

Triacs

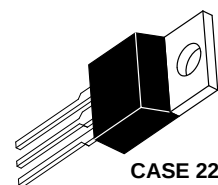
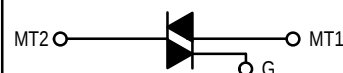
Bidirectional Triode Thyristors

... designed primarily for full-wave ac control applications, such as light dimmers, motor controls, heating controls and power supplies.

- Blocking Voltage to 600 Volts
- All Diffused and Glass Passivated Junctions for Greater Parameter Uniformity and Stability
- Small, Rugged, Thermowatt Construction for Low Thermal Resistance, High Heat Dissipation and Durability
- T2800 — Four Quadrant Gating

**T2800
SERIES**

**TRIACs
8 AMPERES RMS
200 thru 600 VOLTS**



**CASE 221A-04
(TO-220AB)
STYLE 4**

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage ⁽¹⁾ ($T_J = -40$ to $+100^\circ\text{C}$, Gate Open)	V_{DRM}	200 400 600	Volts
T2800 B D M			
RMS On-State Current (Conduction Angle = 360°)	$I_{\text{T(RMS)}}$	8	Amps
Peak Non-repetitive Surge Current (One Full Cycle, 60 Hz, $T_J = +80^\circ\text{C}$)	I_{TSM}	100	Amps
Circuit Fusing ($t = 8.3$ ms)	I^2t	40	A^2s
Peak Gate Power (Pulse Width = $1\ \mu\text{s}$)	P_{GM}	16	Watts
Average Gate Power	$P_{\text{G(AV)}}$	0.35	Watt
Peak Gate Trigger Current (Pulse Width = $1\ \mu\text{s}$)	I_{GTM}	4	Amps
Operating Junction Temperature Range	T_J	-40 to $+100$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to $+150$	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta\text{JC}}$	2.2	$^\circ\text{C/W}$

1. V_{DRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

REV 1

T2800 SERIES

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Blocking Current ($V_D = \text{Rated } V_{DRM}$, Gate Open) $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	I_{DRM}	— —	— —	10 2	μA mA
Peak On-State Voltage (Either Direction)* ($I_T = 30\text{ A Peak}$)	V_{TM}	—	1.7	2	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12\text{ Vdc}$, $R_L = 12\text{ Ohms}$) MT2(+), G(+) T2800 MT2(+), G(-) T2800 MT2(-), G(-) T2800 MT2(-), G(+) T2800	I_{GT}	— — — —	10 20 15 30	25 60 25 60	mA
Gate Trigger Voltage (Continuous dc) (All Polarities) ($V_D = 12\text{ Vdc}$, $R_L = 100\text{ Ohms}$) ($R_L = 125\text{ Ohms}$, $V_D = V_{DRM}$, $T_C = 100^\circ\text{C}$)	V_{GT}	— 0.2	1.25 —	2.5 —	Volts
Holding Current (Either Direction) ($V_D = 12\text{ Vdc}$, Gate Open) T2800	I_H	—	15	30	mA
Gate Controlled Turn-On Time ($V_D = \text{Rated } V_{DRM}$, $I_T = 10\text{ A}$, $I_{GT} = 80\text{ mA}$, Rise Time = $0.1\text{ }\mu\text{s}$)	t_{gt}	—	1.6	—	μs
Critical Rate-of-Rise of Commutation Voltage ($V_D = \text{Rated } V_{DRM}$, $I_T(\text{RMS}) = 8\text{ A}$, Commutating $di/dt = 4.1\text{ A/ms}$, Gate Unenergized, $T_C = 80^\circ\text{C}$)	$dv/dt(c)$	—	10	—	$\text{V}/\mu\text{s}$
Critical Rate-of-Rise of Off-State Voltage ($V_D = \text{Rated } V_{DRM}$, Exponential Voltage Rise, Gate Open, $T_C = 100^\circ\text{C}$) T2800 B D M	dv/dt	100 — 60	— — —	— — —	$\text{V}/\mu\text{s}$

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$.

FIGURE 1 – CURRENT DERATING

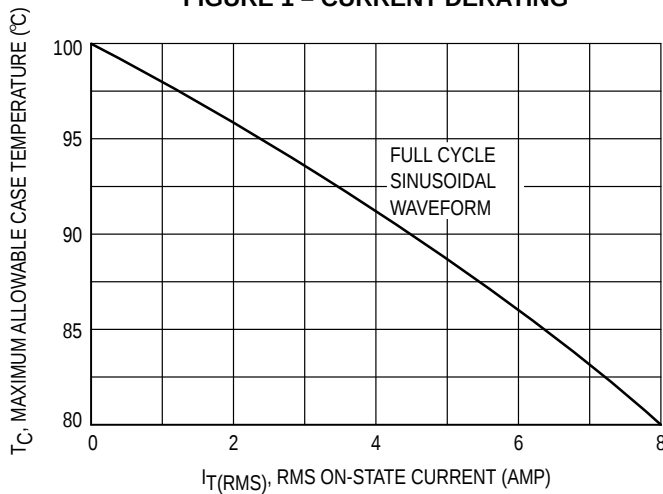
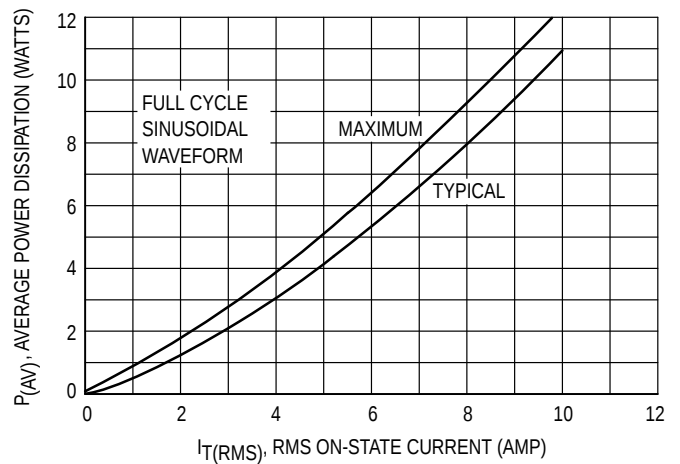
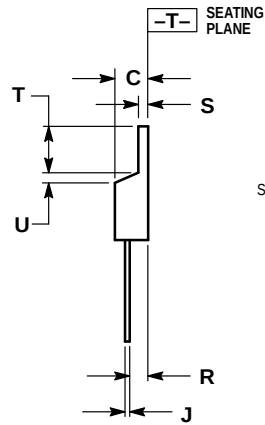
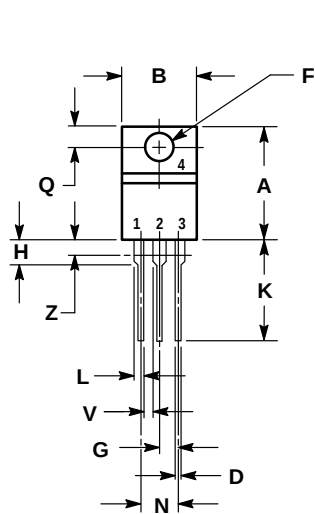


FIGURE 2 – POWER DISSIPATION



PACKAGE DIMENSIONS



STYLE 4:
PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. MAIN TERMINAL 2

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.055	1.15	1.39
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

CASE 221A-04
(TO-220AB)

T2800 SERIES

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MOTOROLA



T2800/D

