

T-25-17

Silicon Controlled Rectifier Reverse Blocking Triode Thyristor

... designed for industrial and consumer applications such as power supplies, battery chargers, temperature, motor, light and welder controls.

- Economical for a Wide Range of Uses
- High Surge Current — $I_{TSM} = 300$ Amps
- Low Forward "On" Voltage — 1.2 V (Typ) @ $I_{TM} = 35$ Amps
- Practical Level Triggering and Holding Characteristics — 10 mA (Typ) @ $T_C = 25^\circ\text{C}$
- Rugged Construction in Either Pressfit, Stud, or Isolated Stud Packages
- Glass Passivated Junctions for Maximum Reliability

C228
C228()3
C229
Series

SCRs
35 AMPERES RMS
100 thru 600 VOLTS



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive Peak Off-State Voltage, Note 1 ($T_J = -40$ to $+125^\circ\text{C}$) C228A, C228A3, C229A C228B, C228B3, C229B C228D, C228D3, C229D C228M, C228M3, C229M	V_{DRM} and V_{RRM}	100 200 400 600	Volts
Non-Repetitive Reverse Voltage ($T_J = -40$ to $+125^\circ\text{C}$) C228A, C228A3, C229A C228B, C228B3, C229B C228D, C228D3, C229D C228M, C228M3, C229M	V_{RSM}	150 300 500 720	Volts
Forward Current RMS	$I_T(\text{RMS})$	35	Amps
Peak Surge Current (One Cycle, 60 Hz, $T_C = -40$ to $+125^\circ\text{C}$)	I_{TSM}	300	Amps
Circuit Fusing Considerations ($T_C = -40$ to $+125^\circ\text{C}$, $t = 1$ to 8.3 ms)	I^2t	370	A^2s
Peak Gate Power	P_{GM}	5	Watts
Average Gate Power	$P_{G(AV)}$	0.5	Watt
Peak Forward Gate Current	I_{GM}	2	Amps
Operating Junction Temperature Range	T_J	-40 to $+125$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to $+150$	$^\circ\text{C}$
Stud Torque	—	30	in. lb.

Note 1. V_{DRM} and V_{RRM} for all types can be applied on a continuous dc basis without incurring damage. Ratings apply for zero or negative gate voltage. Devices shall not have a positive bias applied to the gate concurrently with a negative potential on the anode.



CASE 310-02
STYLE 1
C229 Series



CASE 263-04
STYLE 1
C228 Series



CASE 311-02
STYLE 1
C228()3 Series

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C228 • C228()3 • C229 Series

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case C228 and C229 Series C228()3 Series	$R_{\theta JC}$	1.7 1.85	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM} , gate open) $T_C = 25^{\circ}\text{C}$ $T_C = 125^{\circ}\text{C}$	I_{DRM}, I_{RRM}	— —	— —	10 3	μA mA
Forward "On" Voltage ($I_{TM} = 100 \text{ A Peak}$)	V_{TM}	—	—	1.9	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12 \text{ Vdc}$, $R_L = 80 \text{ Ohms}$, $T_C = 25^{\circ}\text{C}$) ($V_D = 6 \text{ Vdc}$, $R_L = 50 \text{ Ohms}$, $T_C = -40^{\circ}\text{C}$)	I_{GT}	— —	— —	40 80	mA
Gate Trigger Voltage (Continuous dc) ($V_D = 12 \text{ Vdc}$, $R_L = 80 \text{ Ohms}$, $T_C = 25^{\circ}\text{C}$) ($V_D = 6 \text{ Vdc}$, $R_L = 80 \text{ Ohms}$, $T_C = -40^{\circ}\text{C}$)	V_{GT}	— —	— —	2.5 3	Volts
Gate Trigger Voltage (Rated V_{DRM} , $R_L = 1000 \text{ Ohms}$, $T_C = +125^{\circ}\text{C}$)	V_{GT}	0.2	—	—	Volts
Holding Current (Anode Voltage = 24 V, gate open) $T_C = 25^{\circ}\text{C}$ $T_C = -40^{\circ}\text{C}$	I_H	— —	— —	75 150	mA
Turn-On Time ($t_d + t_r$) ($I_{TM} = 35 \text{ Adc}$, $I_{GT} = 40 \text{ mAdc}$)	t_{on}	—	1	—	μs
Turn-Off Time ($I_{TM} = 10 \text{ A}$, $I_R = 10 \text{ A}$) ($I_{TM} = 10 \text{ A}$, $I_R = 10 \text{ A}$, $T_C = 100^{\circ}\text{C}$)	t_{off}	— —	20 35	—	μs
Forward Voltage Application Rate ($T_C = 100^{\circ}\text{C}$)	dv/dt	—	50	—	$\text{V}/\mu\text{s}$

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FIGURE 1 — CURRENT DERATING
(HALF-WAVE RECTIFIED SINE WAVE)

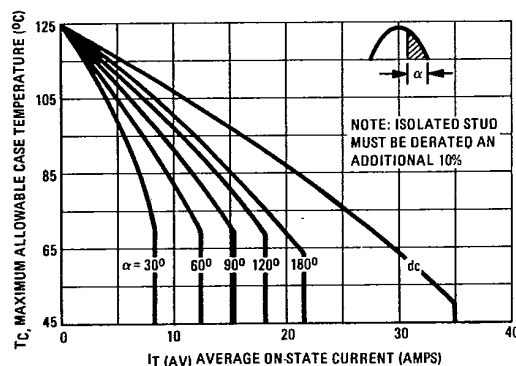


FIGURE 2 — CURRENT DERATING
(FULL-WAVE RECTIFIED SINE WAVE)

