

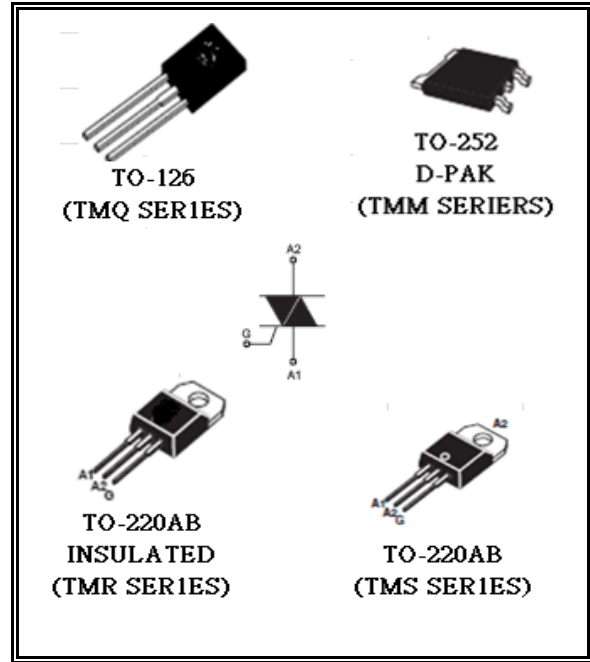


# SENSITIVITY TRIAC 4 AMPERES SERIES

## Features

- ◆ Voltage Capability up to 600 Volts
- ◆  $I_{TSM}$  Surge Capability 40A
- ◆ Electrically - Isolated Packages
- ◆ Hi-Reliability and Parameter Stability.
- ◆ Low Level Triggering and Characteristics.
- ◆ Apply for Phase Control in Light Dimmers 、 ON/OFF Function in Static Relays 、 Temperature Modulation controls or Motor Speed Controllers and Used Primarily for AC Switching 。
- ◆ Case Material : Molded Plastic 【UL Flammability Classification Rating 94V-0 】

## PACKAGE OUTLINE



## Absolute Maximum Ratings 【TA=25°C】

Parameter	Symbol	TMR2004	TMR4004	TMR6004	Unit
Peak Repetitive Off-State Voltage	$V_{Drm}$	200	400	600	V
On-State RMS Current	$I_T (RMS)$	4.0			A
Peak Non-Repetitive Surge Current (one full cycle 60Hz $T_J=25^\circ C$ )	$I_{TSM}$	40			A
Circuit Fusing Consideration ( $t=8.3mS$ )	$I^2T$	6.6			A <sup>2</sup> S
Average Gate Power (pulse width $\leq 8.3mS$ , $T_C=125^\circ C$ )	$P_{G(AV)}$	0.3			Watt
Peak Gate Power Dissipation $I_{GT} \leq I_{GTM}$	$P_{GM}$	15			Watt
Operating Junction Temperature Range	$T_J$	- 40 to + 125			°C
Storage Temperature Range	$T_S$	- 40 to + 150			°C

## Thermal Characteristics

Parameter		Symbol	Min	Typ.	Max	Units
Thermal Resistance	junction to ambient	TMQ	-	75	-	°C /W
		TMM	-	58	-	
		TMR	-	60	-	
		TMS	-	56	-	
	junction to case	TMQ	-	3.5	-	°C /W
		TMM	-	1.8	-	
		TMR	-	2.5	-	
		TMS	-	1.5	-	
Maximum Lead Temperature for Soldering (1/8" from case for 10seconds)		$T_L$	-	-	260	°C



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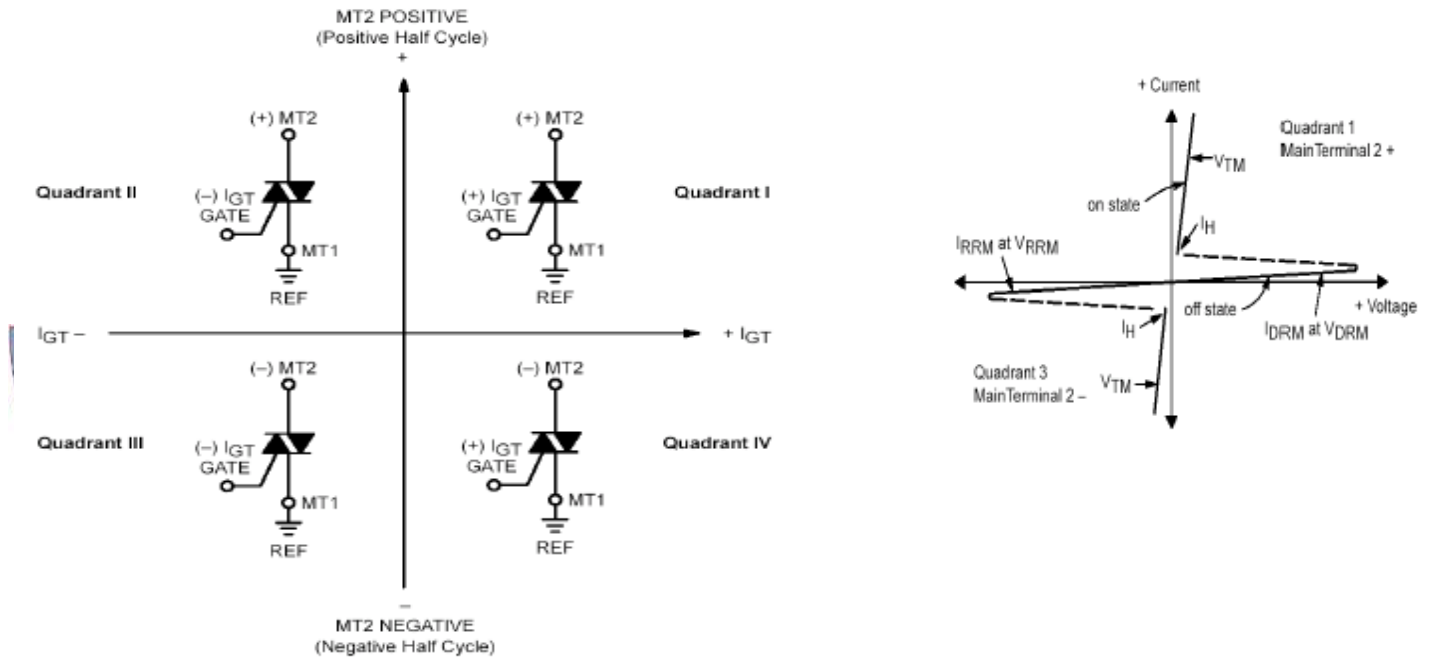
## Electrical Characteristics

On Characteristics								
Parameter		Teat Conditions	Symbol	D	A	E	F	Units
Peak Forward On-State Voltage		$I_{TM}=\pm 4A @ T_P \leq 2mS, \text{Duty Cycle} \leq 2\%$	$V_{TM}$	1.6				V
Gate Trigger Current MT(+) G(+) MT(+) G(-) MT(-) G(-) MT(-) G(+)		$V_D=12V, RL=100\Omega$	$I_{GT1}$	3	5	5	10	mA
			$I_{GT2}$	3	5	5	10	
			$I_{GT3}$	3	5	5	10	
			$I_{GT4}$	3	5	10	20	
Critical rate-of-rise of off-state voltage at rated $V_{DRM}$ gate open	200V	$V_D=67\%V_{DRM}$ gate open , $T_C=100^\circ C$	dv/dt (2)	25	25	30	35	Volts / uS
	400V			25	25	30	35	
	600V			15	15	20	25	
commutation voltage at rated $V_{DRM}$ and $I_{T(RMS)}$ commutating $di/dt=0.54 \text{ rated } I_{T(RMS)} / \text{ms}$ ; gate unenergized		$(di/dt)_c = 13.3A/\text{ms}$	$(dv/dt)_c (2)$	0.5	1.0	1.0	2.0	Volts / uS
Gate Trigger Voltage		$V_D=12V, RL=100\Omega$	$V_{GT}$	2.0				V
Peak Gate Trigger Current		$V_D=12V, RL=100\Omega$	$I_{GTM}$	1.2				A
Holding Current		$I_T=100mA$	$I_H$	5	10	10	15	mA
Gate Control Turn-On Time		$I_{GT}=50mA$ With 0.1uS Rise Time	$t_{gt}$	2.8	3.0	3.0	3.2	uS
Maximum Rate-Of-Change Of On - State Current		$I_{GT}=50mA$ With 0.1uS Rise Time	di/dt	50.0				A/S

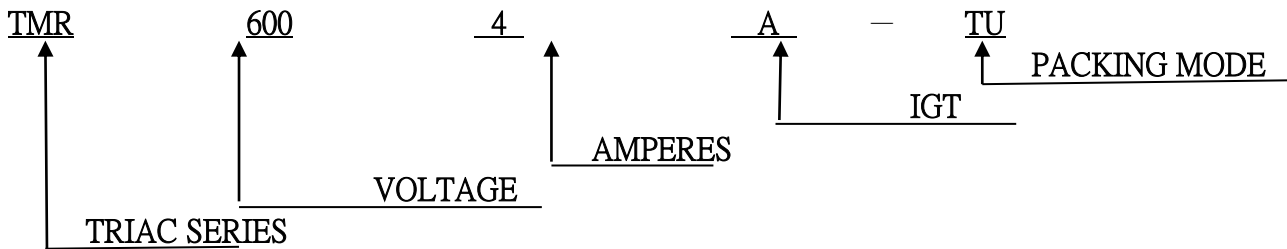
Off Characteristics							
Parameter		Symbol	Min	Typ.	Max	Units	
Peak Repetitive Forward or Reverse Blocking Current	$T_j=25^\circ C$	$I_{DRM}$		-	10	uA	
	$T_j=110^\circ C$			-	0.2	mA	



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## TYPE NUMBER CODING SYSTEM :



## OTHER INFORMATION:

Parts Number	Marking	Weight	Base Quantity	Packing Mode
TMR2004A-TU	TMR2004A	2.5	50	TUBE TU
TMR4004A-TU	TMR4004A	2.5	50	TUBE TU
TMR6004A-TU	TMR6004A	2.5	50	TUBE TU
TMS2004A-TU	TMS2004A	2.5	50	TUBE TU
TMS4004A-TU	TMS4004A	2.5	50	TUBE TU
TMS6004A-TU	TMS6004A	2.5	50	TUBE TU
TMM2004A-TR	TMM2004A	1.6	1000	TAPING REEL TR
TMM4004A-TR	TMM4004A	1.6	1000	TAPING REEL TR
TMM6004A-TR	TMM6004A	1.6	1000	TAPING REEL TR
TMQ2004A-TU	TMQ2004A	0.8	80	TUBE TU
TMQ4004A-TU	TMQ4004A	0.8	80	TUBE TU
TMQ6004A-TU	TMQ6004A	0.8	80	TUBE TU



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## ELECTRONICS CHARACTERISTICS CURVE

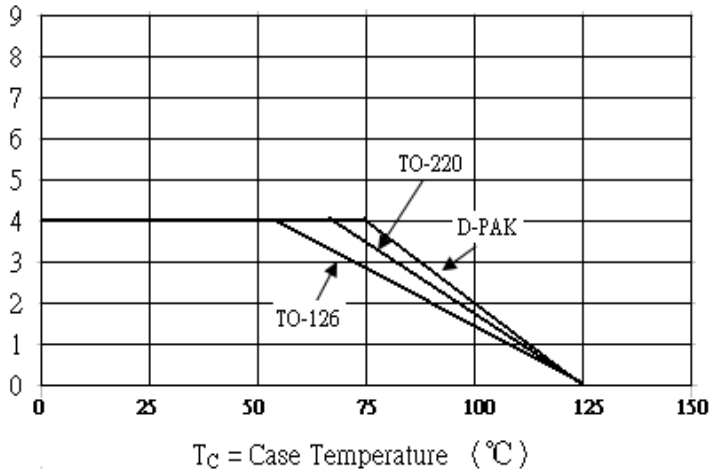


Fig. 1 RMS on-state current versus case temperature (full cycle)

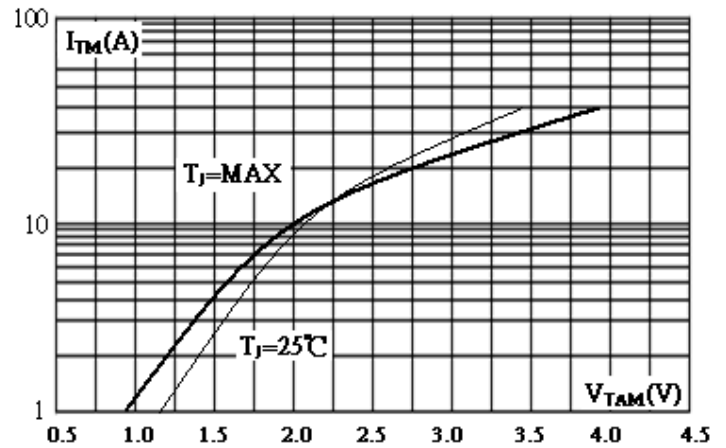


Fig. 2 On-state characteristics (maximum values)

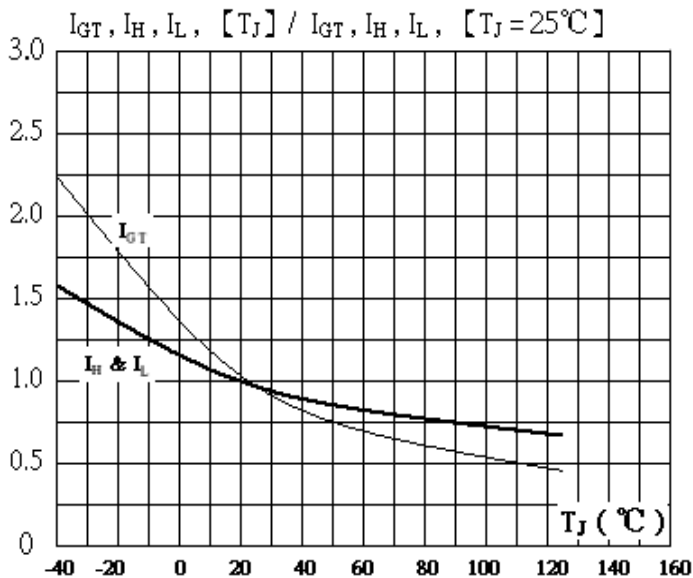


Fig. 3 Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

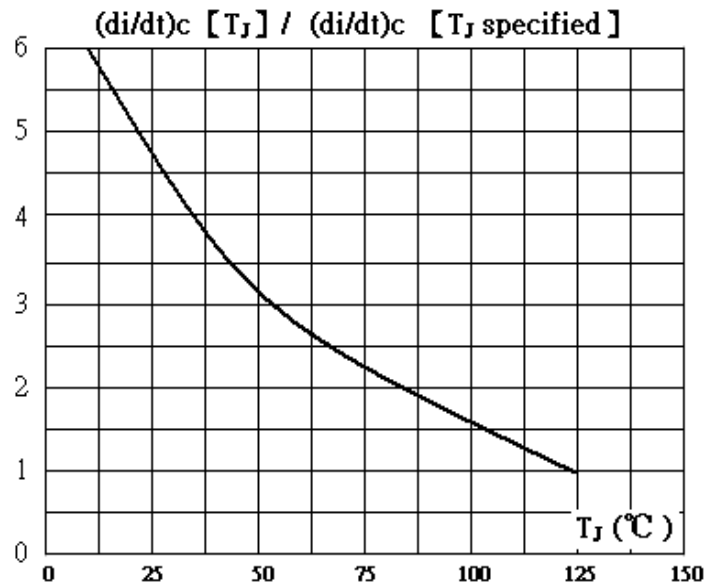


Fig. 4 Relative variation of critical rate of decrease of main current versus junction temperature (typical values).



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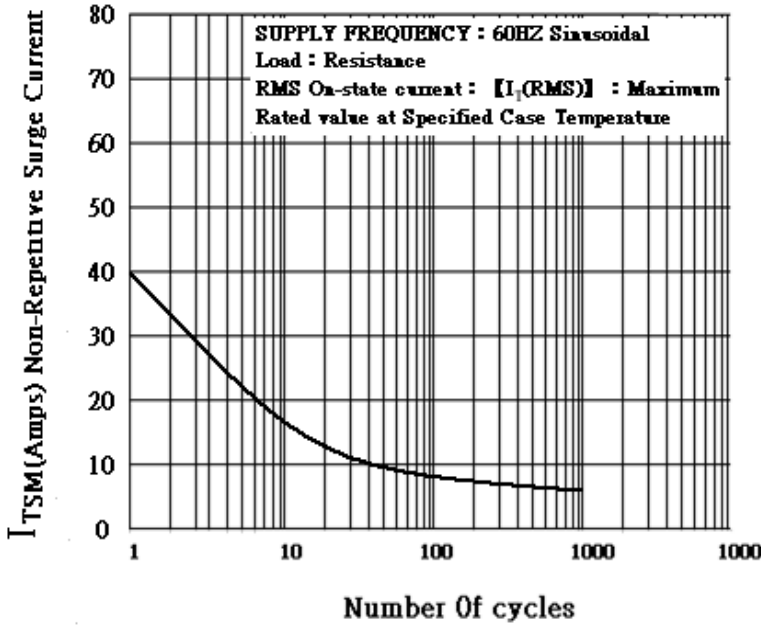


Fig. 5 Surge peak on-state current versus number of cycles.

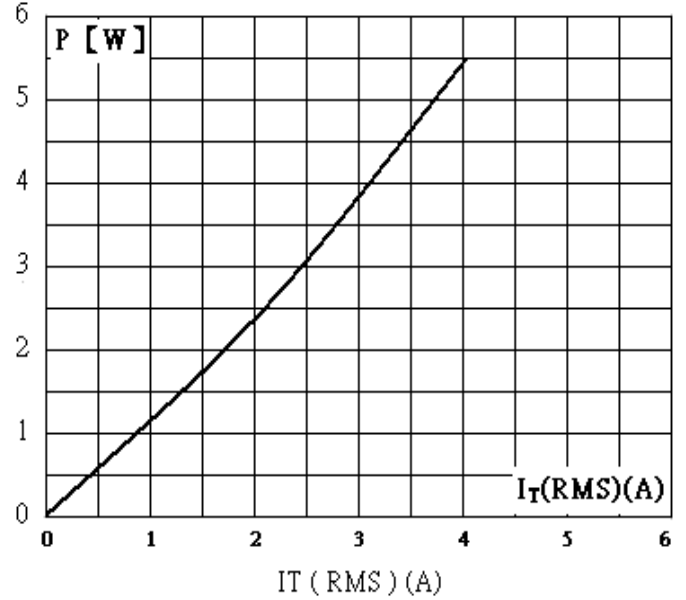
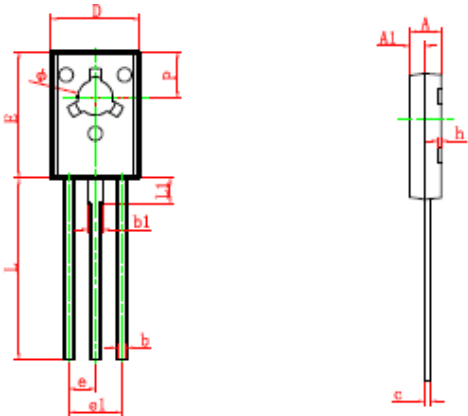


Fig. 6 Maximum power dissipation versus RMS on-state current ( full cycle)

## Outline Drawings

TO-126

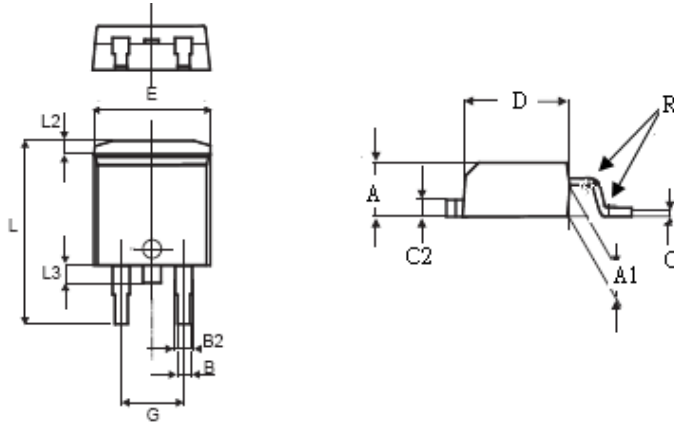


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.500	2.900	0.098	0.114
A1	1.100	1.500	0.043	0.059
b	0.660	0.860	0.026	0.034
b1	1.170	1.370	0.046	0.054
c	0.450	0.600	0.018	0.024
D	7.400	7.800	0.291	0.307
E	10.600	11.000	0.417	0.433
e	2.290 TYP		0.090 TYP	
e1	4.480	4.680	0.176	0.184
h	0.000	0.300	0.000	0.012
L	15.300	15.700	0.602	0.618
L1	2.100	2.300	0.083	0.091
P	3.900	4.100	0.154	0.161
Φ	3.000	3.200	0.118	0.126



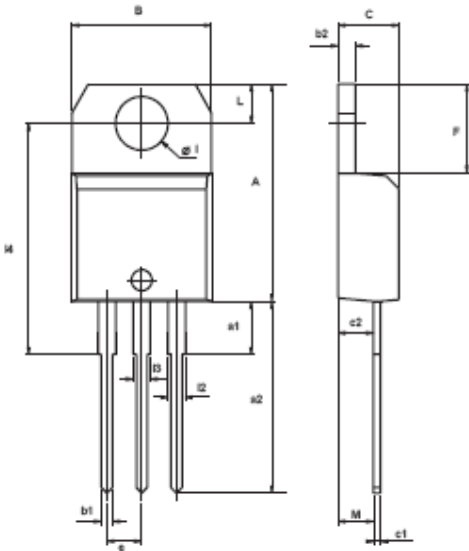
# SENSITIVITY TRIAC 4 AMPERES SERIES

D-PAK



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
B	0.75		0.85	0.030		0.034
B2	0.75		0.85	0.030		0.034
C	0.45		0.55	0.018		0.022
C2	0.45		0.55	0.018		0.022
D	5.96		6.16	0.235		0.245
E	6.50		6.70	0.255		0.265
G	4.47		4.67	0.176		0.184
L	9.60		10.0	0.378		0.394
L2	0.47		0.87	0.180		0.035
L3	1.40		1.75	0.055		0.070
R			40°			

TO-220AB 【INSULATED】



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
I	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	