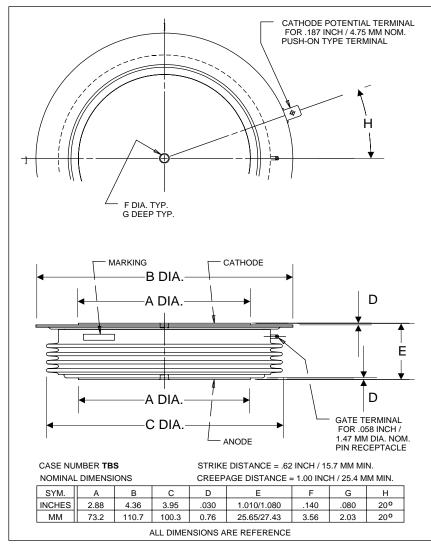


Powerex, Inc., 173 Pavilion Ln, Youngwood, PA 15697 (412)925-7272 WWW.PWRX.COM

Phase Control Thyristor

3200 Amperes/Up to 1600 Volts



Ordering Information

Select the complete 12 digit device part number from the table below.

Туре	Voltage V _{DRM} V _{RRM}	Current I _{T(av)}	Turn-Off t _q	Gate Current I _{GT}	Lead Code
TBS7	12 14 16	32	0	3	DH
	1200 V 1400 V 1600 V	3200 A	350 μs typical	200 mA	12"

Description:

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



Features:

- Low On-State Voltage
- High di/dt Capability
- High dv/dt Capability
- Excellent Surge and I²t Ratings

Applications:

- Power Supplies
- Battery Chargers
- Motor Controllers



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Absolute Maximum Ratings

Characteristics	Symbo	Units	
Non-repetitive Transient Peak Reverse Voltage	V _{RSM}	V _{RRM} +100V	V
RMS On-State Current	I _{T(RMS)}	5025	Α
Average Current 180° Sine Wave, T _C =76°C	I _{T(AV)}	3200	Α
Peak One Cycle Surge On-State Current (Non-Repetitive) 60Hz	I _{TSM}	44,000	Α
Peak One Cycle Surge On-State Current (Non-Repetitive) 50Hz	I _{TSM}	40500	Α
Critical Rate-of-Rise of On-State Current (Non-Repetitive)	di/dt	300	A/μs
Critical Rate-of-Rise of On-State Current (Repetitive)	di/dt	100	A/μs
i ² t for Fusing for One Cycle, 60 Hz	l ² t	8.07x10 ⁶	A ² s
Peak Gate Power Dissipation	P _{GM}	250	w
Average Gate Power Dissipation	$P_{G(av)}$	35	w
Operating Temperature	T _J	-40 to 125°C	°C
Storage Temperature	T _{STG}	-40 to 150°C	°C
Mounting Force		6000 to 10000 26.6 to 44.4	lb. kN

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Electrical Characteristics, T_J=25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Тур.	Max.	Units
Repetitive Peak Reverse Leakage Current	I _{RRM}	T _J =125°C, V _R =V _{RRM}			150	mA
Repetitive Peak Forward Leakage Current	I _{DRM}	T _J =125°C, V _D =V _{DRM}			150	mA
Peak On-State Voltage	V_{TM}	T _J =25°C, I _™ =3000A Duty Cycle < 0.01%			1.25	٧
Threshold Voltage, Low-level	V _{(TO)1}	T _J =125°C, for 500A≤I _{TM} <10,000A			0.776	V
Slope Resistance, Low-level	r _{T1}				0.0889	mΩ
Threshold Voltage, High-level	V _{(TO)2}	T _J =125°C, for I _{TM} <10,0000A			1.032	٧
Slope Resistance, High-level	r _{T2}				0.0735	mΩ
ABCD V _™ Modeling Coefficients	Α	T _J =125°C, for 500A≤I _{TM} <60,000A			0.7393	V
	В				-0.01883	-
	С				0.05747	mΩ
	D				0.005836	_
Typical Delay Time	t _d	I_{TM} =1000A, V_D =0.5 V_{DRM}		3		μs
Maximum Turn-Off Time	t q	T_J =125°C, I_T =1000A, di_R/dt =25A/ μ s dv/dt =20V/ μ s linear to 80% V_{DRM}		350		μS
Minimum Critical dv/dt - Expodential to V _{DRM}	dv/dt	T _J =125°C	300			V/µs
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			4.0	٧
Non-Triggering Gate Voltage	V_{GDM}	$T_J=125^{\circ}C$, $V_D=V_{DRM}$			0.5	٧
Peak Forward Gate Current	I _{GTM}				4	Α
Peak Reverse Gate Voltage	V_{GRM}				10	٧
hermal Characteristics						
Characteristics	Symbol		Min.	Тур.	Max.	Units
laximum Thermal Resistance, Double ided Cooling						
Junction to Case Case to Sink	R _{eJC}				.010 .002	°C/W
Odde to onik	R _{ecs}				.002	· C/VV