

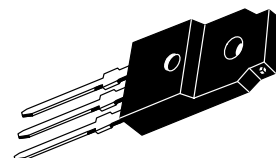
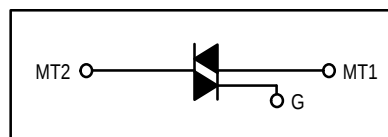
Silicon Bidirectional Triode Thyristors

T2500FP Series

... designed primarily for full-wave ac control applications, such as solid-state relays, motor controls, heating controls and power supplies; or wherever full-wave silicon gate controlled solid-state devices are needed. Triac type thyristors switch from a blocking to a conducting state for either polarity of applied anode voltage with positive or negative gate triggering.

- Blocking Voltage to 800 Volts
- All Diffused and Glass Passivated Junctions for Greater Parameter Uniformity and Stability
- Small, Rugged, Isolated Construction for Low Thermal Resistance, High Heat Dissipation and Durability

**ISOLATED TRIACS
THYRISTORS
6 AMPERES RMS
200 thru 800 VOLTS**



**CASE 221C-02
STYLE 3**

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

Rating	Symbol	Value	Unit
Repetitive Peak Off-State Voltage ⁽¹⁾ ($T_J = -40$ to $+100^\circ\text{C}$, Gate Open)	V_{DRM}	200 400 600 800	Volts
On-State RMS Current ($T_C = +80^\circ\text{C}$) ⁽²⁾ (Full Cycle Sine Wave 50 to 60 Hz)	$I_{\text{T(RMS)}}$	6	Amps
Peak Non-repetitive Surge Current (One Full Cycle, 60 Hz, $T_C = +80^\circ\text{C}$)	I_{TSM}	60	Amps
Circuit Fusing Considerations ($t = 8.3$ ms)	I^2t	40	A^2s
Peak Gate Power ($T_C = +80^\circ\text{C}$, Pulse Width = 1 μs)	P_{GM}	1	Watt
Average Gate Power ($T_C = +80^\circ\text{C}$, $t = 8.3$ ms)	$P_{\text{G(AV)}}$	0.2	Watt
Peak Gate Trigger Current (Pulse Width = 10 μs)	I_{GTM}	4	Amps
RMS Isolation Voltage ($T_A = 25^\circ\text{C}$, Relative Humidity $\leq 20\%$)	V_{ISO}	1500	Volts
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 ⁽²⁾	$R_{\theta\text{JC}}$	2.7	$^\circ\text{C/W}$
Case to Sink	$R_{\theta\text{CS}}$	2.2(typ)	
Junction to Ambient	$R_{\theta\text{JA}}$	60	

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.
2. The case temperature reference point for all T_C measurements is a point on the center lead of the package as close as possible to the plastic body.

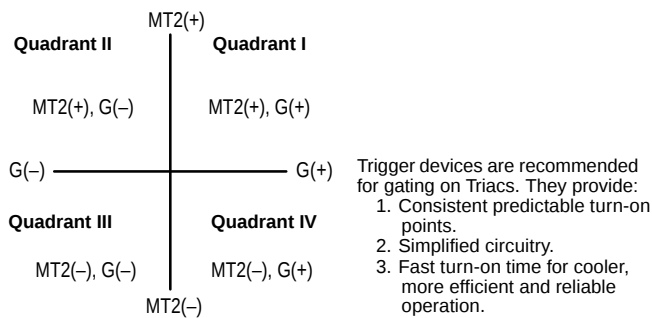
T2500FP Series

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Off-State Current (Either Direction) ($V_D = \text{Rated } V_{DRM}$, $T_J = 100^\circ\text{C}$, Gate Open)	I_{DRM}	—	—	2	mA
Maximum On-State Voltage (Either Direction)* ($I_T = 30\text{ A Peak}$)	V_{TM}	—	—	2	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12\text{ Vdc}$, $R_L = 12\text{ Ohms}$)	I_{GT}				mA
MT2(+), G(+)		—	10	25	
MT2(+), G(—)		—	20	60	
MT2(—), G(—)		—	15	25	
MT2(—), G(+)		—	30	60	
Gate Trigger Voltage (Continuous dc) (All Quadrants) ($V_D = 12\text{ Vdc}$, $R_L = 12\text{ Ohms}$) ($V_D = V_{DROM}$, $R_L = 125\text{ Ohms}$, $T_C = 100^\circ\text{C}$, All Trigger Models)	V_{GT}	— 0.2	1.25 —	2.5 —	Volts
Holding Current (Either Direction) (Main Terminal Voltage = 12 Vdc, Gate Open, Initiating Current = 150 mA, $T_C = 25^\circ\text{C}$)	I_H	—	15	30	mA
Gate Controlled Turn-On Time ($V_D = \text{Rated } V_{DRM}$, $I_T = 10\text{ A}$, $I_{GT} = 160\text{ mA}$, Rise Time $\leq 0.1\text{ }\mu\text{s}$)	t_{gt}	—	1.6	—	μs
Critical Rate-of-Rise of Commutation Voltage ($V_D = \text{Rated } V_{DRM}$, $I_T(\text{RMS}) = 6\text{ A}$, Commutating $di/dt = 3.2\text{ A/ms}$, 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, $T_C = 100^\circ\text{C}$)	dv/dt	—	100	—	$\text{V}/\mu\text{s}$

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

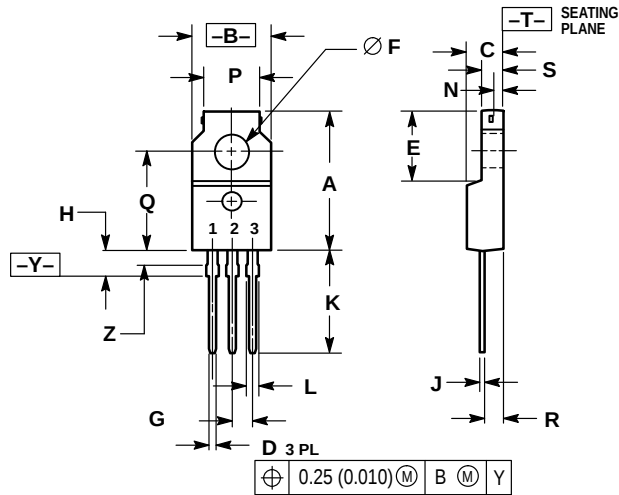
Quadrant Definitions



Electrical Characteristics of Recommended Bidirectional Switches

Usage	General	
Part Number	MBS4991	MBS4992
V_S	6 – 10 V	7.5 – 9 V
I_S	350 μA Max	120 μA Max
$V_{S1} - V_{S2}$	0.5 V Max	0.2 V Max
Temperature Coefficient	0.02%/°C Typ	

PACKAGE DIMENSIONS



STYLE 3:
PIN 1. MT 1
2. MT 2
3. GATE

- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. LEAD DIMENSIONS UNCONTROLLED WITHIN DIMENSION Z.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.680	0.700	17.28	17.78
B	0.388	0.408	9.86	10.36
C	0.175	0.195	4.45	4.95
D	0.025	0.040	0.64	1.01
E	0.340	0.355	8.64	9.01
F	0.140	0.150	3.56	3.81
G	0.100 BSC		2.54 BSC	
H	0.110	0.155	2.80	3.93
J	0.018	0.028	0.46	0.71
K	0.500	0.550	12.70	13.97
L	0.045	0.070	1.15	1.77
N	0.049	—	1.25	—
P	0.270	0.290	6.86	7.36
Q	0.480	0.500	12.20	12.70
R	0.090	0.120	2.29	3.04
S	0.105	0.115	2.67	2.92
Z	0.070	0.090	1.78	2.28

CASE 221C-02

T2500FP Series

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T2500FP/D

