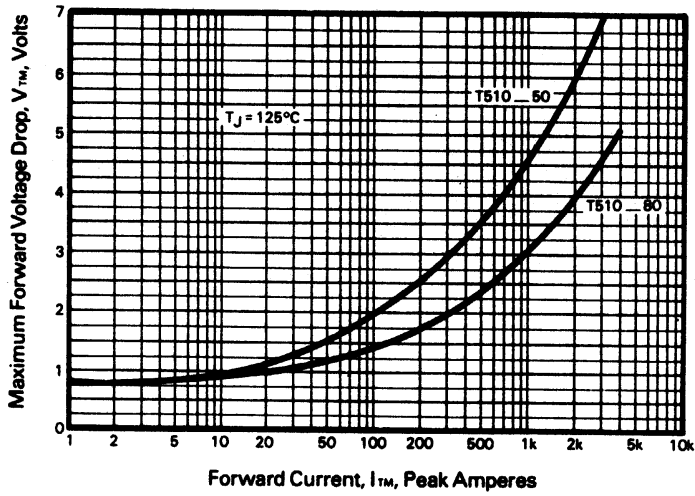
Maximum Power Dissipation Vs. Forward Current



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

T510 Phase Control SCR
 50-80 Amperes (80-125 RMS),
 600 Volts

Maximum Forward Voltage Vs. Forward Current



Transient Thermal Impedance Vs. Time

