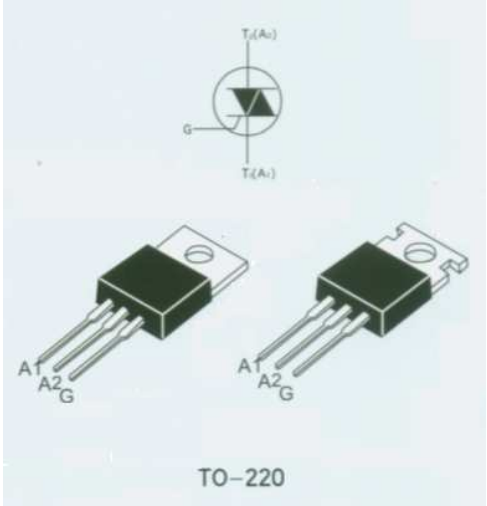
STANDARD

8A TRIACs

■ MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
$V_{(DRM)}/V_{RRM}$	600 to 800	V
$I_{GT(Q1)}$	5 to 50	mA



■ GENERAL DESCRIPTION

Passivated triacs in a plastic envelope, Intended for use in applications requiring high bi-directional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching.

■ ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB	Tc=105℃	8	A
		TO-220AB Ins.	Tc=110℃		A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial=25℃)	F=50Hz	t=20ms	65	A
		F=60Hz	t=16.7ms	71	
I^2T	I^2T Value for fusing	tp=10ms		21	A^2s
dI/dt	Critical rate of rise of on-state current I_G=2 × I_{GT}, tr≤100ns	F=120Hz	Tj=125℃	50	A/μs
I_{GM}	Peak gate current	tp=20μs	Tj=125℃	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj=125℃	1	W
T_{stg}	Storage junction temperature range			-40 to+150	℃
T_j	Operating junction temperature range			-40 to+125	

■ STATIC CHARACTERISTICS

Tj=25℃ unless otherwise stated

Symbol	Test Conditions	Quadrant		Value			Unit
				E	C	B	
I_{GT}(1)	V_D=12V R_L=30Ω	I-II-III	MAX.	10	25	50	mA
		IV		20	50	100	
V_{GT}		ALL	MAX.	1.5			V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ Tj=125℃	ALL	MIN.	0.2			V
I_H(2)	I_T=500mA		MAX.	10	25	50	mA
I_L	I_G=1.2I_{GT}	I-III-IV	MAX.	20	40	50	mA
		II		40	80	100	
V_{TM}(2)	I_{TM}=11A tp=380μs	Tj=25℃	MAX.	1.6			V
V_{t0}(2)	Threshold voltage	Tj=125℃	MAX.	0.85			V
R_d(2)	Dynamic resistance	Tj=125℃	MAX.	50			mΩ
I_{DRM}	V_{DRM}=V_{RRM}	Tj=25℃	MAX.	100			μA
I_{RRM}		Tj=125℃		1			mA

■ DYNAMIC CHARACTERISTICS

Symbol	Test Condition		E	C	B	Unit
dV/dt(2)	V_D=67% V_{DRM} gate open Tj=125℃	MIN.	100	200	400	V/μs
(dV/dt)c(2)	(dI/dt)c=3.5A/ms Tj=125℃	MIN.	5	5	10	V/μs

Note1: minimum I_{GT} is guaranteed at 5% of I_{GT} max.

Note2: for both polarities of A2 referenced to A1.

■ THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-l)}$	Junction to case (AC)	TO-220AB	1.6	℃/W
		TO-220AB Insulated	2.5	
$R_{th(j-a)}$	Junction to ambient	TO-220AB	60	℃/W
		TO-220AB Insulated		

PERFORMANCE CURVES

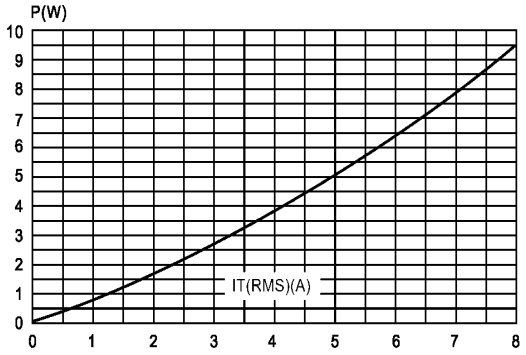


Fig.1. Maximum power dissipation versus RMS on-state current (full cycle)

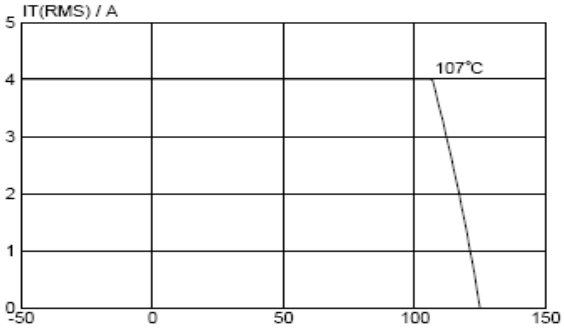


Fig.4. RMS on-state current versus ambient temperature (full cycle)

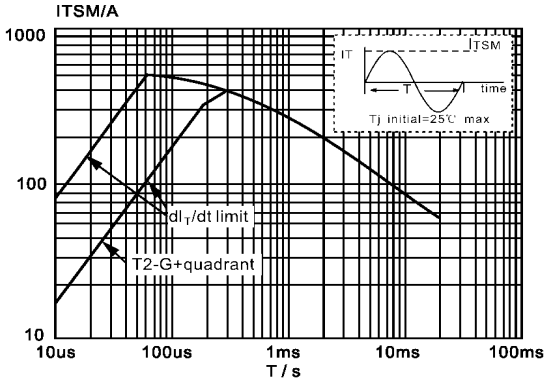


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM} versus pulse width t_p, for sinusoidal currents, $t_p \leqslant 20ms$

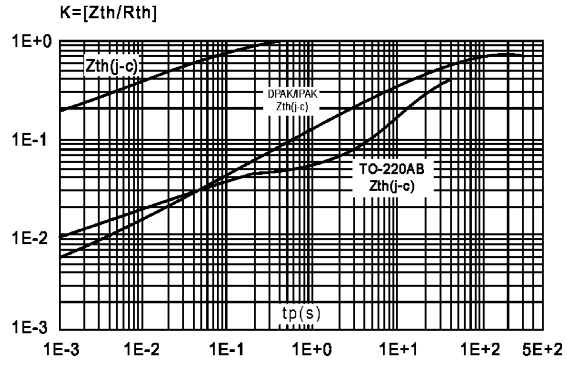


Fig.5. Relative variation of thermal impedance versus pulse duration

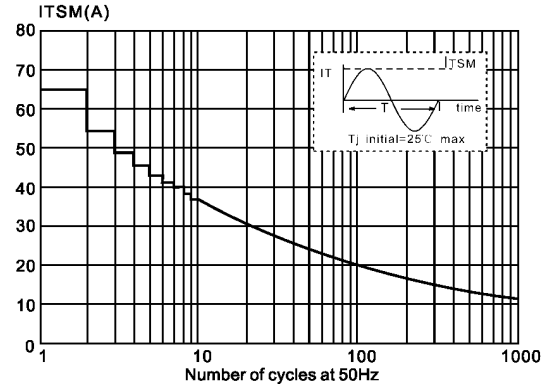


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM} versus number of cycles, for sinusoidal currents, f=50Hz

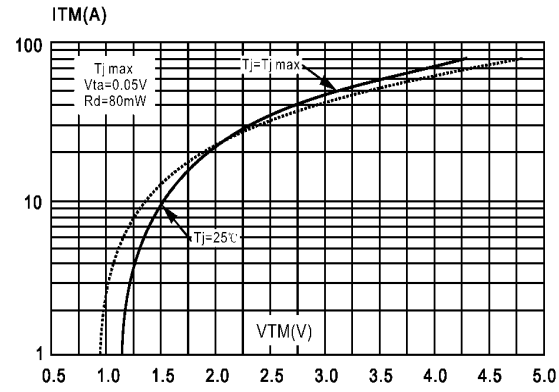


Fig.6. On-state characteristics (maximum values),

PERFORMANCE CURVES

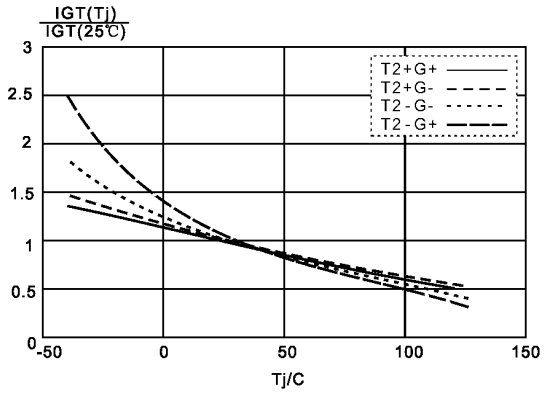


Fig.7. Normalized gate trigger current $I_{GT}(T_j)/I_{GT}(25^oC)$, versus junction temperature T_j

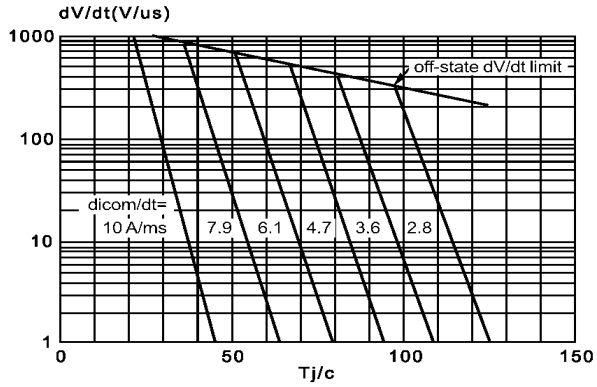


Fig.10. Typical commutation dV/dt versus junction temperature, parameter commutation dI_T/dt is below the value on the appropriate curve for pre-commutation dI_T/dt

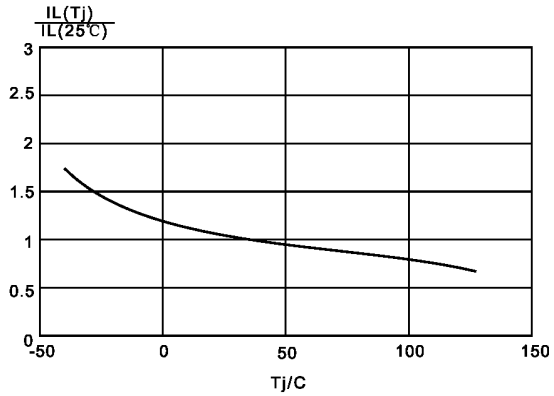


Fig.8. Normalized latching current $I_L(T_j)/I_L(25^oC)$, versus junction temperature T_j

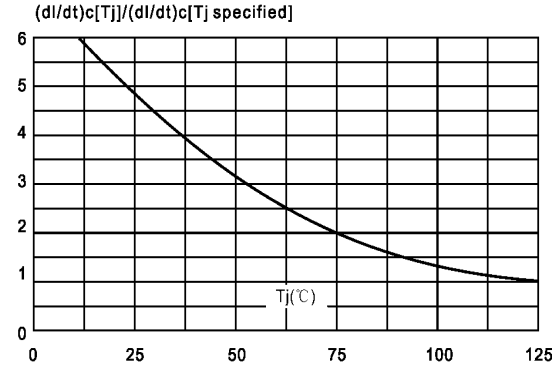


Fig.11. Relative variation of critical rate of decrease of main current versus junction temperature T_j

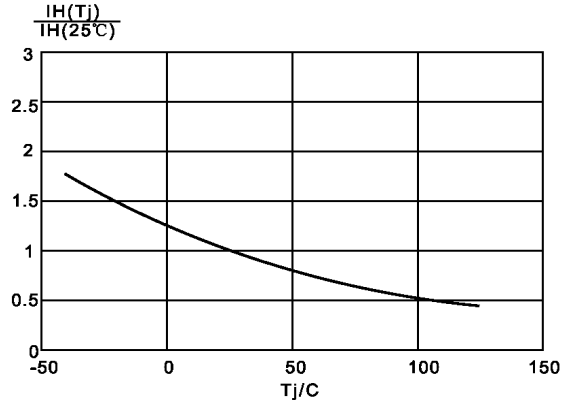


Fig.9. Normalized holding current $I_H(T_j)/I_H(25^oC)$, versus junction temperature T_j

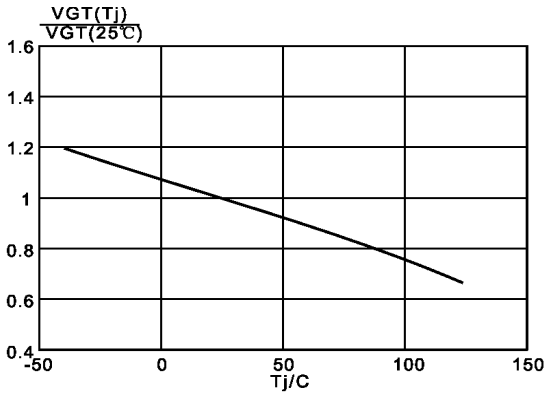
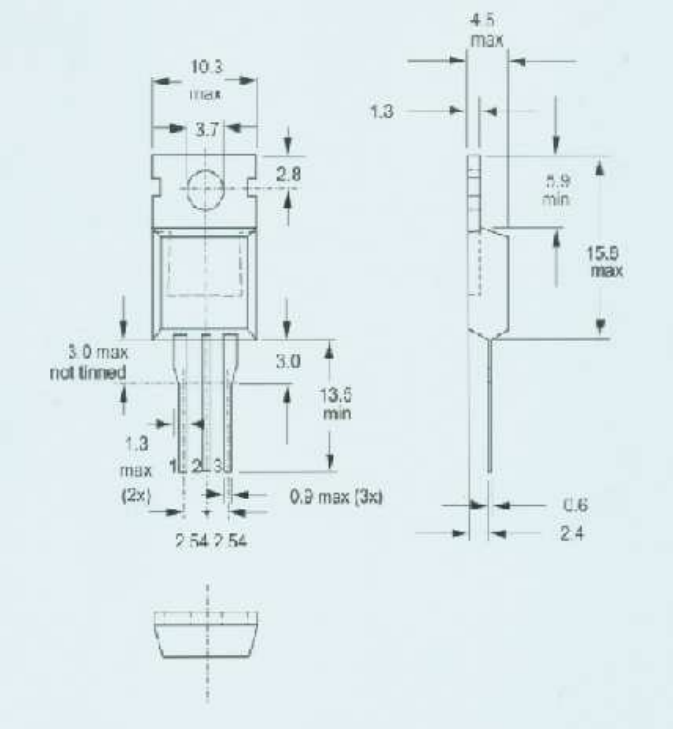


Fig.12. Normalized gate trigger voltage $V_{GT}(T_j)/I_{GT}(25^oC)$, versus junction temperature T_j

PACKAGE MECHANICAL DATA

TO-220



TO-220