

## Standard TRIACs, 1A

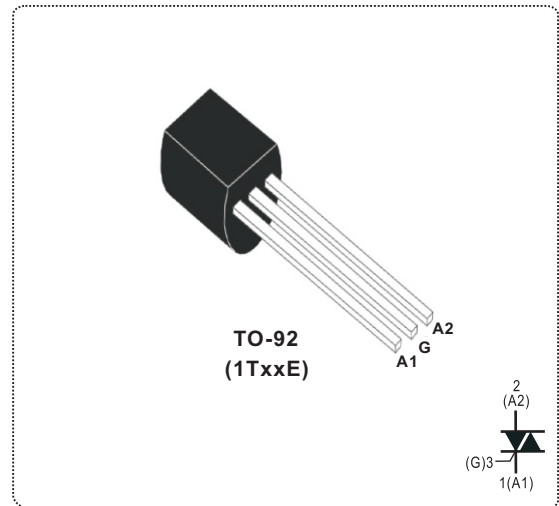
### FEATURES

- On-state RMS current,  $I_{T(RMS)}=1A$
- Repetitive peak off-state voltage,  $V_{DRM}/V_{RRM} = 600$  or  $800V$
- Triggering gate current,  $I_{GT(Q1)} 3$  to  $25 mA$

### APPLICATIONS

The 1T series is suitable for general purpose AC switching applications. These devices are typically used in applications such as home appliances (electrovalve, pump, door lock, small lamp control), fan speed controllers,...

Different gate current sensitivities are available, allowing optimized performance when driven directly through microcontrollers



### MAIN FEATURES

SYMBOL	VALUE	UNIT
$I_{T(RMS)}$	1	A
$V_{DRM}/V_{RRM}$	600 to 800	V
$I_{GT(Q1)}$	3 to 25	mA

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
RMS on-state current (full sine wave)	$I_{T(RMS)}$	TO-92	$T_c = 110^\circ C$	1	A
Non repetitive surge peak on-state current (full cycle, $T_j$ initial = $25^\circ C$ )	$I_{TSM}$	F = 50 Hz	t = 20 ms	16	A
		F = 60 Hz	t = 16.7 ms	17.6	
$I^2t$ Value for fusing	$I^2t$	$t_p = 10 ms$		1.28	$A^2s$
Critical rate of rise of on-state current $I_G = 2xI_{GT}$ , $t_r \leq 100ns$	dl/dt	F = 100 Hz	$T_j = 125^\circ C$	50	A/ $\mu s$
Peak gate current	$I_{GM}$	$T_p = 20 \mu s$	$T_j = 125^\circ C$	1	A
Average gate power dissipation	$P_{G(AV)}$	$T_j = 125^\circ C$		1	W
Peak gate power dissipation	$P_{GM}$	$T_j = 125^\circ C$		5	
Storage temperature range	$T_{stg}$			- 40 to + 150	$^\circ C$
Operating junction temperature range	$T_j$			- 40 to + 125	

⊙ ELECTRICAL CHARACTERISTICS ( $T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified)

Standard (4 quadrants)								
SYMBOL	TEST CONDITIONS	QUADRANT		1Txxxx				UNIT
				T	D	S	A	
$I_{GT}^{(1)}$	$V_D = 12\text{ V}, R_L = 30\Omega$	I - II - III	MAX.	3	5	10	25	mA
		IV		5	10	10	25	
$V_{GT}$		ALL		1.3				V
$V_{GD}$	$V_D = V_{DRM}, R_L = 3.3\text{K}\Omega, T_j = 125^\circ\text{C}$	ALL		0.2				V
$I_H^{(2)}$	$I_T = 50\text{ mA}$		MAX.	7	10	10	25	mA
$I_L$	$I_G = 1.2 I_{GT}$	I - III - IV	MAX.	7	10	15	25	mA
		II		15	20	25	50	
$dV/dt^{(2)}$	$V_D = 67\% V_{DRM}, \text{gate open}, T_j = 110^\circ\text{C}$		MIN.	10	20	50	100	V/ $\mu\text{s}$
$(dV/dt)_c^{(2)}$	$(dI/dt)_c = 0.44\text{ A/ms}, T_j = 110^\circ\text{C}$		MIN.	0.5	1	2	5	V/ $\mu\text{s}$

STATIC CHARACTERISTICS					
SYMBOL	TEST CONDITIONS			VALUE	UNIT
$V_{TM}^{(2)}$	$I_{TM} = 2\text{ A}, t_p = 380\text{ }\mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.50	V
$V_{TO}^{(2)}$	Threshold voltage	$T_j = 125^\circ\text{C}$	MAX.	0.95	
$R_D^{(2)}$	Dynamic resistance	$T_j = 125^\circ\text{C}$	MAX.	400	m $\Omega$
$I_{DRM}$ $I_{RRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX.	5	$\mu\text{A}$
		$T_j = 125^\circ\text{C}$		500	

Note 1: Minimum  $I_{GT}$  is guaranteed at 5% of  $I_{GT}$  max.

Note 2: For both polarities of A2 referenced to A1.

THERMAL RESISTANCE				
SYMBOL			VALUE	UNIT
$R_{th(j-c)}$	Junction to case (AC)	TO-92	60	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient	TO-92	150	

PRODUCT SELECTOR						
PART NUMBER	VOLTAGE (xx)			SENSITIVITY	TYPE	PACKAGE
	600 V	800 V	1000 V			
1TxxE-T	V	V	V	3 mA	Standard	TO-92
1TxxE-D	V	V	V	5 mA	Standard	TO-92
1TxxE-S	V	V	V	10 mA	Standard	TO-92
1TxxE-A	V	V	V	25 mA	Standard	TO-92

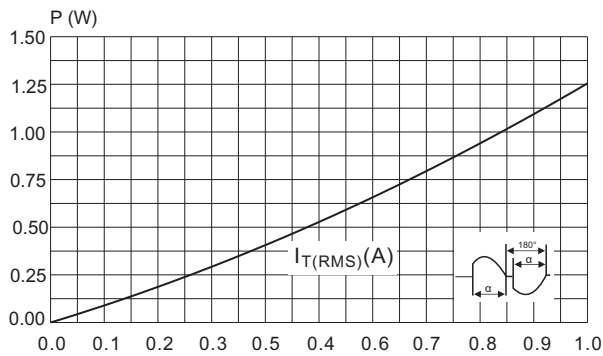
ORDERING INFORMATION					
ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
1TxxE-y	1TxxE-y	TO-92	0.2g	500	Bag

Note: xx = voltage, y = sensitivity

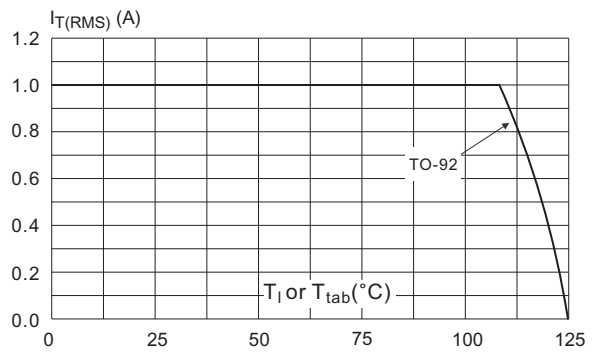
## ORDERING INFORMATION SCHEME

<b>Current</b>	1	T	06	E	-	D
1 = 1A						
<b>Triac series</b>						
<b>Voltage</b>						
06 = 600V						
08 = 800V						
<b>Package type</b>						
E = TO-92						
<b>IGT Sensitivity</b>						
T = 3mA Standard						
D = 5mA Standard						
S = 10mA Standard						
A = 25mA Standard						

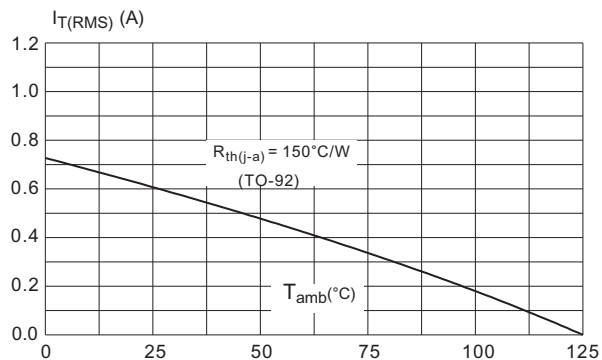
**Fig.1 Maximum power dissipation versus on-state RMS current (full cycle)**



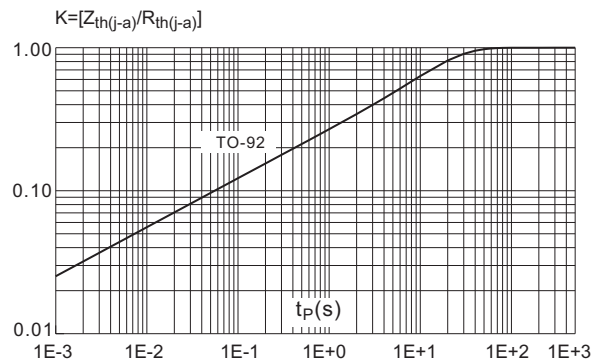
**Fig.2 On-state RMS current versus lead (TO-92) or tab (SOT-223, SMBflat-3L) temperature (full cycle)**



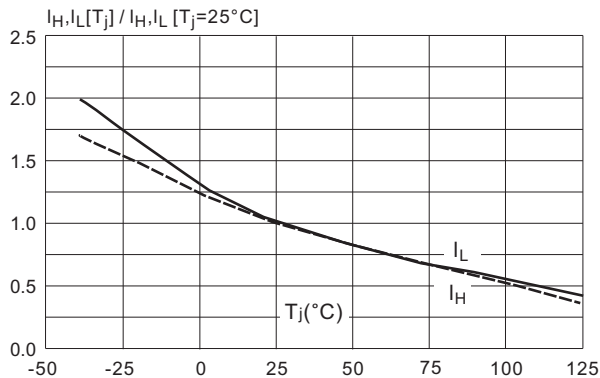
**Fig.3 On-state RMS current versus ambient temperature (free air convection full cycle)**



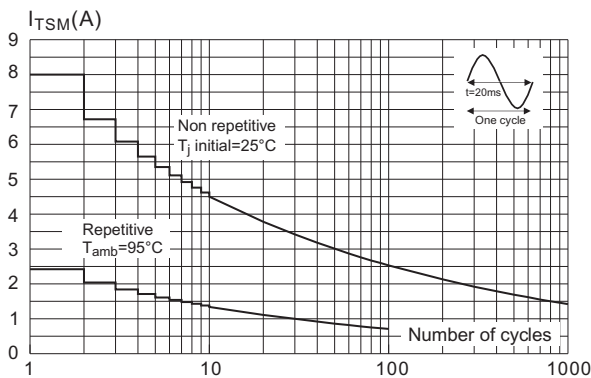
**Fig.4 Relative variation of thermal impedance versus pulse duration ( $Z_{th(j-a)}$ ).**



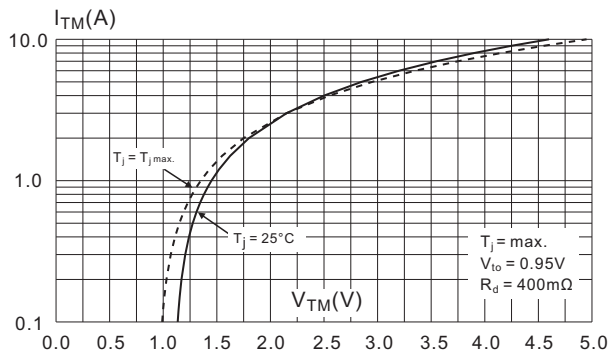
**Fig.5 Relative variation of holding current and latching current versus junction temperature (typ. values)**



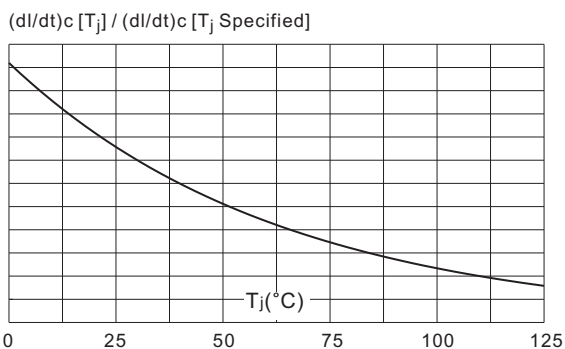
**Fig.7 Surge peak on-state current versus number of cycles**



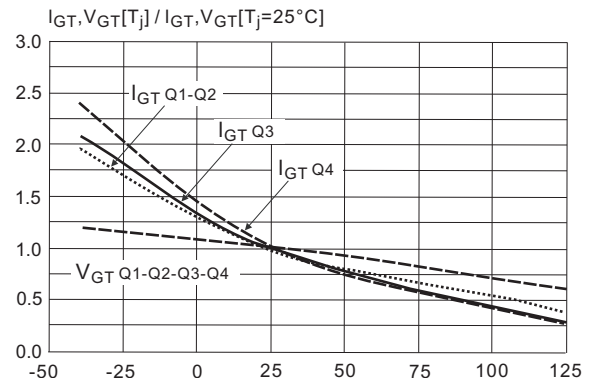
**Fig.9 On-state characteristics (maximum values) ( $I_{TM} = f(V_{TM})$ )**



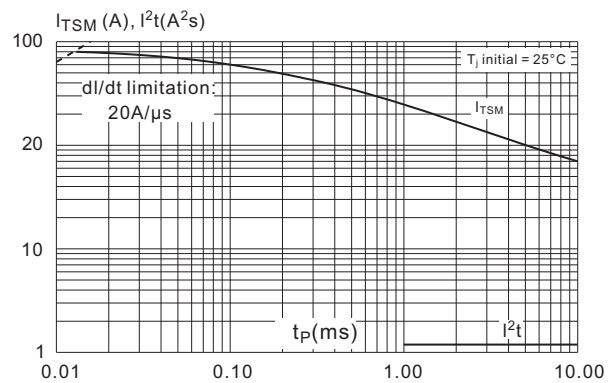
**Fig.11 Relative variation of critical rate of decrease of main current ( $di/dt$ ) versus junction temperature**



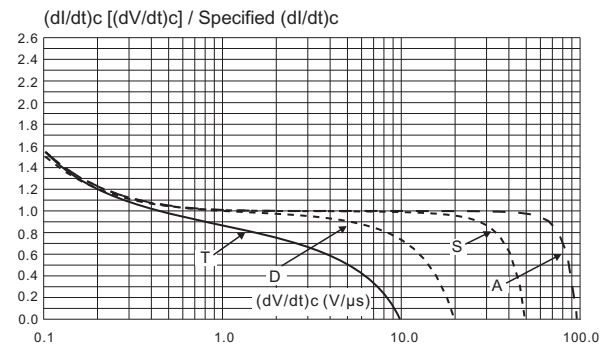
**Fig.6 Relative variation of gate trigger current ( $I_{GT}$ ) and voltage ( $V_{GT}$ ) versus junction temperature**



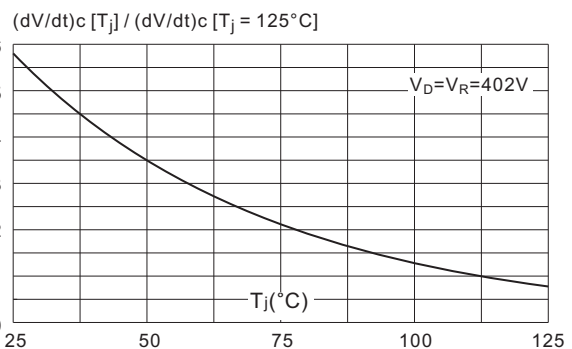
**Fig.8 Non-repetitive surge peak on-state current and corresponding value of  $I^2t$  sinusoidal pulse width**



**Fig.10 Relative variation of critical rate of decrease of main current versus ( $dV/dt$ )\_c**

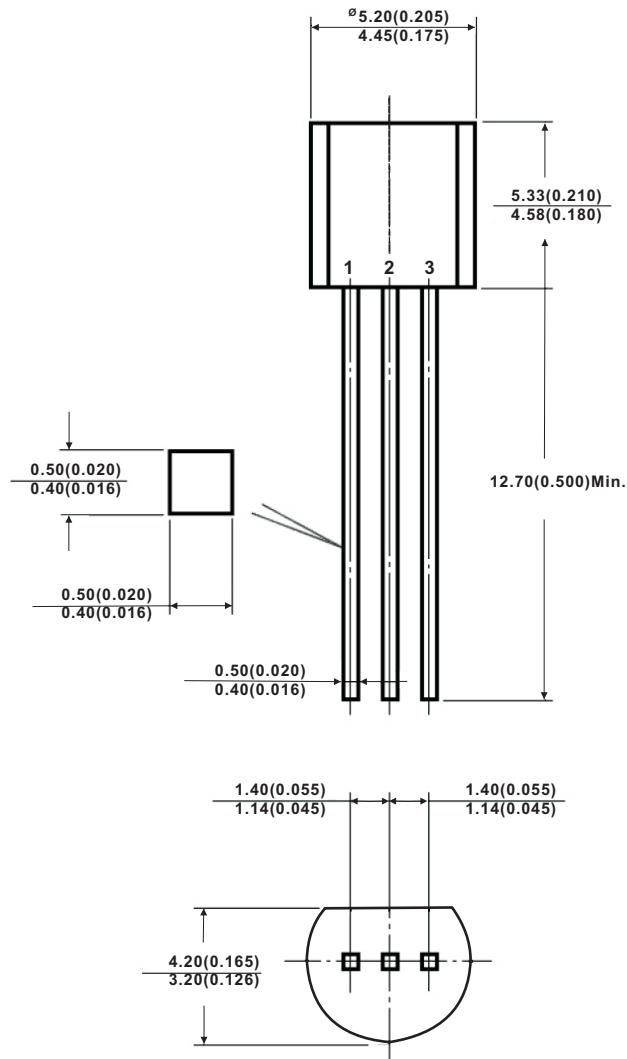


**Fig.12 Relative variation of static  $dV/dt$  immunity versus junction temperature (gate open)**



**Case Style**

**TO-92**



All dimensions in millimeters(inches)

