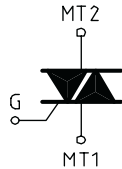
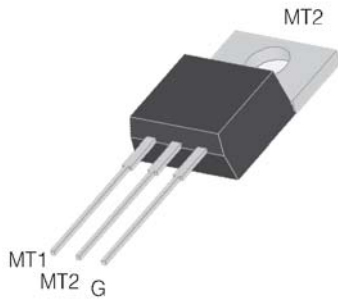


HIGH COMMUTATION TRIAC

TO-220AB



On-State Current

4 Amp

Gate Trigger Current

≤ 35 mA

Off-State Voltage

200 V ÷ 800 V

This series of TRIACs uses a high performance PNPN technology.

These parts are intended for general purpose AC switching applications with highly inductive loads.

Absolute Maximum Ratings, according to IEC publication No. 134

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	RMS On-state Current (full sine wave)	All Conduction Angle, $T_C = 95\text{ }^\circ\text{C}$	4	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz ($t = 16.7\text{ ms}$)	33	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz ($t = 20\text{ ms}$)	30	A
I^2t	Fusing Current	$t_p = 10\text{ ms}$, Half Cycle	4.5	A^2s
I_{GM}	Peak Gate Current	$20\text{ }\mu\text{s max.}$ $T_j = 125\text{ }^\circ\text{C}$	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125\text{ }^\circ\text{C}$	1	W
di/dt	Critical rate of rise of on-state current	$I_G = 2x I_{GT}$, $t_r \leq 100\text{ ns}$ $f = 120\text{ Hz}$, $T_j = 125\text{ }^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
T_j	Operating Temperature		(-40 + 125)	$^\circ\text{C}$
T_{stg}	Storage Temperature		(-40 + 150)	$^\circ\text{C}$
T_{sld}	Soldering Temperature	10s max	260	$^\circ\text{C}$

SYMBOL	PARAMETER	VOLTAGE					Unit
		B	D	M	S	N	
V_{DRM}	Repetitive Peak Off State Voltage	200	400	600	700	800	V
V_{RRM}							

HIGH COMMUTATION TRIAC

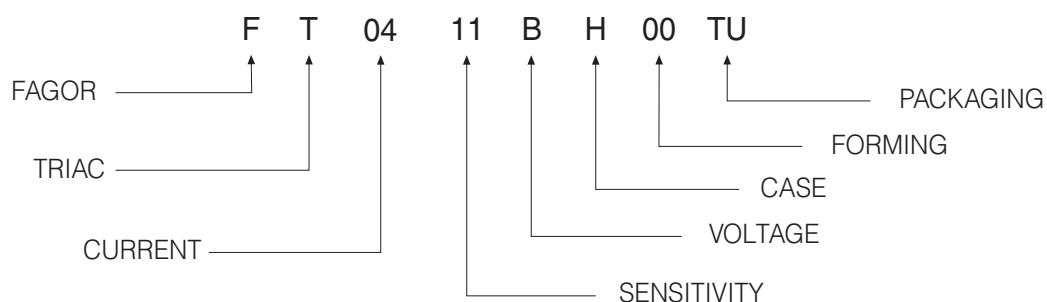
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
					11	14	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$	Q1÷Q3	MAX	25	35	mA
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$	Q1÷Q3	MAX	1.3		V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3 K\Omega, T_j = 125^\circ C$	Q1÷Q3	MIN	0.2		V
$I_H^{(2)}$	Holding Current	$I_T = 100 mA, \text{Gate open}, T_j = 25^\circ C$		MAX	25	35	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25^\circ C$	Q1,Q3	MAX	40	50	mA
			Q2	MAX	50	60	
$dV/dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{Gate open}$ $T_j = 125^\circ C$		MIN	200	500	V/ μs
$(dI/dt)_c^{(2)}$	Critical Rate of Current Rise	$(dv/dt)_c = 0.1 V/\mu s$ $T_j = 125^\circ C$ $(dv/dt)_c = 10 V/\mu s$ $T_j = 125^\circ C$ without snubber $T_j = 125^\circ C$		MIN	-	-	A/ms
				MIN	-	-	
				MIN	2.5	3.5	
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 5.5 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$		MAX	1.6		V
$V_{t(o)}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.90		V
$r_d^{(2)}$	Dynamic resistance	$T_j = 125^\circ C$		MAX	120		m Ω
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}, T_j = 125^\circ C$ $V_R = V_{RRM}, T_j = 25^\circ C$		MAX	0.5		mA
				MAX	5		μA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			2.0		$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient	$S = 1 \text{ cm}^2$			60		$^\circ C/W$

(1) Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

(2) For either polarity of electrode MT2 voltage with reference to electrode MT1.

PART NUMBER INFORMATION



HIGH COMMUTATION TRIAC

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

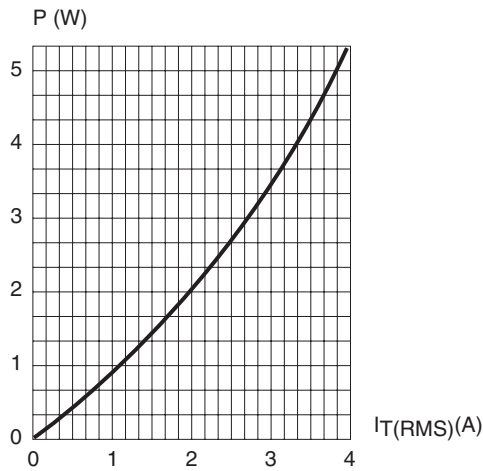


Fig. 2: RMS on-state current versus case temperature (full cycle).

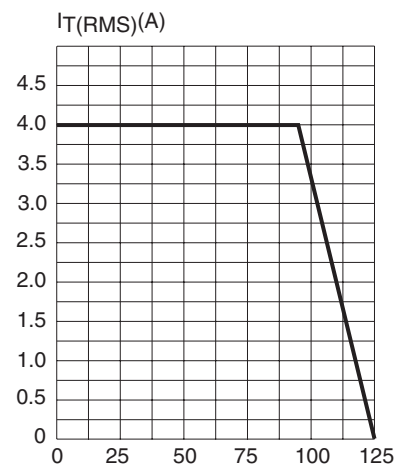


Fig. 3: Relative variation of thermal impedance versus pulse duration.

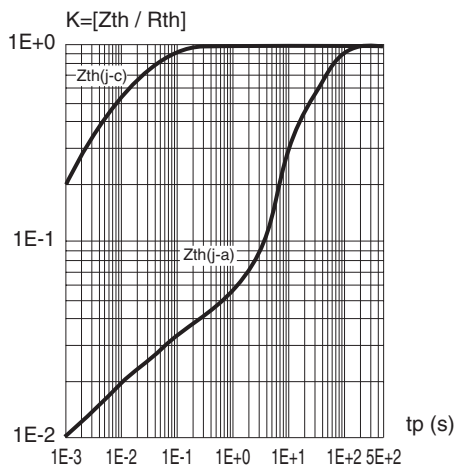


Fig. 4: On-state characteristics (maximum values)

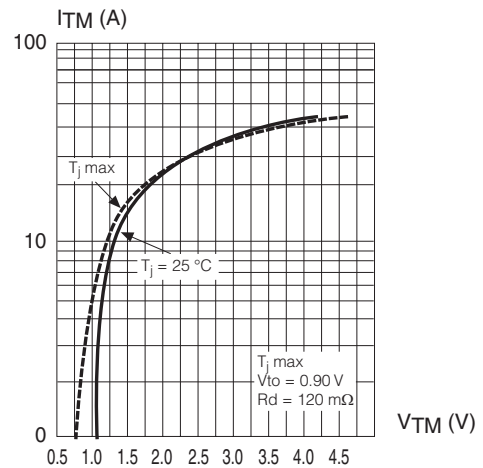


Fig. 5: Surge peak on-state current versus number of cycles

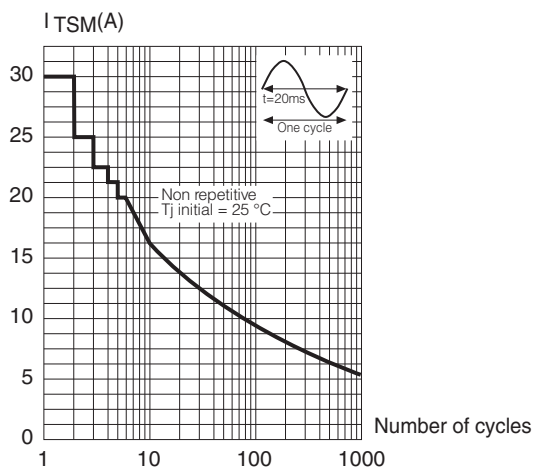
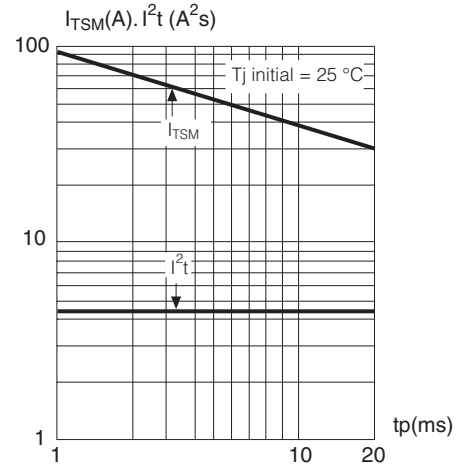


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10 \text{ ms}$, and corresponding value of I^2t .



HIGH COMMUTATION TRIAC

Fig. 7: Relative variation of gate trigger current, holding current and latching versus junction temperature (typical values)

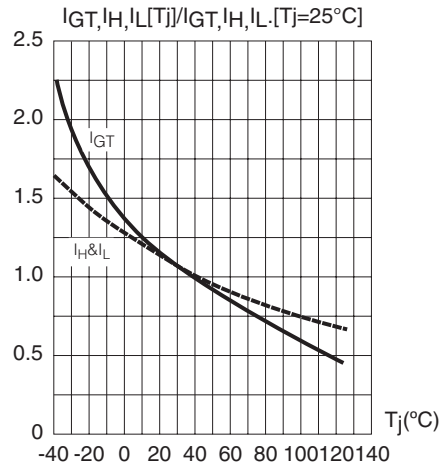
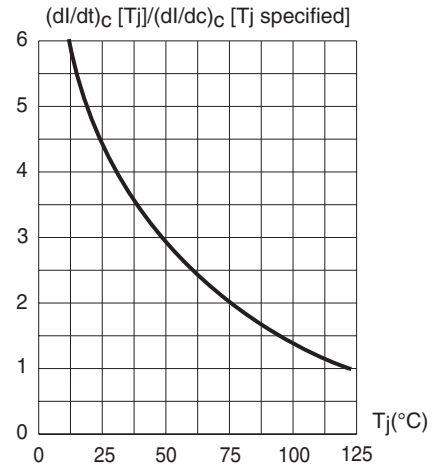
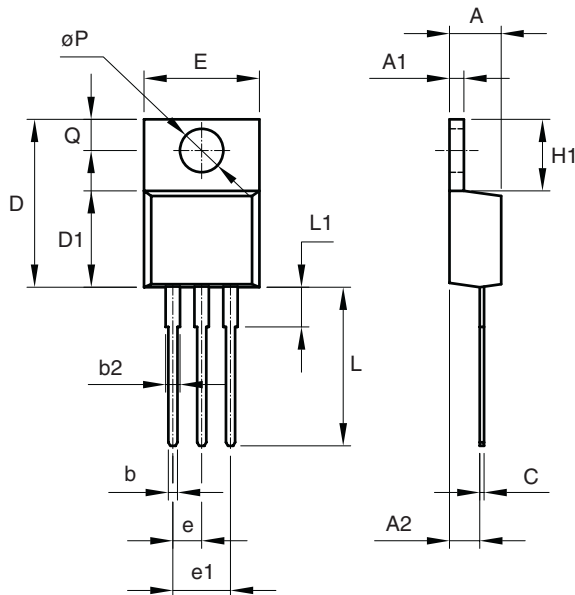


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



PACKAGE MECHANICAL DATA

TO-220AB



REF.	DIMENSIONS	
	Milimeters	
	Min.	Max.
A	4.47	4.67
A1	1.17	1.37
A2	2.52	2.82
b	0.71	0.91
b2	1.17	1.37
c	0.31	0.53
D	14.65	15.35
D1	8.50	8.90
E	10.01	10.36
e	2.51	2.57
e1	4.98	5.18
H1	6.15	6.45
L	13.40	13.96
L1	3.56	3.96
P	3.735	3.935
Q	2.59	2.89

Mounting Torque

1 N.m

(*) Limiting values and life support applications, see Web page.