Standard TRIACs, 1A

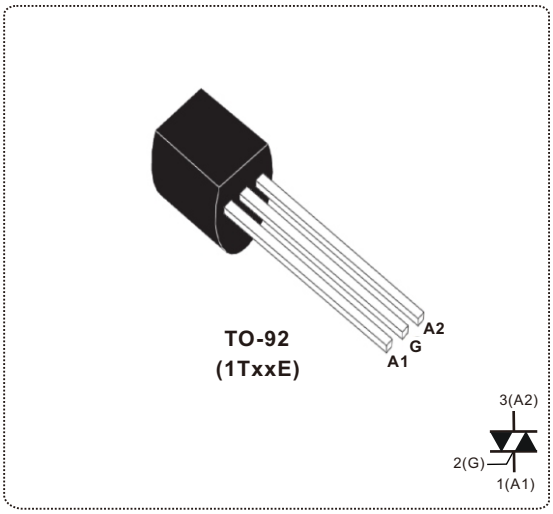
FEATURES

- 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 10	mA

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
RMS on-state current (full sine wave)	$I_{T(RMS)}$	TO-92	T_c = 110ºC	1	A
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°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≤100ns	dI/dt	F =100 Hz	T_j =125ºC	50	A/µs
Peak gate current	I_{GM}	T_p =20 µs	T_j =125ºC	1	A
Average gate power dissipation	$P_{G(AV)}$	T_j =125ºC		1	W
Peak gate power dissipation	P_{GM}	T_j =125ºC		5	
Stroage temperature range	T_{stg}			- 40 to + 150	ºC
Operating junction temperature range	T_j			- 40 to + 125	

◎ ELECTRICAL CHARACTERISTICS (T$_J$= 25 ºC unless otherwise specified)

Standard (4 quadrants)

SYMBOL	TEST CONDITIONS	QUADRANT		1Txxxx				UNIT
				T	D	S	A	
I_{GT}(1)	V_D = 12 V, R_L = 30Ω	I - II - III	MAX.	3	5	10	10	mA
		IV		5	10	10	25	
V_{GT}		ALL		1.3				V
V_{GD}	V_D = V_{DRM}, R_L = 3.3KΩ, T_j = 125°C	ALL		0.2				V
I_H(2)	I_T = 50 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/d_t(2)	V_D = 67% V_{DRM}, gate open, T_j = 110°C		MIN.	10	20	50	100	V/µs
(dV/dt)c(2)	(dI/dt)c = 0.44 A/ms, T_j = 110°C		MIN.	0.5	1	2	5	V/µs

STATIC CHARACTERISTICS

SYMBOL	TEST CONDITIONS			VALUE	UNIT
V_{TM}(2)	I_{TM} = 2A, t_P = 380 µs	T_j = 25°C	MAX.	1.50	V
V_{TO}(2)	Threshold voltage	T_j = 125°C	MAX.	0.95	
R_D(2)	Dynamic resistance	T_j = 125°C	MAX.	400	mΩ
I_{DRM} I_{RRM}	V_D = V_{DRM} V_R = V_{RRM}	T_j = 25°C	MAX.	5	µA
		T_j = 125°C		500	

Note 1: Minimum I_{GT} is guaranted 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	°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

1 T 06 E - D

Current

1 = 1A

Triac series

Voltage

06 = 600V

08 = 800V

Package type

E = TO-92

I_{GT} Sensitivity

T = 3mA Standard

D = 5mA Standard

S = 10mA Standard

A = 10mA Standard

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

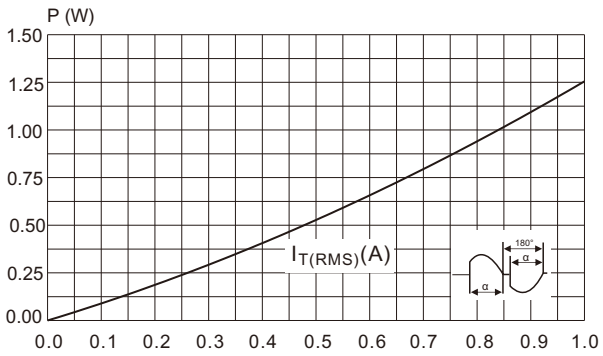


Fig.2 On-state RMS current versus lead (TO-92) or tab (SOT-223, SMBflat-3L) temperature (full cycle)

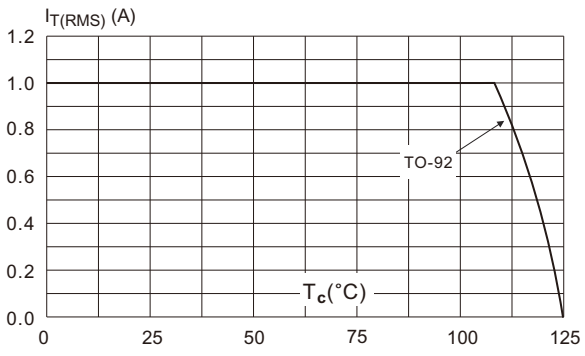


Fig.3 On-state RMS current versus ambient temperature (free air convection full cycle)

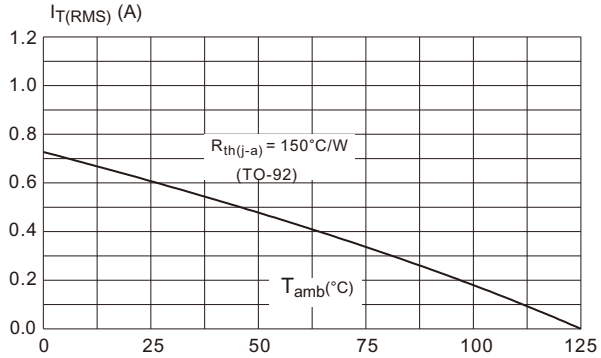


Fig.4 Relative variation of thermal impedance versus pulse duration ($Z_{th(j-a)}$).

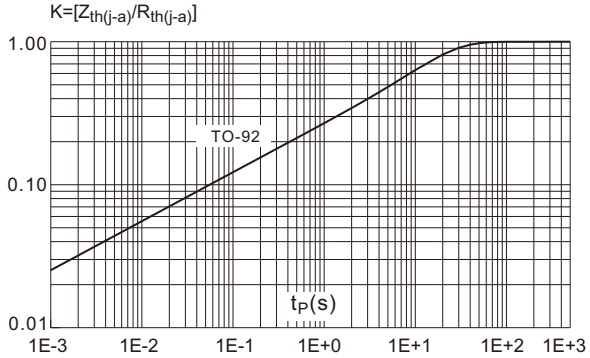


Fig.5 Relative variation of holding current and latching current versus junction temperature (typ. values)

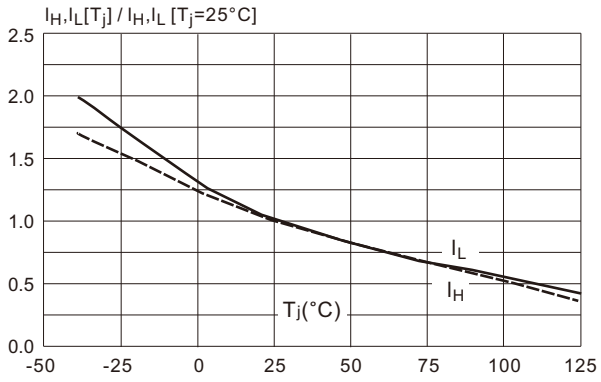


Fig.6 Relative variation of gate trigger current (I_{GT}) and voltage(V_{GT}) versus junction temperature

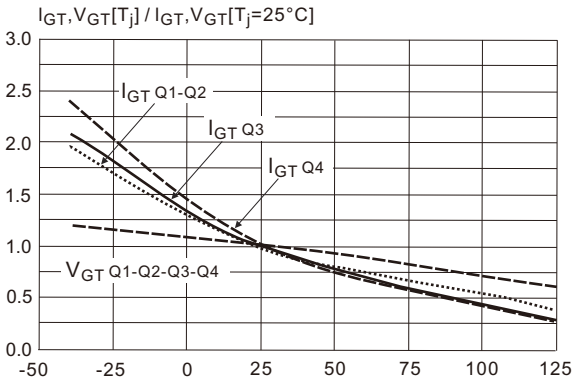


Fig.7 Surge peak on-state current versus number of cycles

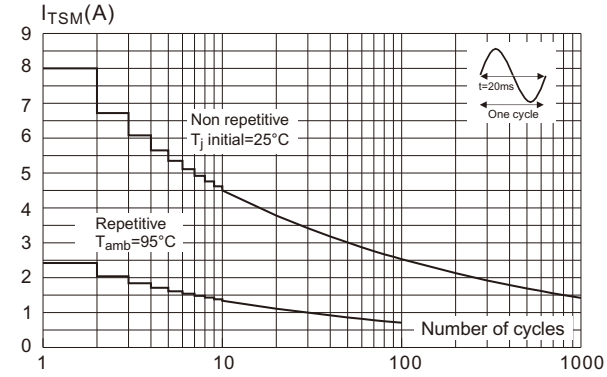


Fig.8 Non-repetitive surge peak on-state current and corresponding value of I^2t sinusoidal pulse width

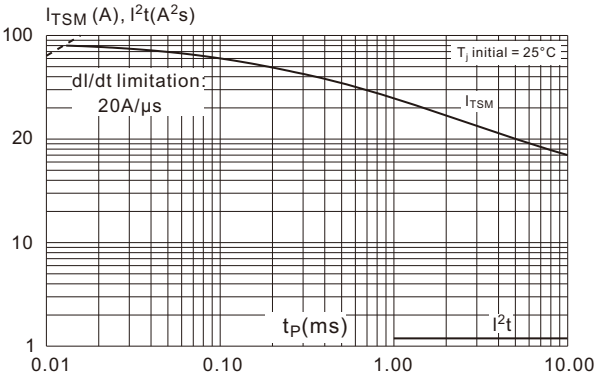


Fig.9 On-state characteristics (maximum values) ($I_{TM} = f(V_{TM})$)

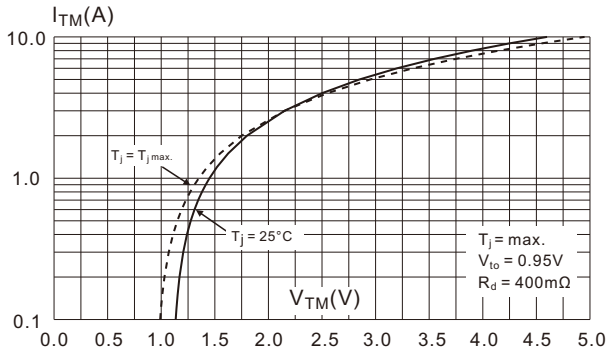


Fig.10 Relative variation of critical rate of decrease of main current versus (dV/dt)c

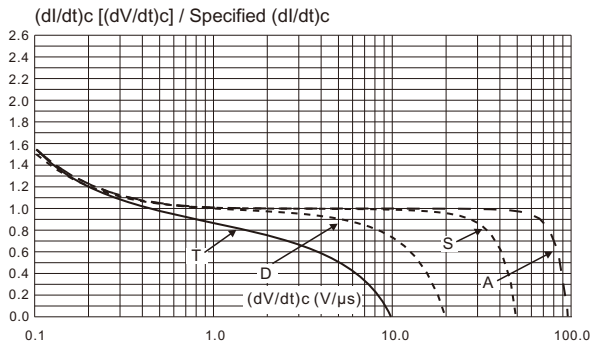


Fig.11 Relative variation of critical rate of decrease of main current (dI/dt) versus junction temperature

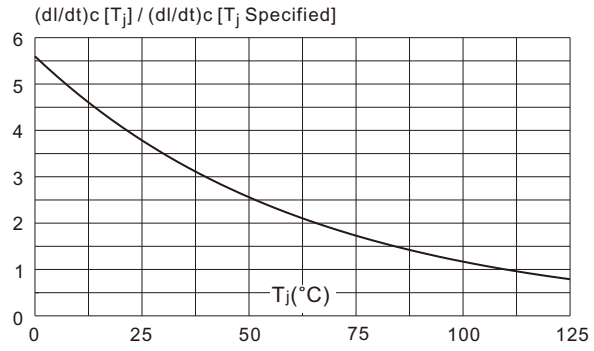
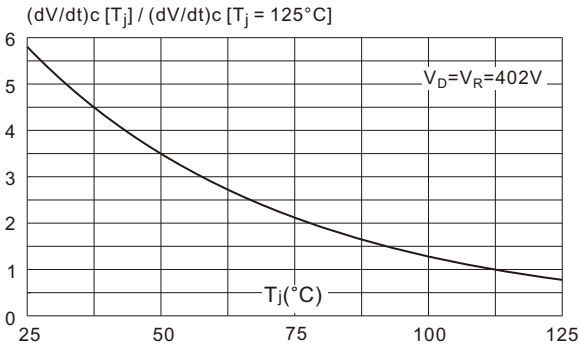
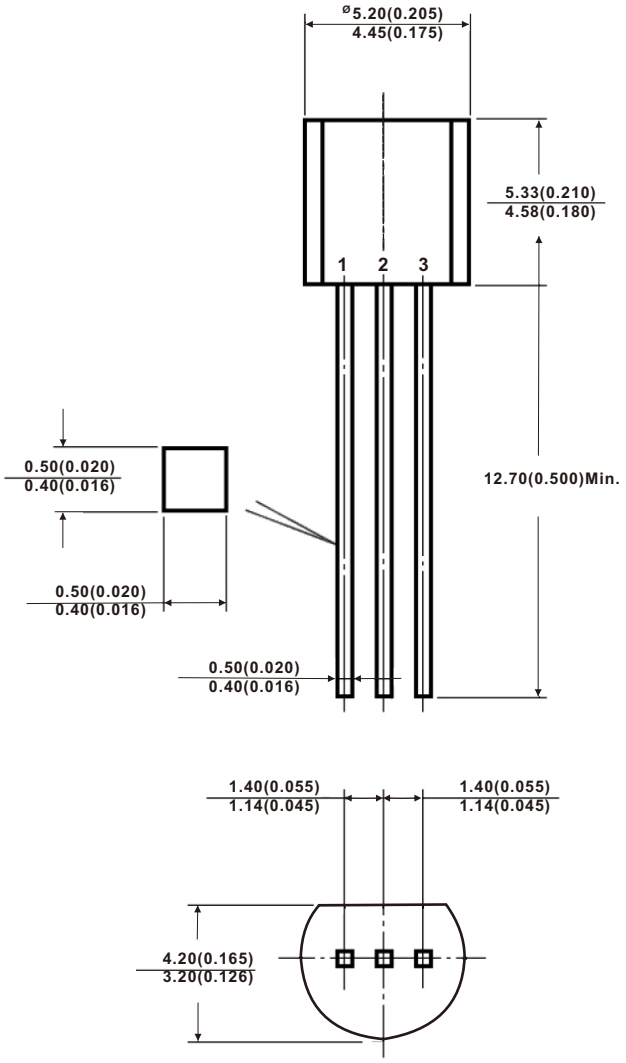
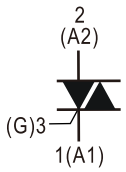


Fig.12 Relative variation of static dV/dt immunity versus junction temperature (gate open)



Case Style

TO-92



All dimensions in millimeters(inches)