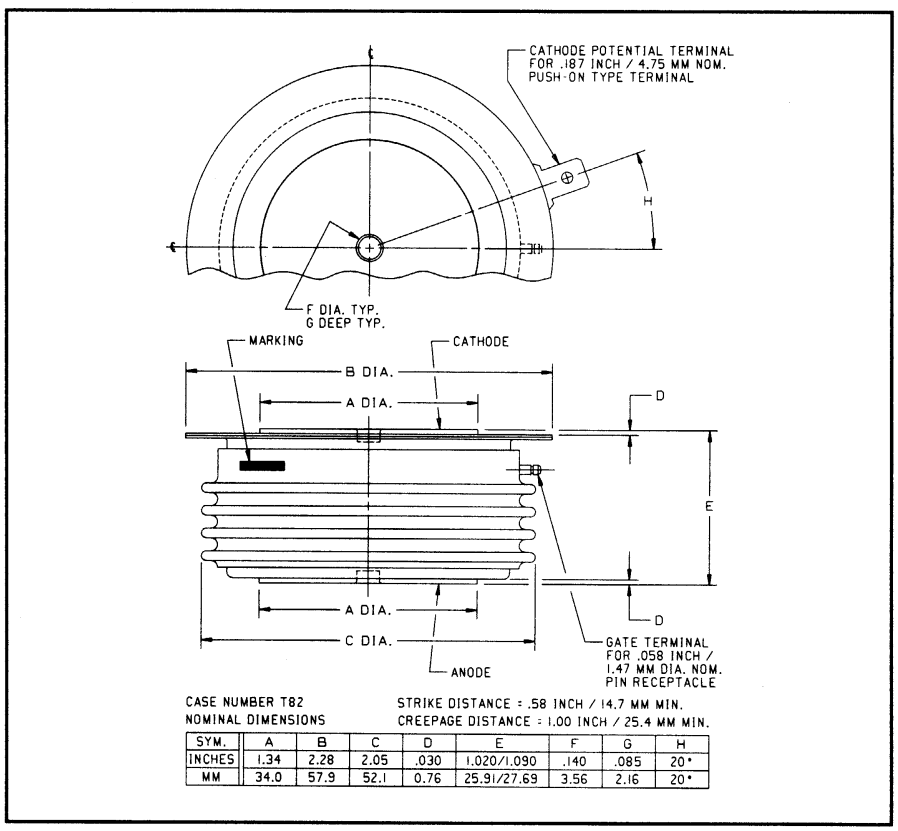
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Phase Control SCR
350 Amperes Average
4500 Volts



CASE NUMBER T82
NOMINAL DIMENSIONS

STRIKE DISTANCE = .58 INCH / 14.7 MM MIN.
CREEPAGE DISTANCE = 1.00 INCH / 25.4 MM MIN.

SYM.	A	B	C	D	E	F	G	H
INCHES	1.34	2.28	2.05	.030	1.020/1.090	.140	.085	20°
MM	34.0	57.9	52.1	0.76	25.91/27.69	3.56	2.16	20°

T8K7 350A (Outline Drawing)

T8K7 350A Phase Control SCR
350 Amperes Average, 4500 Volts

Description:
Powerex Silicon Controlled Rectifiers (SCR) are designed for phase control applications. These are all-diffused, Press-Pak, hermetic Pow-R-Disc devices employing the field proven amplifying gate.

Features:
- ☐ Low On-State Voltage
- ☐ High di/dt Capability
- ☐ High dv/dt Capability
- ☐ Hermetic Packaging
- ☐ Excellent Surge and I^2t Ratings

Applications:
- ☐ Power Supplies
- ☐ Motor Control

Ordering Information:
Select the complete 12 digit part number you desire from the table below.

Type	Voltage V_{DRM}/V_{RRM} (Volts)	Current $I_{T(av)}$ (A)	Turn-off t_q (µsec)	Gate Current I_{GT} (mA)	Lead Code
T8K7	36 40 45	35	0	3	DH
	3600V 4000V 4500V	350A	250µsec (Typical)	200mA	12"

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

T8K7 350A
Phase Control SCR
350 Amperes Average, 4500 Volts

Absolute Maximum Ratings

Characteristics	Symbol	T8K7 350A	Units
Non-repetitive Transient Peak Reverse Voltage	V_{RSM}	V_{RRM} + 100V	Volts
RMS On-state Current, T_C = 76°C	$I_{T(rms)}$	550	Amperes
Average Current 180° Sine Wave, T_C = 76°C	$I_{T(av)}$	350	Amperes
RMS On-state Current, T_C = 55°C	$I_{T(rms)}$	710	Amperes
Average Current 180° Sine Wave, T_C = 55°C	$I_{T(av)}$	450	Amperes
Peak One Cycle Surge On-state Current (Non-repetitive) 60Hz	I_{tsm}	5500	Amperes
Peak One Cycle Surge On-state Current (Non-repetitive) 50Hz	I_{tsm}	5060	Amperes
Critical Rate-of-rise of On-state Current (Non-repetitive)	di/dt	500	A/µsec
Critical Rate-of-rise of On-state Current (Repetitive)	di/dt	150	A/µsec
I^2t (for Fusing) for One Cycle, 60Hz	I^2t	100,000	A^2sec
Peak Gate Power Dissipation	P_{GM}	50	Watts
Average Gate Power Dissipation	$P_{G(av)}$	5	Watts
Operating Temperature	T_j	-40 to +125°C	°C
Storage Temperature	T_{stg}	-40 to +150°C	°C
Approximate Weight		8	oz.
		227	g
Mounting Force		3000 to 3500	lb.
		1360 to 1590	kg.

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

T8K7 350A
Phase Control SCR
350 Amperes Average, 4500 Volts

Electrical Characteristics, T_j = 25°C Unless Otherwise Specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Repetitive Peak Reverse Leakage Current	I_{RRM}	T_j = 125°C, $V_R = V_{RRM}$			75	mA
Repetitive Peak Forward Leakage Current	I_{DRM}	T_j = 125°C, $V_D = V_{DRM}$			75	mA
Peak On-state Voltage	V_{TM}	I_{TM} = 1000A Peak t_p = 8msec			3.5	Volts
Threshold Voltage, Low-level	$V_{(TO)1}$	T_j = 125°C, I = 15%, $I_{T(av)}$ to $\pi I_{T(av)}$			1.5618	Volts
Slope Resistance, Low-level	r_{T1}				2.1412	mΩ
Threshold Voltage, High-level	$V_{(TO)2}$	T_j = 125°C, I = $\pi I_{T(av)}$ to I_{TSM}			2.7113	Volts
Slope Resistance, High-level	r_{T2}				0.96929	mΩ
V_{TM} Coefficients, Low-level		T_j = 125°C, I = 15% $I_{T(av)}$ to $\pi I_{T(av)}$				
					A_1 = 1.1505	
					B_1 = -0.14678	
					C_1 = -9.586E-04	
					D_1 = 0.13681	
V_{TM} Coefficients, High-level		T_j = 125°C, I = $\pi I_{T(av)}$ to I_{TSM}				
					A_2 = -13.457	
					B_2 = 3.0936	
					C_2 = 1.627E-03	
					D_2 = -0.19076	
Typical Delay Time	t_d	$V_D = 0.5V_{DRM}$		2.0		µsec
Typical Turn-off Time	t_q	V_R = 100V, di_R/dt = 5A/µsec Reapplied dv/dt = 20V/µsec Linear to 50% V_{DRM}		250		µsec
Minimum Critical dv/dt - Linear to V_{DRM}	dv/dt	T_j = 125°C, $V_D = 0.67V_{DRM}$	500	1000		V/µsec
Gate Trigger Current	I_{GT}	T_j = 25°C, V_D = 12V			200	mA
Gate Trigger Voltage	V_{GT}	T_j = 25°C, V_D = 12V			3.0	Volts
Peak Reverse Gate Voltage	V_{GRM}				4.0	Volts

Thermal Characteristics

Maximum Thermal Resistance, Double Sided Cooling			
Junction-to-Case	$R_{\theta(j-c)}$	0.040	°C/W
Case-to-Sink	$R_{\theta(c-s)}$	0.020	°C/W