

## LOGIC LEVEL TRIAC

<p>TO220-AB</p>	<p><b>On-State Current</b> 16 Amp</p> <p><b>Gate Trigger Current</b> &lt; 10 mA</p> <p><b>Off-State Voltage</b> 200 V ÷ 600 V</p>
<p>This series of <b>TRIACs</b> uses a high performance PNP technology.</p> <p>These parts are intended for general purpose AC switching applications with highly inductive loads.</p>	

## 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, $T_C = 100\text{ }^\circ\text{C}$	16		A
$I_{TSM}$	Non-repetitive On-State Current	Full Cycle, 60 Hz	168		A
$I_{TSM}$	Non-repetitive On-State Current	Full Cycle, 50 Hz	160		A
$I^2t$	Fusing Current	$t_p = 10\text{ ms}$ , Half Cycle	144		A <sup>2</sup> s
$I_{GM}$	Peak Gate Current	20 $\mu\text{s}$ 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	$I_G = 2x I_{GT}$ , $t_r = 100\text{ ns}$ $f = 120\text{ Hz}$ , $T_j = 125\text{ }^\circ\text{C}$	50		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

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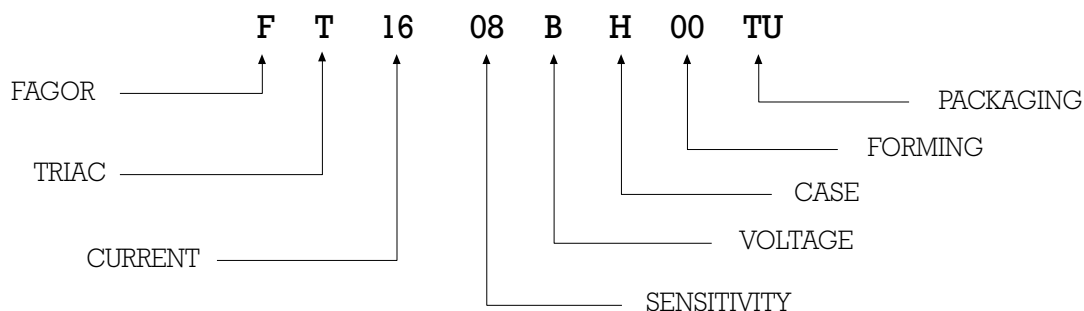
## Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY		Unit
						08	
$I_{CT}^{(1)}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 30 \Omega, T_j = 25^\circ C$	Q1÷Q3	MAX		10	mA
$I_{DRM} / I_{RRM}$	Off-State Leakage Current	$V_D = V_{DRM}, R_{GK} = 1K, T_j = 125^\circ C$		MAX		2	mA
		$V_R = V_{RRM}, T_j = 25^\circ C$		MAX		5	$\mu A$
$V_{to}^{(2)}$	Threshold Voltage	$T_j = 125^\circ C$		MAX		0.85	V
$R_d^{(2)}$	Dynamic Resistance	$T_j = 125^\circ C$		MAX		25	m
$V_{TM}^{(2)}$	On-state Voltage	$I_T = 22.5 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$		MAX		1.55	V
$V_{GT}$	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 30 \Omega, T_j = 25^\circ C$	Q1÷Q3	MAX		1.3	V
$V_{GD}$	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3K, T_j = 125^\circ C$	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		15	mA
$I_L$	Latching Current	$I_G = 1.2 I_{CT}, T_j = 25^\circ C$	Q1,Q3	MAX		25	mA
			Q2	MAX		30	
$dv / dt^{(2)}$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{ Gate open}$ $T_j = 125^\circ C$		MIN		40	V/ $\mu s$
$(dI/dt)_c^{(2)}$	Critical Rate of Current Rise	$(dv/dt)_c = 0.1 \text{ V}/\mu s, T_j = 125^\circ C$		MIN		8.5	A/ms
		$(dv/dt)_c = 10 \text{ V}/\mu s, T_j = 125^\circ C$		MIN		3.0	
		without snubber, $T_j = 125^\circ C$		MIN		-	
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360° conduction angle				1.2	$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient					60	$^\circ C/W$

(1) Minimum  $I_{CT}$  is guaranteed at 5% of  $I_{CT}$  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).

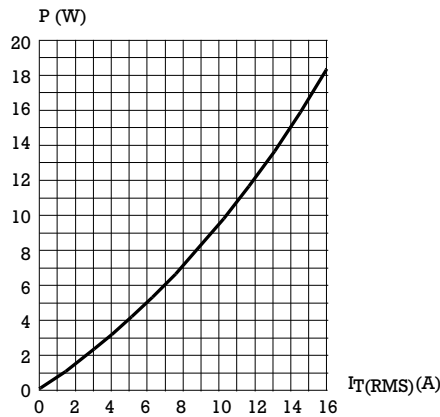


Fig. 3: Relative variation of thermal impedance versus pulse duration.

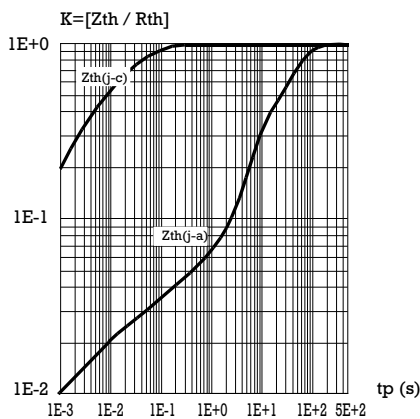


Fig. 5: Surge peak on-state current versus number of cycles.

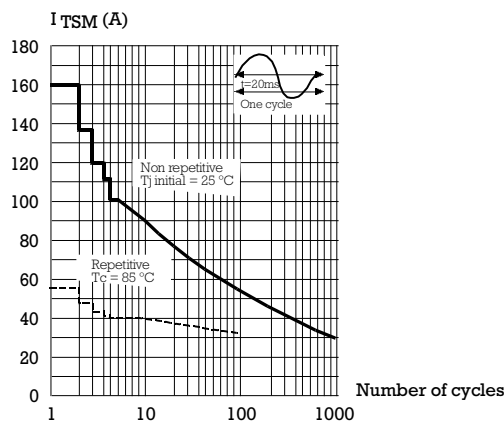


Fig. 2: RMS on-state current versus case temperature (full cycle).

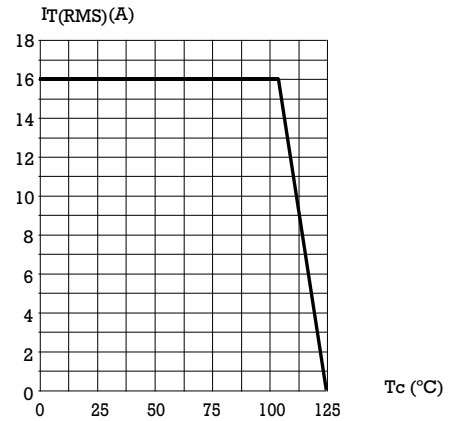
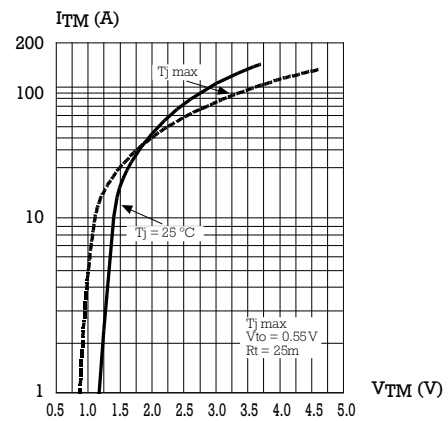
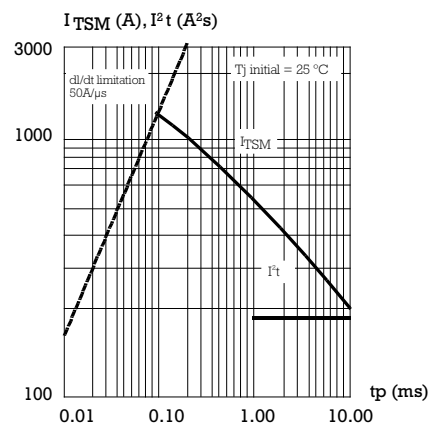


Fig. 4: On-state characteristics (maximum values)


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


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

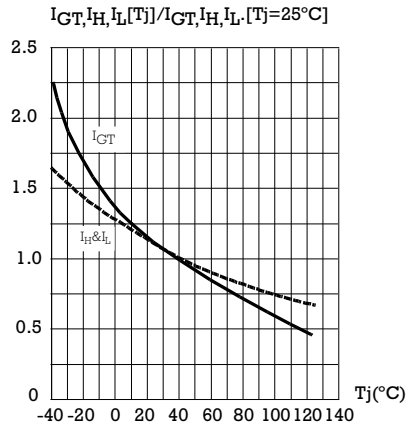
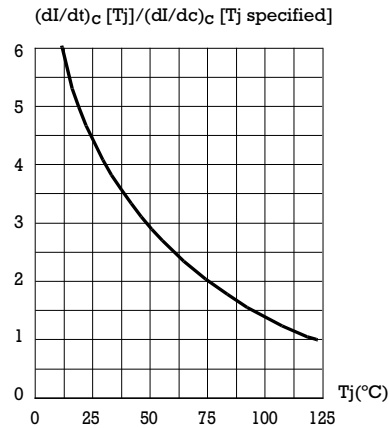
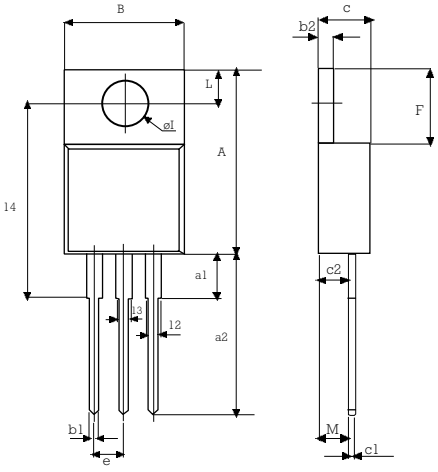


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



**PACKAGE MECHANICAL DATA TO-220AB (Plastic)**



REF.	DIMENSIONS		
	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	