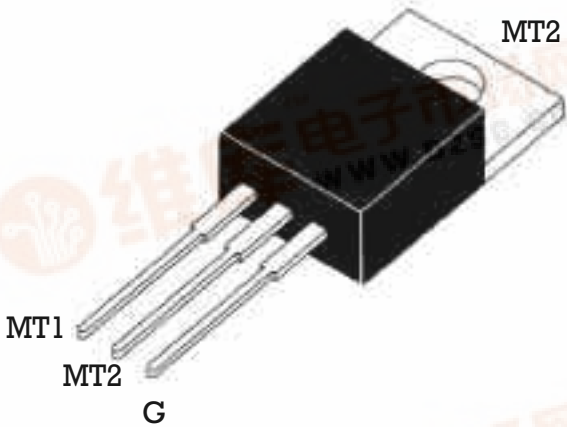


HIGH COMMUTATION TRIAC

TO220-AB  MT1 MT2 G	On-State Current 10 Amp Gate Trigger Current $\leq 25 \text{ mA}$ to $\leq 50 \text{ mA}$ Off-State Voltage $200 \text{ V} \div 600 \text{ V}$ This series of TRIACs uses a high performance PNP technology. These parts are intended for general purpose AC switching applications with highly inductive loads.
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Absolute Maximum Ratings, according to IEC publication No. 134

SYMBOL	PARAMETER	CONDITIONS	Min.	Max.	Unit
$I_{T(RMS)}$	RMS On-state Current	All Conduction Angle, $T_c = 105^\circ\text{C}$	10		A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz	105		A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz	100		A
I^2t	Fusing Current	$t_p = 10 \text{ ms}$, Half Cycle	55		A^2s
I_{GM}	Peak Gate Current	$20 \mu\text{s max.}$ $T_j = 125^\circ\text{C}$		4	A
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125^\circ\text{C}$		1	W
di/dt	Critical rate of rise of on-state current	$I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ns}$ $f = 120 \text{ Hz}$, $T_j = 125^\circ\text{C}$	50		$\text{A}/\mu\text{s}$
T_j	Operating Temperature		-40	+125	$^\circ\text{C}$
T_{stg}	Storage Temperature		-40	+150	$^\circ\text{C}$

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

HIGH COMMUTATION TRIAC

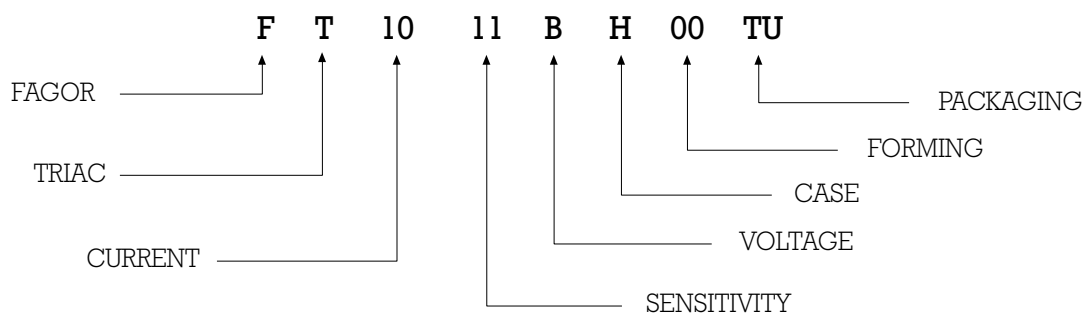
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY			Unit
					11	14	16	
$I_{GT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$	Q1÷Q3	MAX	25	35	50	mA
I_{DRM} / I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}, T_j = 125^\circ C$		MAX	1			mA
		$V_R = V_{RRM}, T_j = 25^\circ C$		MAX	5			μA
$V_{to}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.85			V
$R_d^{(2)}$	Dynamic Resistance	$T_j = 125^\circ C$		MAX	40			m Ω
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 14 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$		MAX	1.55			V
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 Current	$V_D = V_{DRM}, R_L = 3.3K\Omega, T_j = 125^\circ C$	Q1÷Q3	MIN	0.2			V
$I_H^{(2)}$	Holding Current	$I_T = 500 \text{ mA}, \text{Gate open}, T_j = 25^\circ C$		MAX	25	35	50	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25^\circ C$	Q1,Q3	MAX	40	50	70	mA
			Q2	MAX	50	60	80	
$dv / dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{Gate open}$ $T_j = 125^\circ C$		MIN	200	500	1000	V/ μs
$(dI/dt)c^{(2)}$	Critical Rate of Current Rise	$(dv/dt)c = 0.1 \text{ V}/\mu s, T_j = 125^\circ C$		MIN	-	-	-	A/ms
		$(dv/dt)c = 10 \text{ V}/\mu s, T_j = 125^\circ C$		MIN	-	-	-	
		without snubber, $T_j = 125^\circ C$		MIN	5	5.5	9	
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			1.5			°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				60			°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).

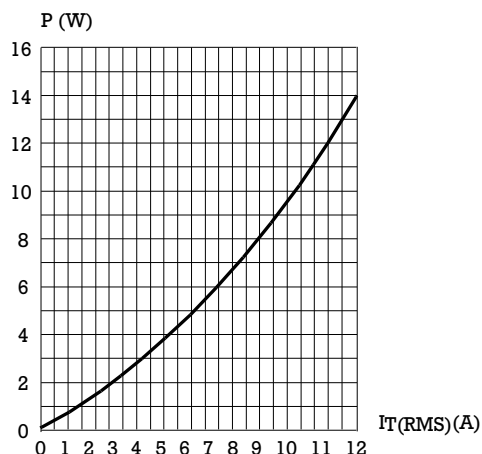


Fig. 2: RMS on-state current versus case temperature (full cycle).

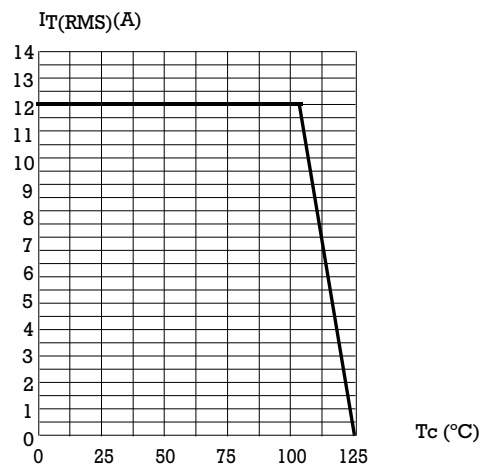


Fig. 3: Relative variation of thermal impedance versus pulse duration.

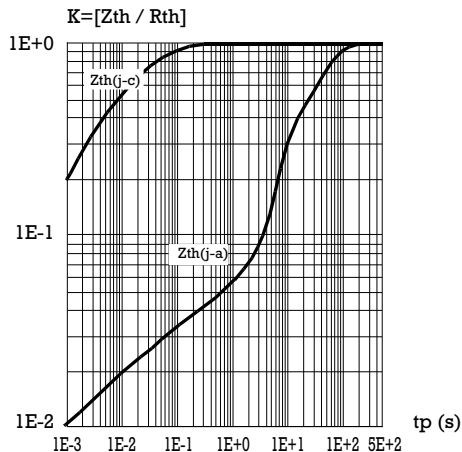


Fig. 4: On-state characteristics (maximum values)

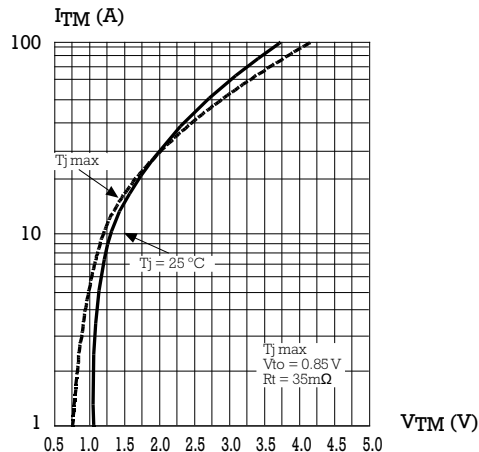


Fig. 5: Surge peak on-state current versus number of cycles

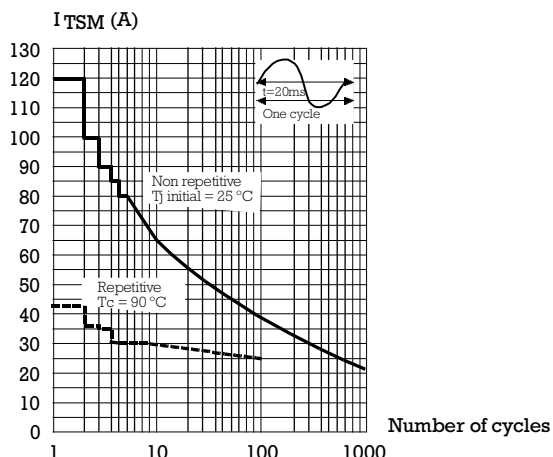
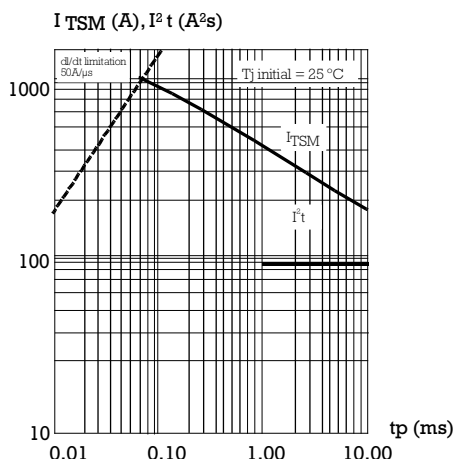


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I_t .



HIGH COMMUTATION TRIAC

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

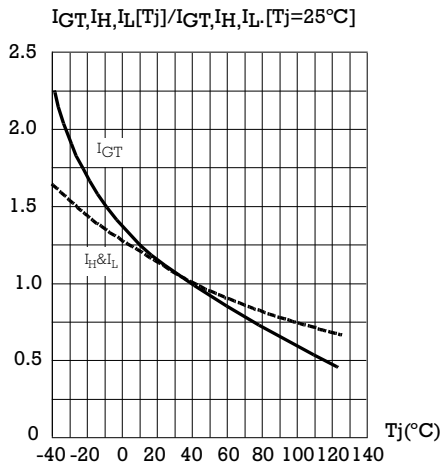
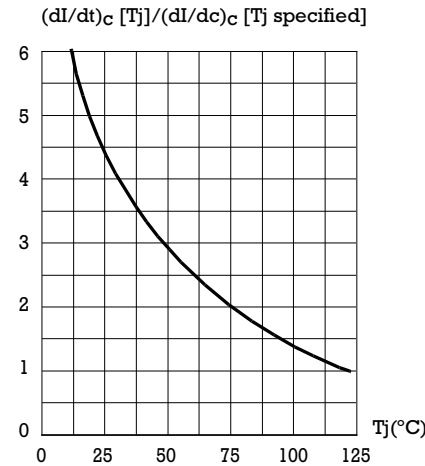
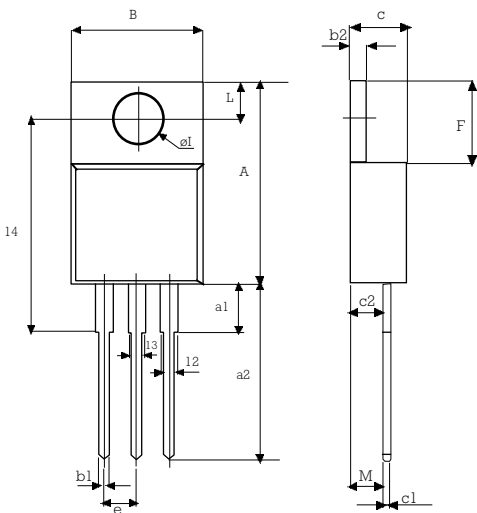


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



PACKAGE MECHANICAL DATA TO-220AB (Plastic)



REF.	DIMENSIONS		
	Milimeters		
	Min.	Nominal	Max.
A	15.20		15.90
a1		3.75	
a2	13.00		14.00
B	10.00		10.40
b1	0.61		0.88
b2	1.23		1.32
C	4.40		4.60
c1	0.49		0.70
c2	2.40		2.72
e	2.40		2.70
F	6.20		6.60
I	3.75		3.85
I4	15.80	16.40	16.80
L	2.65		2.95
I2	1.14		1.70
I3	1.14		1.70
M		2.60	