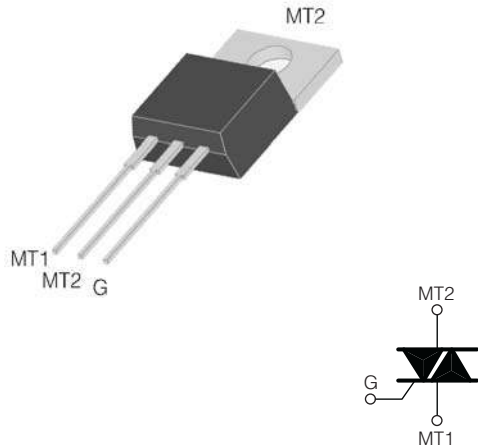


LOGIC LEVEL TRIAC

TO-220A B



On-State Current

4 Amp

Gate Trigger Current

< 10 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	$A/\mu\text{s}$
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	$^\circ\text{C}$

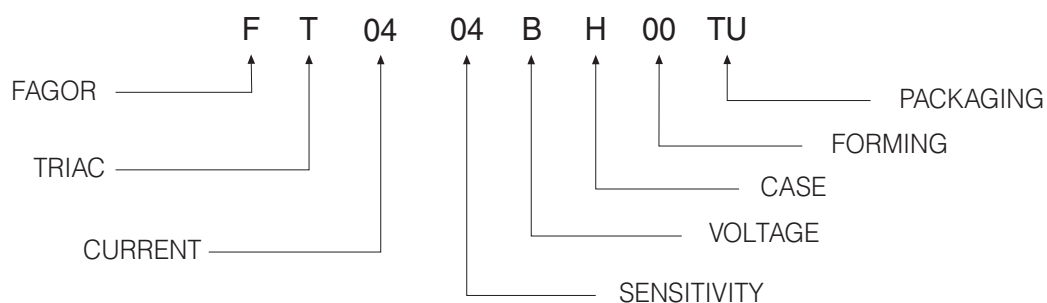
SYMBOL	PARAMETER	VOLTAGE					Unit
		B	D	M	S	N	
V_{DRM}	Repetitive Peak Off State Voltage	200	400	600	700	800	V
V_{RRM}							

LOGIC LEVEL TRIAC
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	Quadrant		SENSITIVITY					Unit
					04	05	07	08	09	
I _{GT} ⁽¹⁾	Gate Trigger Current	V _D = 12 V _{DC} , R _L = 33Ω, T _j = 25 °C	Q1÷Q3	MAX	5	5	5	10	10	mA
			Q4	MAX		5	7		10	mA
V _{GT}	Gate Trigger Voltage	V _D = 12 V _{DC} , R _L = 33Ω, T _j = 25 °C	Q1÷Q3	MAX	1.3					V
			Q1÷Q4	MAX	1.3					V
V _{GD}	Gate Non Trigger Voltage	V _D = V _{DRM} , R _L = 3.3 KΩ, T _j = 125 °C	Q1÷Q3	MIN	0.2					V
			Q1÷Q4	MIN	0.2					V
I _H ⁽²⁾	Holding Current	I _T = 100 mA, Gate open, T _j = 25 °C		MAX	10	10	15	15	20	mA
I _L	Latching Current	I _G = 1.2 I _{GT} , T _j = 25 °C	Q1,Q3	MAX	10			25		mA
			Q1,Q3,Q4	MAX		10	20		20	mA
			Q2	MAX	20	20	30	30	25	mA
dV/dt ⁽²⁾	Critical Rate of Voltage Rise	V _D = 0.67 x V _{DRM} , Gate open T _j = 125 °C		MIN	20	20	20	40	40	V/μs
(dI/dt) ⁽²⁾	Critical Rate of Current Rise	(dv/dt) _c = 0.1 V/μs T _j = 125 °C (dv/dt) _c = 10 V/μs T _j = 125 °C without snubber T _j = 125 °C		MIN	1.8	1.8	1.8	2.7	2.5	A/ms
				MIN	0.9	0.9	0.9	2.0	1.5	A/ms
				MIN	-	-	-	-	-	
V _{TM} ⁽²⁾	On-state Voltage	I _T = 5.5 Amp, tp = 380 μs, T _j = 25 °C		MAX	1.6					V
V _{t(o)} ⁽²⁾	Threshold Voltage	T _j = 125 °C		MAX	0.9					V
r _d ⁽²⁾	Dynamic resistance	T _j = 125 °C		MAX	120					mΩ
I _{DRM} /I _{RRM}	Off-State Leakage Current	V _D = V _{DRM} , T _j = 125 °C		MAX	0.5					mA
		V _R = V _{RRM} , T _j = 25 °C		MAX	5					μA
R _{th(j-c)}	Thermal Resistance Junction-Case	for AC 360° conduction angle			2.0					°C/W
R _{th(j-a)}	Thermal Resistance Junction-Ambient	S = 1 cm ²			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


LOGIC LEVEL TRIAC

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

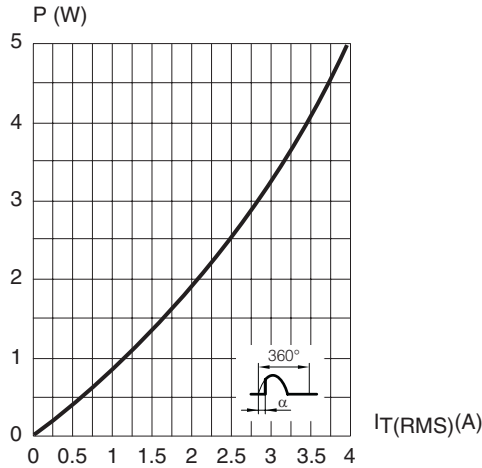


Fig. 2: RMS on-state current versus case temperature (full cycle).

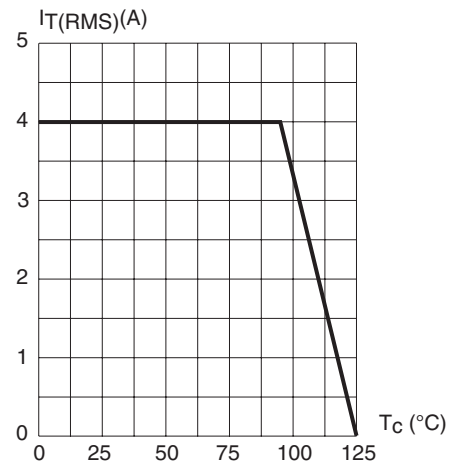


Fig. 3: Relative variation of thermal impedance versus pulse duration.

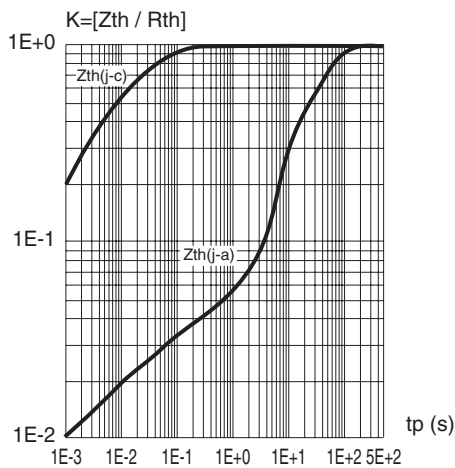


Fig. 4: On-state characteristics (maximum values)

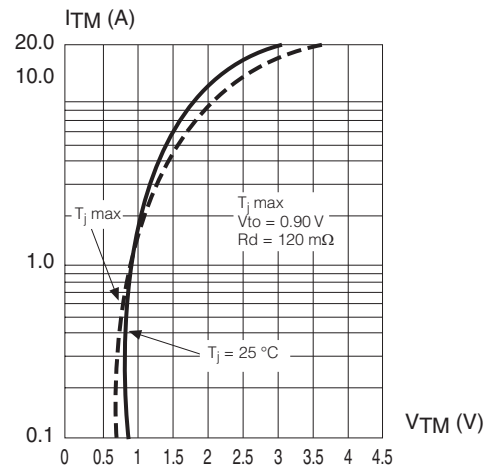


Fig. 5: Surge peak on-state current versus number of cycles

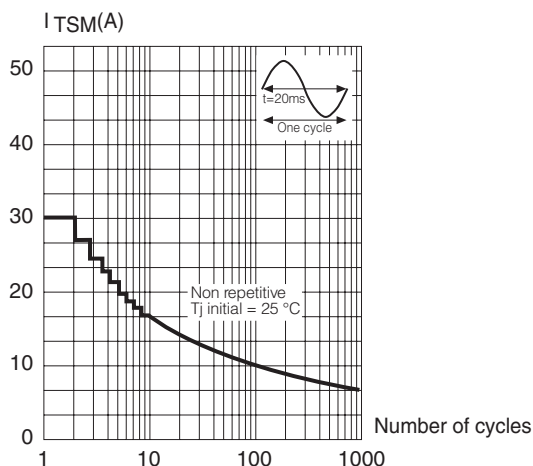
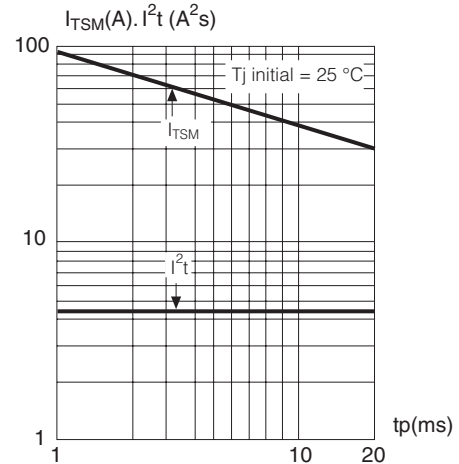


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10$ ms, and corresponding value of I^2t .



LOGIC LEVEL TRIAC

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

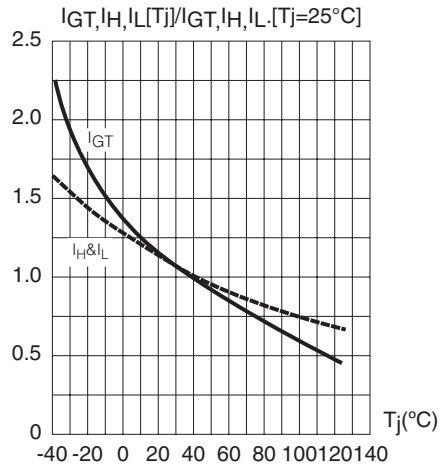


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

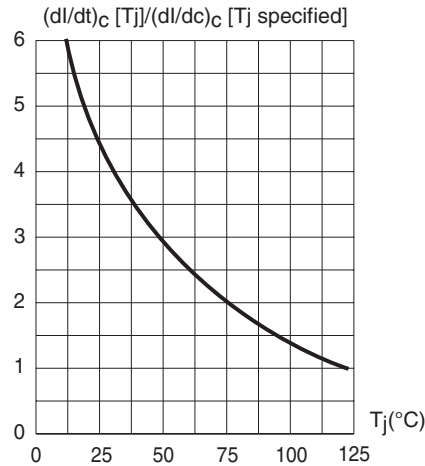
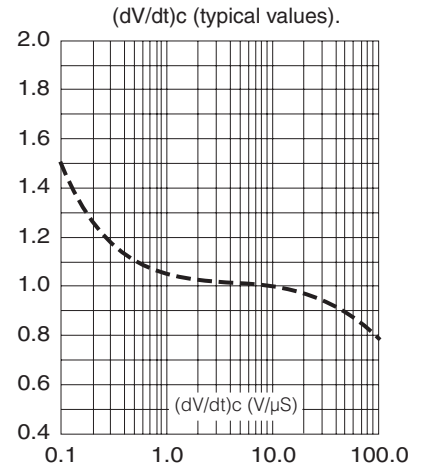
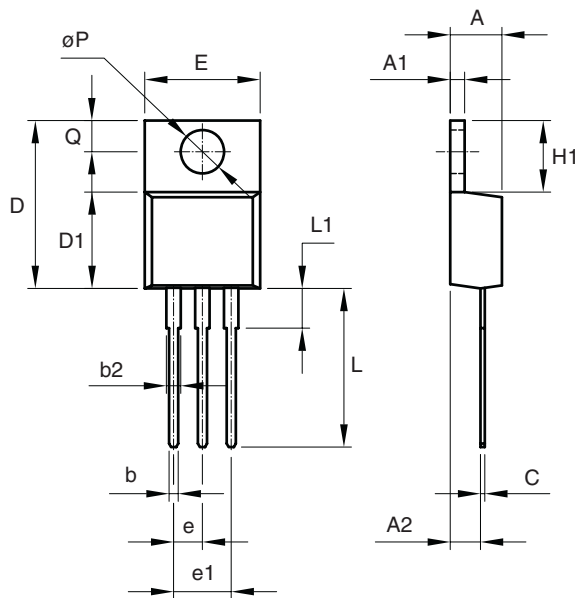


Fig. 9: Relative variation of critical rate of decrease of main current versus



PACKAGE MECHANICAL DATA

TO-220AB



REF.	DIMENSIONS	
	Millimeters	
	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.