

HIGH COMMUTATION TRIAC

<p style="text-align: center; font-weight: bold; font-size: 1.2em;">TO220-AB</p> <div style="text-align: center;"> </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">On-State Current</td> <td style="width: 50%; text-align: center;">Gate Trigger Current</td> </tr> <tr> <td style="text-align: center;">16 Amp</td> <td style="text-align: center;">$\leq 50 \text{ mA}$</td> </tr> <tr> <td colspan="2" style="text-align: center;">Off-State Voltage</td> </tr> <tr> <td colspan="2" style="text-align: center;">200 V ÷ 800 V</td> </tr> </table> <p style="margin-top: 20px;">This series of TRIACs uses a high performance PNPN technology.</p> <p>These parts are intended for general purpose AC switching applications with highly inductive loads.</p>	On-State Current	Gate Trigger Current	16 Amp	$\leq 50 \text{ mA}$	Off-State Voltage		200 V ÷ 800 V	
On-State Current	Gate Trigger Current								
16 Amp	$\leq 50 \text{ mA}$								
Off-State Voltage									
200 V ÷ 800 V									

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, $T_C = 95^\circ\text{C}$	16	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz ($t = 16.7 \text{ ms}$)	176	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz ($t = 20 \text{ ms}$)	160	A
I^2t	Fusing Current	$t_p = 10 \text{ ms}$, Half Cycle	128	A ² s
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	A/ μs
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}							

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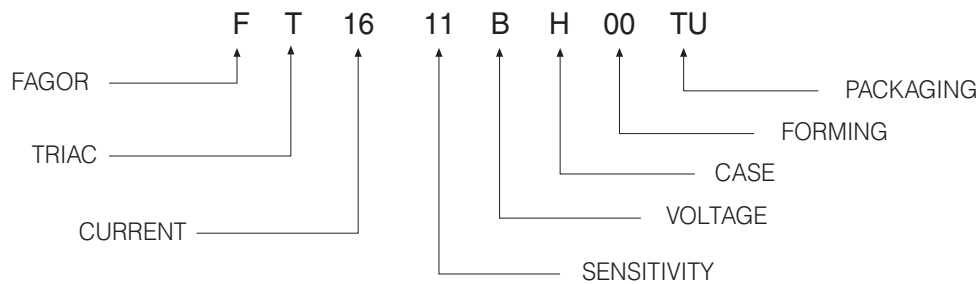
Electrical Characteristics

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
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	$V_D = V_{DRM}, R_L = 3.3K\Omega, T_j = 125^\circ C$	Q1÷Q3	MIN	0.2			V
$I_H^{(2)}$	Holding Current	$I_T = 100 \text{ mA}, \text{ Gate open}, T_j = 25^\circ C$		MAX	25	35	50	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}, T_j = 25^\circ C$	Q1, Q3 Q2	MAX MAX	40 50	50 60	70 80	mA
$dV/dt^{(2)}$	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/ μ s
$(dI/dt)_c^{(2)}$	Critical Rate of Current Rise	$(dv/dt)_c = 0.1 \text{ V}/\mu\text{s}$ $T_j = 125^\circ C$ $(dv/dt)_c = 10 \text{ V}/\mu\text{s}$ $T_j = 125^\circ C$ without snubber $T_j = 125^\circ C$		MIN MIN MIN	- - 6	- - 8.5	- - 14	A/ms
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 22.5 \text{ Amp}, t_p = 380 \mu\text{s}, T_j = 25^\circ C$		MAX	1.6			V
$V_{t(o)}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.77			V
$r_d^{(2)}$	Dynamic Resistance	$T_j = 125^\circ C$		MAX	40			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 MAX	2 5			mA μ A
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle			1.1			$^\circ C/W$
$R_{th(j-a)}$					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



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

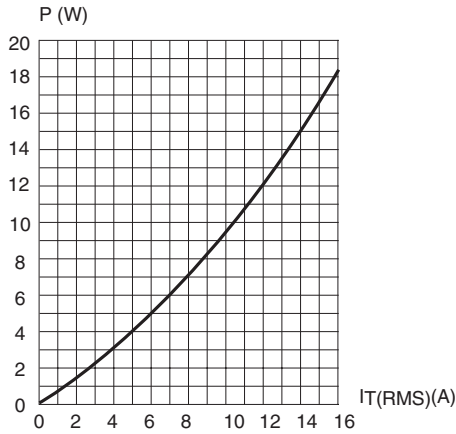


Fig. 2: RMS on-state current versus case temperature (full cycle).

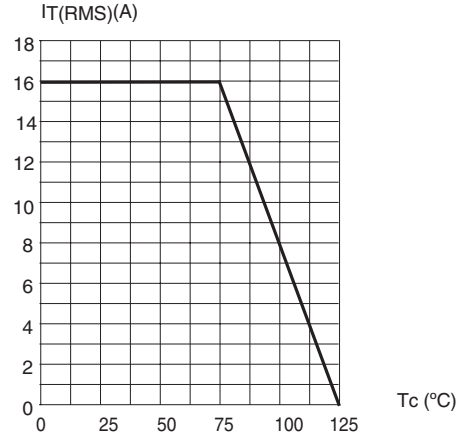


Fig. 3: Relative variation of thermal impedance versus pulse duration.

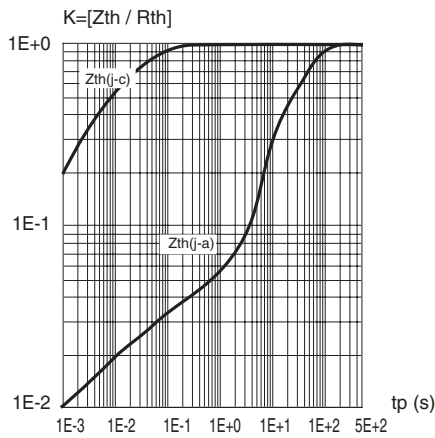


Fig. 4: On-state characteristics (maximum values)

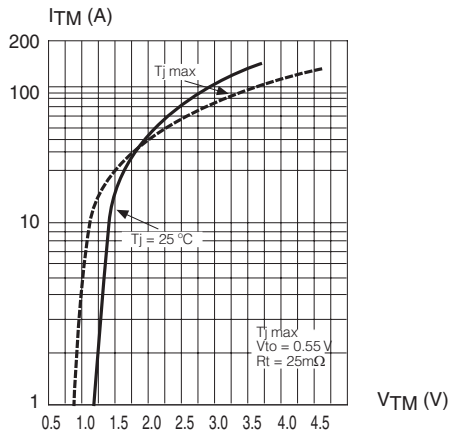


Fig. 5: Surge peak on-state current versus number of cycles

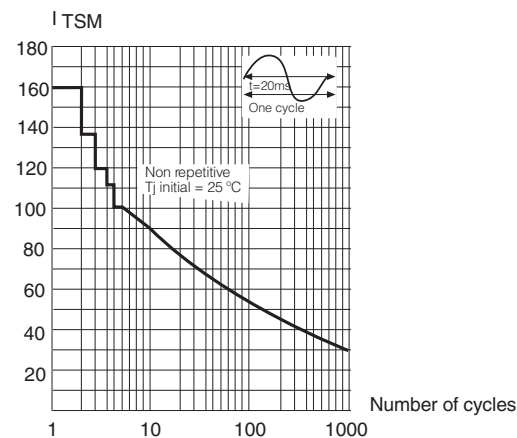
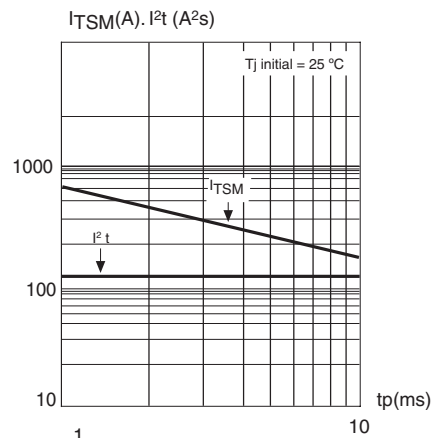


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I²t.



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

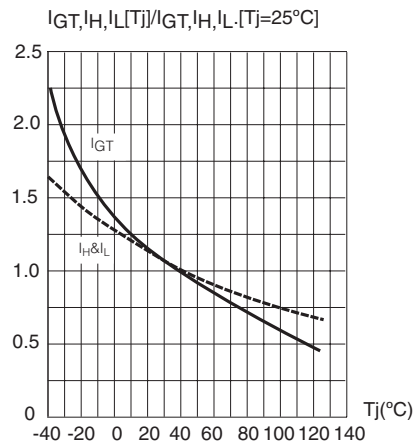
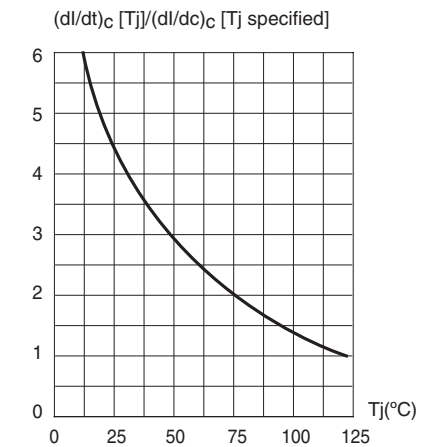
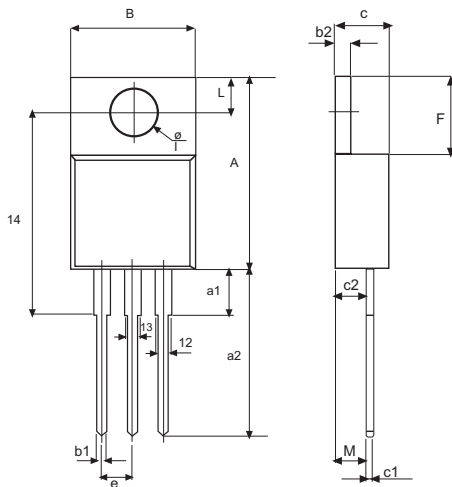


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



REF.	DIMENSIONS		
	Millimeters		
	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
l	3.75		3.85
l4	15.80	16.40	16.80
L	2.65		2.95
l2	1.14		1.70
l3	1.14		1.70
M		2.60	