

PowerTech

T-25-19

GATE ASSISTED TURN-OFF THYRISTOR
FOR HIGH CURRENT PULSE APPLICATIONS

FEATURES:

Up to 2,500 Amps peak pulse on-state current. PG - 5 0 0 2 thru 5 0 1 2
Extremely fast turn-on.
Gate assisted turn-off.

ABSOLUTE MAXIMUM RATINGS:

	Symbol	PG-50XX	Units
RMS On-State Current	IT(RMS)	110	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	ITSM	2000	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	ITSM	1800	Amperes
Critical Rate-of-Rise of On-State (Repetitive)	di/dt	See Fig. 1	Amps/ μ s
I ² t (for Fusing), One Cycle at 60Hz	I ² t	1.7 X 10 ⁴	A ² sec
Peak Gate Power Dissipation	PGM	See Fig. 4	Watts
Average Gate Power Dissipation	PG(av)	See Fig. 4	Watts
Storage Temperature	TSTG	-40 to 150	°C
Operating Temperature	TJ	-40 to 125	°C

ELECTRICAL AND THERMAL CHARACTERISTICS:

<u>Charateristics</u>	<u>Symbol</u>	<u>Test Conditions</u>	<u>PG-50XX</u>	<u>Units</u>
<u>Voltage-Blocking State Maximums:</u>				
Forward Leakage, Peak	IDRM	TJ=125°C, VDRM applied	15	mA
Reverse Leakage, Peak	IRRM	TJ=125°C, VRRM=100V	15	mA
<u>Current-Conducting State Maximums:</u>				
Peak On-State Voltage	VTM	TJ=125°C, ITM=600A	1.8	Volts
<u>Switching:</u>				
Min. Critical dv/dt Exponential to VDRM	dv/dt	TJ=125°C, VD=½VDRM	20	V/ μ sec
<u>Thermal:</u>				
Maximum Thermal Resistance Junction to Case	R θ JC		.35	°C/Watt
Case to Sink, Lubricated	R θ JC		.08	°C/Watt
<u>Gate-Maximum Parameters:</u>				
Gate Current to Trigger	IGT	TJ=25°C, VD=6V, RL=2 Ω	100	mA
Gate Voltage to Trigger	VGT	TJ=25°C, VD=6V, RL=2 Ω	1.5	Volts
Non-Trigging Gate Voltage	VGDM	TJ=125°C, VD=½VDRM	.20	Volts
Peak Forward Gate Current	IGTM		50	Amperes
Peak Reverse Gate Voltage	VGRM		5.0	Volts

Voltage-Blocking State Maximums:

Type	PG-5002	PG-5003	PG-5004	PG-5005	PG-5006	PG-5008	PG-5010	PG-5012
Volts(VDRM)	200	300	400	500	600	800	1000	1200

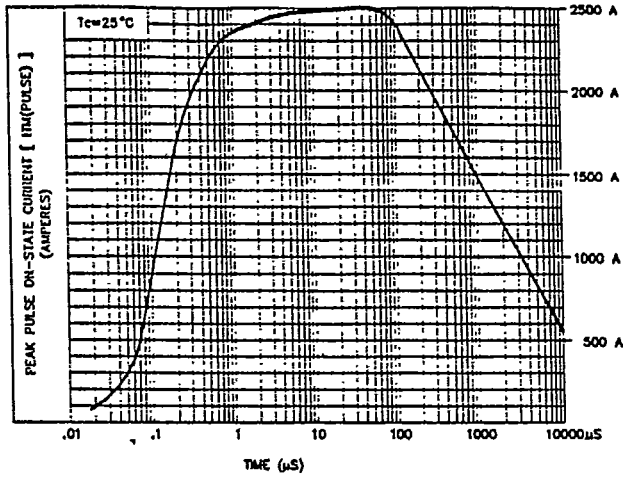


Figure 1. Peak pulse on-state current vs. time

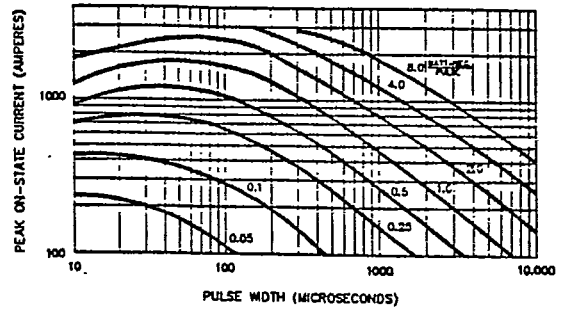


Figure 2. Energy per pulse for sinusoidal pulses

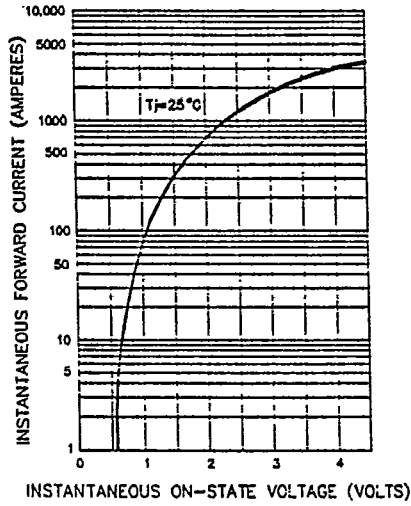


Figure 3. Forward conduction characteristic, on-state

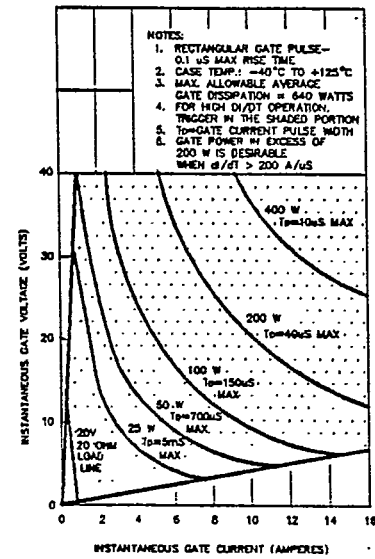


Figure 4. Maximum allowable peak gate power vs. gate pulse width

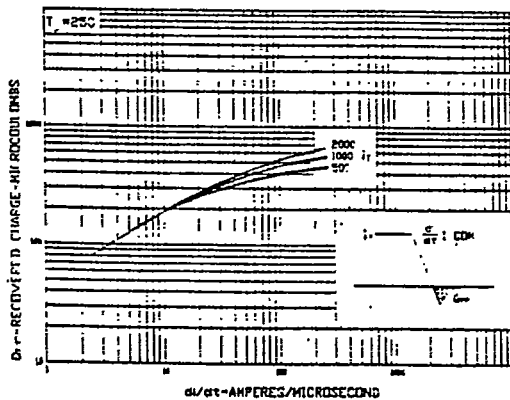


FIGURE 5. TYPICAL RECOVERED CHARGE

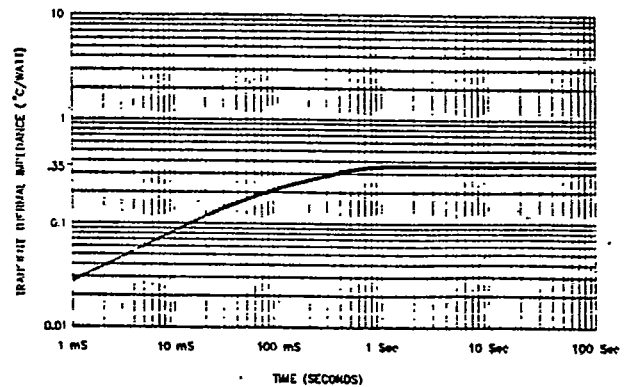


Figure 6. Transient Thermal Impedance Characteristic (junction to case)