

PowerTech

T-25-19

GATE ASSISTED TURN-OFF THYRISTOR
FOR HIGH CURRENT PULSE APPLICATIONSFEATURES:

Up to 2,500 Amps peak pulse on-state current. PG - 5002 thru 5012
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:

Characteristics	Symbol	Test Conditions	PG-50XX	Units
<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-Triggering 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

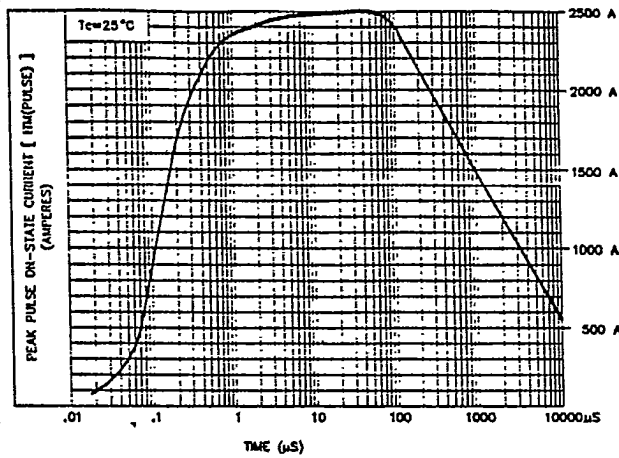


Figure 1. Peak pulse on-state current vs. time

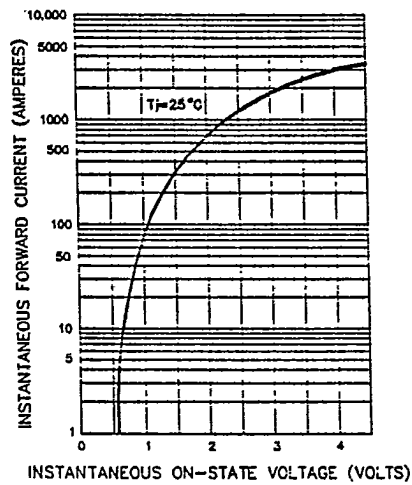


Figure 3. Forward conduction characteristic, on-state

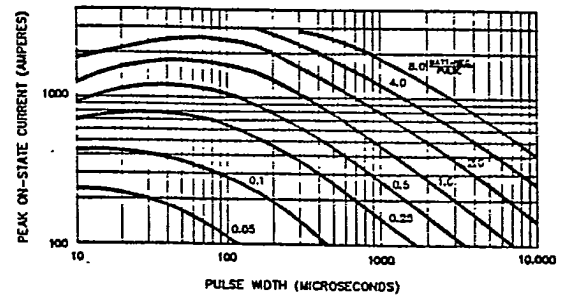


Figure 2. Energy per pulse for sinusoidal pulses

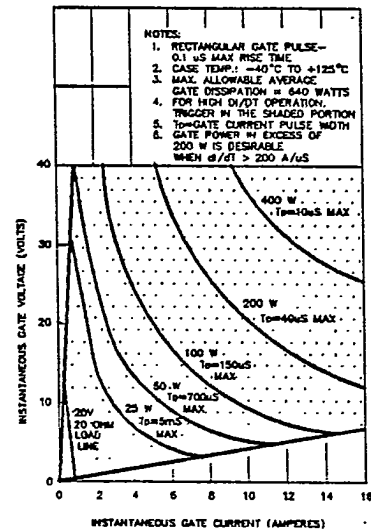


Figure 4. Maximum allowable peak gate power vs. gate pulse width

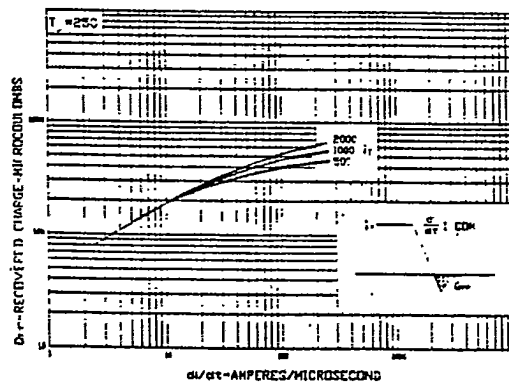


FIGURE 5. TYPICAL RECOVERED CHARGE

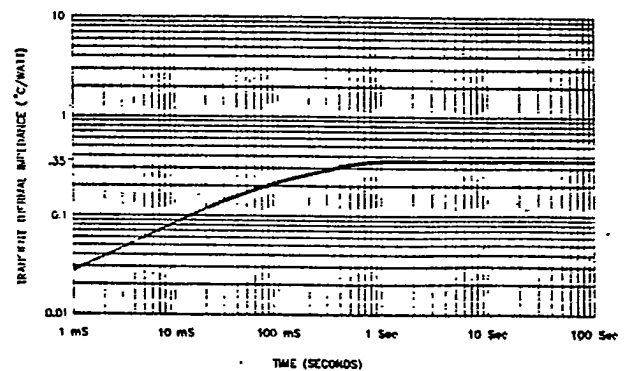


Figure 6. Transient Thermal Impedance Characteristic (junction to case)