

TRIACs, 10A Snubberless and Standard

MAIN FEATURES

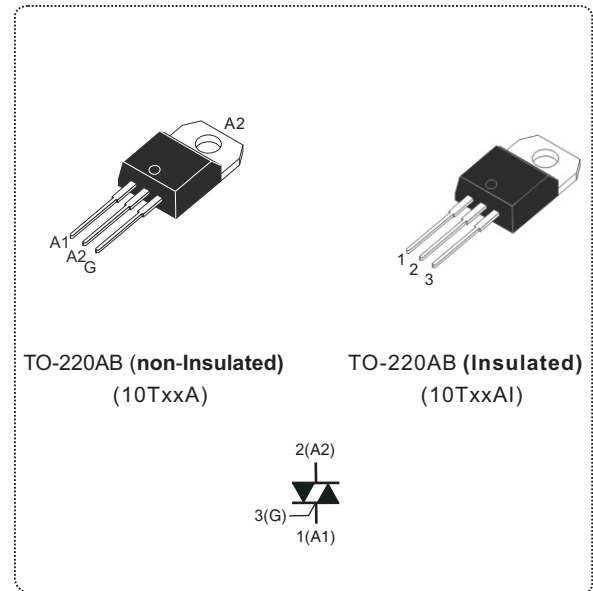
SYMBOL	VALUE	UNIT
$I_{T(RMS)}$	10	A
V_{DRM}/V_{RRM}	600 to 1000	V
$I_{GT(Q1)}$	25 to 50	mA

DESCRIPTION

The 10T triac series is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation in light dimmers, motor speed controllers,...

The snubberless version are specially recommended for use on inductive loads, thanks to their high commutation performances.

By using an internal ceramic pad, the 10T series provides voltage insulated tab (rated at 2500VRMS) complying with UL standards (File ref. :E320098)



ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
RMS on-state current (full sine wave)	$I_{T(RMS)}$	TO-220AB	$T_c = 105^\circ\text{C}$	10	A
		TO-220AB insulated	$T_c = 95^\circ\text{C}$		
Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	F = 50 Hz	t = 20 ms	100	A
		F = 60 Hz	t = 16.7 ms	105	
I^2t Value for fusing	I^2t	$t_p = 10$ ms		50	A^2s
Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ns}$	di/dt	F = 100 Hz	$T_j = 125^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	$T_p = 20 \mu\text{s}$	$T_j = 125^\circ\text{C}$	4	A
Average gate power dissipation	$P_{G(AV)}$	$T_j = 125^\circ\text{C}$		1	W
Storage temperature range	T_{stg}			- 40 to + 150	$^\circ\text{C}$
Operating junction temperature range	T_j			- 40 to + 125	

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SNUBBERLESS (3 quadrants)						
SYMBOL	TEST CONDITIONS	QUADRANT		10Txxxx		Unit
				CW	BW	
I _{GT} ⁽¹⁾	V _D = 12 V, R _L = 30Ω	I - II - III	MAX.	35	50	mA
V _{GT}		I - II - III	MAX.	1.3		V
V _{GD}	V _D = V _{DRM} , R _L = 3.3KΩ T _j = 125°C	I - II - III	MIN.	0.2		V
I _H ⁽²⁾	I _T = 500 mA		MAX.	35	50	mA
I _L	I _G = 1.2 I _{GT}	I - III	MAX.	50	70	mA
		II		60	80	
dV/dt ⁽²⁾	V _D = 67% V _{DRM} , gate open, T _j = 125°C		MIN.	500	1000	V/μs
(dI/dt) _c ⁽²⁾	Without snubber, T _j = 125°C		MIN.	5.5	9	A/ms

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Standard (4 quadrants)						
SYMBOL	TEST CONDITIONS	QUADRANT		10Txxxx		UNIT
				C	B	
I _{GT} ⁽¹⁾	V _D = 12 V, R _L = 30Ω	I - II - III	MAX.	25	50	mA
V _{GT}		IV		50	100	
V _{GD}	V _D = V _{DRM} , R _L = 3.3KΩ, T _j = 125°C	ALL		1.3		V
V _{GD}	V _D = V _{DRM} , R _L = 3.3KΩ, T _j = 125°C	ALL		0.2		V
I _H ⁽²⁾	I _T = 500 mA		MAX.	25	50	mA
I _L	I _G = 1.2 I _{GT}	I - III - IV	MAX.	40	50	mA
		II		80	100	
dV/dt ⁽²⁾	V _D = 67% V _{DRM} , gate open, T _j = 125°C		MIN.	200	400	V/μs
(dV/dt) _c ⁽²⁾	(dI/dt) _c = 4.4 A/ms, T _j = 125°C		MIN.	5	10	V/μs

STATIC CHARACTERISTICS					
SYMBOL	TEST CONDITIONS			VALUE	UNIT
V _{TM} ⁽²⁾	I _{TM} = 14 A, t _p = 380 μs	T _j = 25°C	MAX.	1.55	V
V _{th} ⁽²⁾	Threshold voltage	T _j = 125°C	MAX.	0.85	V
R _d ⁽²⁾	Dynamic resistance	T _j = 125°C	MAX.	40	mΩ
I _{DRM} I _{RRM}	V _{DRM} = V _{RRM}	T _j = 25°C	MAX.	5	μA
		T _j = 125°C		1	mA

Note 1: Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

Note 2: For both polarities of A2 referenced to A1.

THERMAL RESISTANCE				
SYMBOL			VALUE	UNIT
$R_{th(j-c)}$	Junction to case (AC)	TO-220AB	1.5	°C/W
		TO-220AB Insulated	2.4	
$R_{th(j-a)}$	Junction to ambient	TO-220AB	60	°C/W
		TO-220AB Insulated		

PRODUCT SELECTOR						
PART NUMBER	VOLTAGE (xx)			SENSITIVITY	TYPE	PACKAGE
	600 V	800 V	1000 V			
10TxxA-B/10TxxAI-B	V	V	V	50 mA	Standard	TO-220AB
10TxxA-BW/10TxxAI-BW	V	V	V	50 mA	Snubberless	TO-220AB
10TxxA-C/10TxxAI-C	V	V	V	25 mA	Standard	TO-220AB
10TxxA-CW/10TxxAI-CW	V	V	V	35 mA	Snubberless	TO-220AB

ORDERING INFORMATION					
ORDERING TYPE	MARKING	PACKAGE	WEIGHT	BASE Q'TY	DELIVERY MODE
10TxxA-yy	10TxxA-yy	TO-220AB	2.0g	50	Tube
10TxxAI-yy	10TxxAI-yy	TO-220AB (insulated)	2.3g	50	Tube

Note: xx = voltage, yy = sensitivity

ORDERING INFORMATION SCHEME	
10 T 06 A - BW	<p>Current 10 = 10A</p> <p>Triac series</p> <p>Voltage 06 = 600V 08 = 800V 10 = 1000V</p> <p>Package type A = TO-220AB (non-insulated) AI = TO-220AB (insulated)</p> <p>IGT Sensitivity B = 50mA Standard BW = 50mA Standard C = 25mA Standard CW = 35mA Standard</p>

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

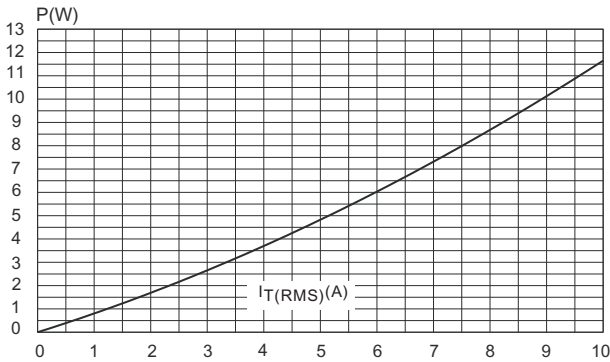


Fig.2 RMS on-state current versus case temperature (full cycle)

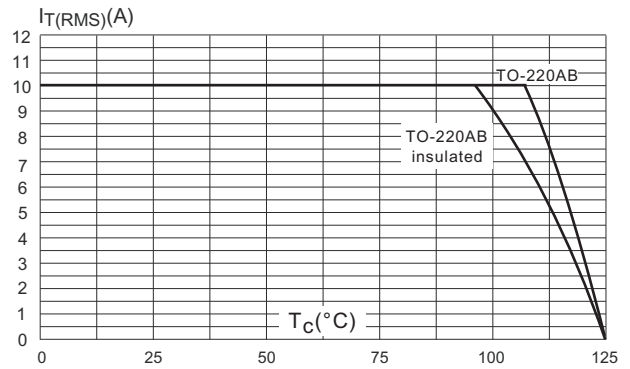


Fig.3 Relative variation of thermal impedance versus pulse duration

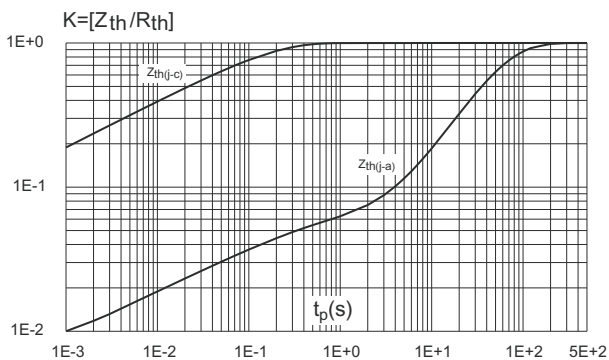


Fig.4 On-state characteristics (maximum values)

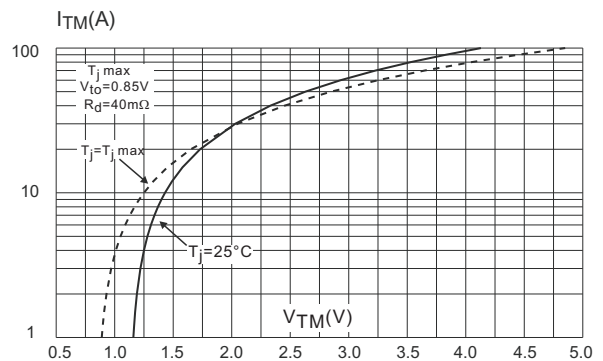


Fig.5 Surge peak on-state current versus number of cycles

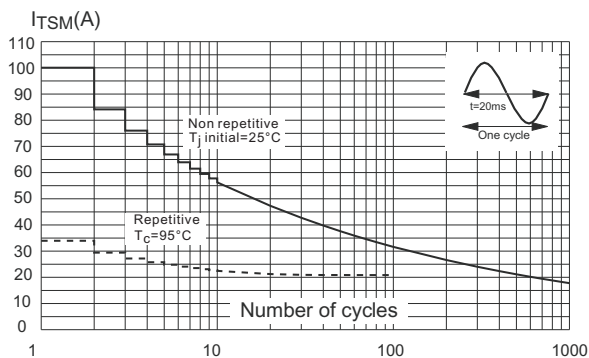


Fig.6 Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$. and corresponding value of I^2t

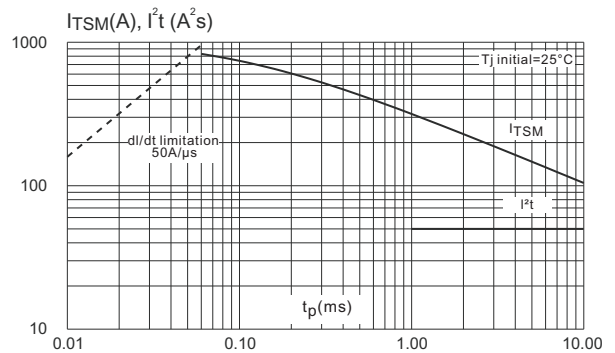


Fig.7 Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values)

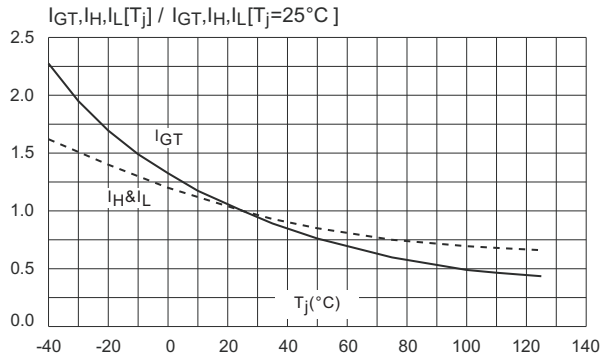


Fig.8 Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values)

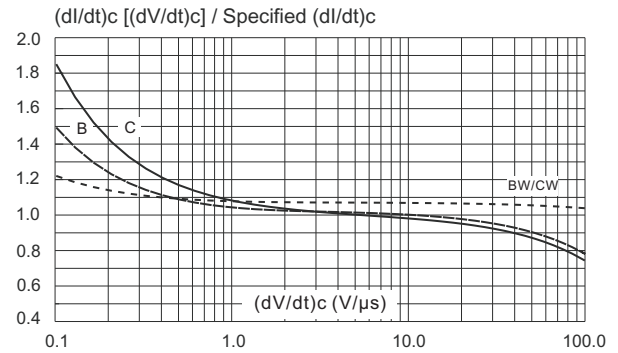
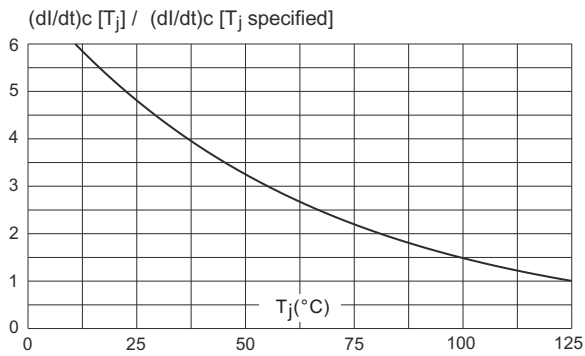


Fig.9 Relative variation of critical rate of decrease of main current versus junction temperature



Case Style

