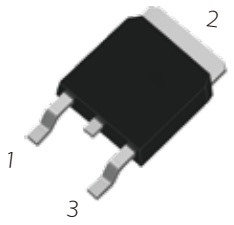
FEATURES

- High current 6 A RMS current Triac
- Low thermal resistance
- High commutation or very high commutation capability



TO-252

APPLICATIONS

- General purpose motor control circuits
- Phase control operations in light dimmers and motor speed controllers
- Home appliances

Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

THE MAIN PARAMETERS

Symbol	Parameter	Value	Unit
$I_{T(RMS)}$	RMS on-state current	6	A
V_{DRM}	Off-state repetitive peak voltage	800	V
V_{TM}	On-state voltage	1.5	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage (T_j=25℃)	V_{DRM}	800	V
Repetitive peak reverse voltage (Tj=25℃)	V_{RRM}	800	V
RMS on-state current (T_C=100℃)	$I_{T(RMS)}$	6	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	60	
I²t value for fusing (tp=10ms)	I²t	21	A²S
Critical rate of rise of on-state current (I_G=2*I_{GT})	d_I/d_t	50	A/μs
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Storage junction temperature range	T_{STG}	-40~+150	℃
Operating junction temperature range	T_j	-40~+125	

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value				Unit
			TW	SW	CW	BW	
I_{GT}	V_D=12V,R_L=33Ω	Ⅰ-Ⅱ-Ⅲ	≤5	≤10	≤35	≤50	mA
V_{GT}			≤1.3				V
V_{GD}	V_D=V_{DRM},R_L=3.3KΩ,T_j=125℃		≥0.2				V
I_H	I_T=500mA		≤10	≤15	≤35	≤50	mA
I_L	I_G=1.2I_{GT}	Ⅰ-Ⅲ	≤10	≤25	≤50	≤70	
		Ⅱ	≤15	≤30	≤60	≤80	
d_V/d_t	V_D==2/3V_{DRM} Gate open, T_j=125℃		≥20	≥40	≥400	≥1000	V/μs
V_{TM}	I_{TM}=5.5A,t_p=380μs		≤1.5				V
I_{DRM}	V_D=V_{DRM}, V_R=V_{RRM}	T_j=25℃	≤5				uA
I_{RRM}		T_j=125℃	≤1				mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	2.4	°C/W
$R_{th(j-a)}$	Junction to ambient	70	°C/W

PARAMETER CHARACTERISTIC CURVE

FIG.1 Maximum power dissipation versus RMS on-state current

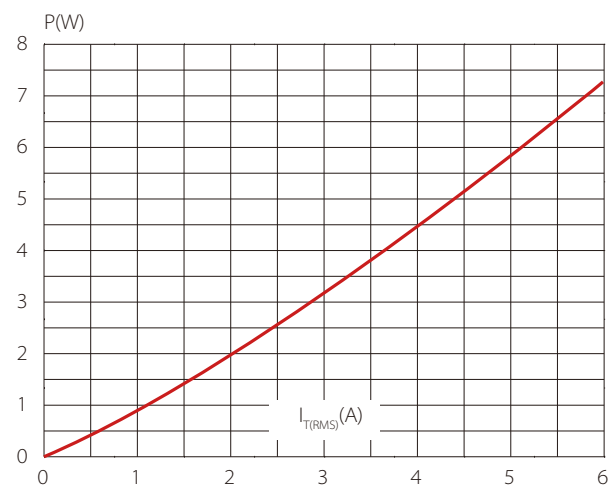


FIG.2: RMS On-state Current Versus Case Temperature

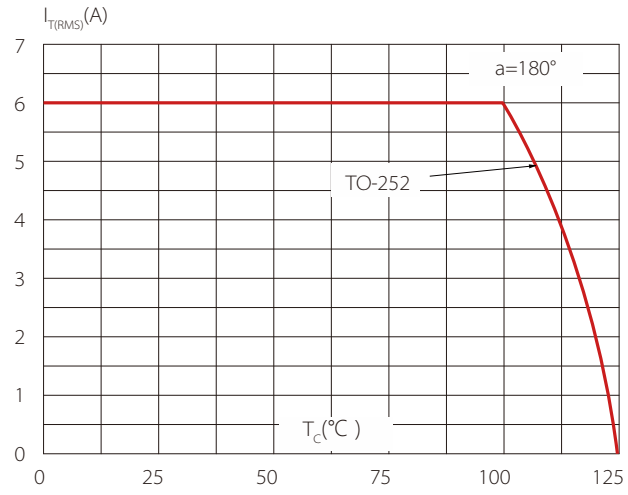


FIG.3: Surge peak on-state current versusnumber of cycles

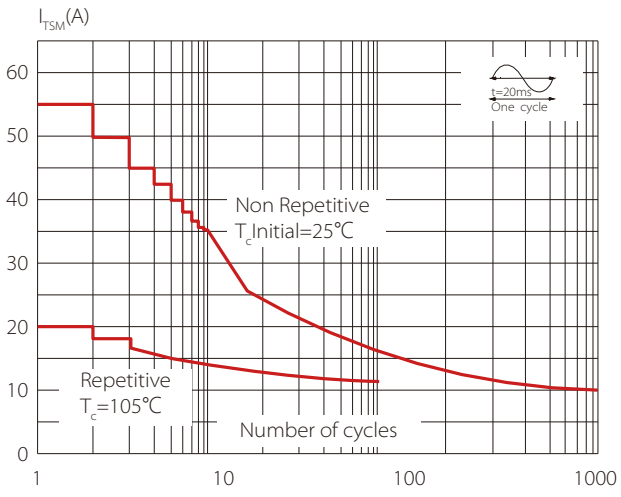


FIG.4 On-state characteristics (maximum values)

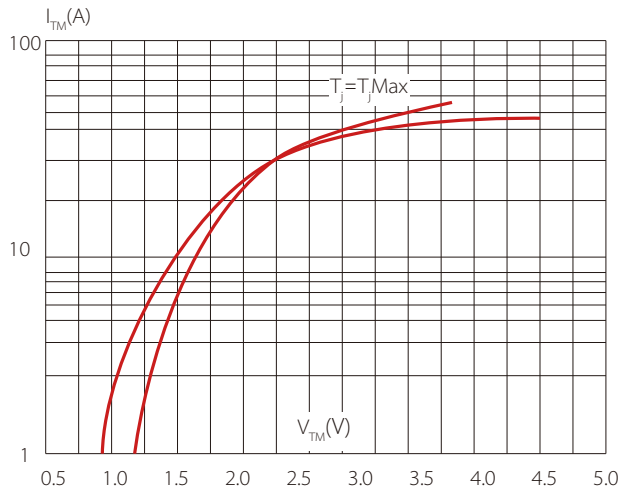


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I²t

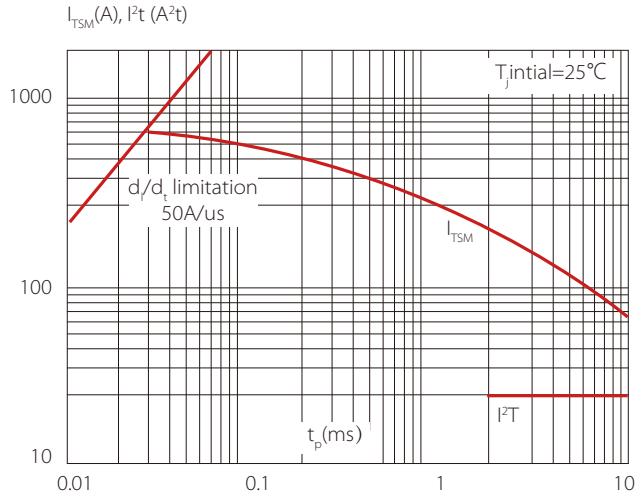


FIG.6 Relative variations of gate trigger current versus junction temperature

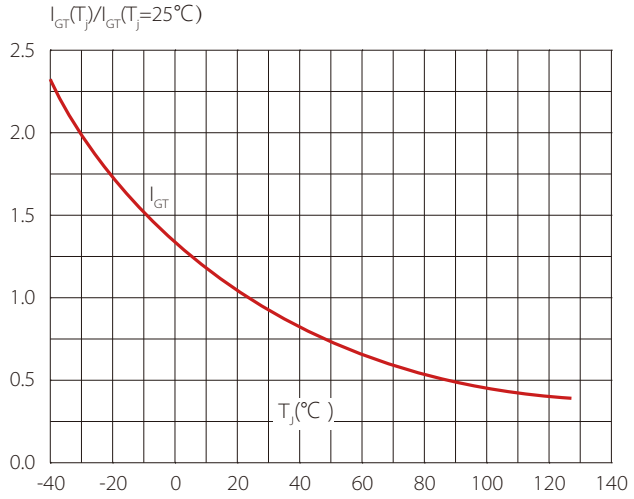


FIG.7 Relative variations of holding current versus junction temperature

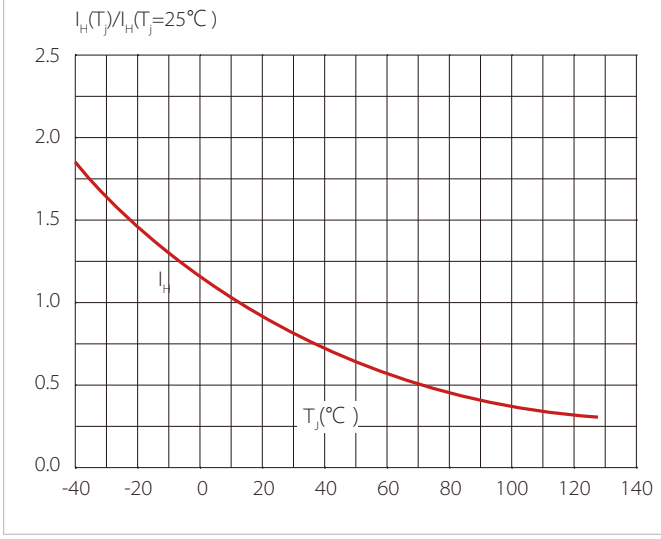
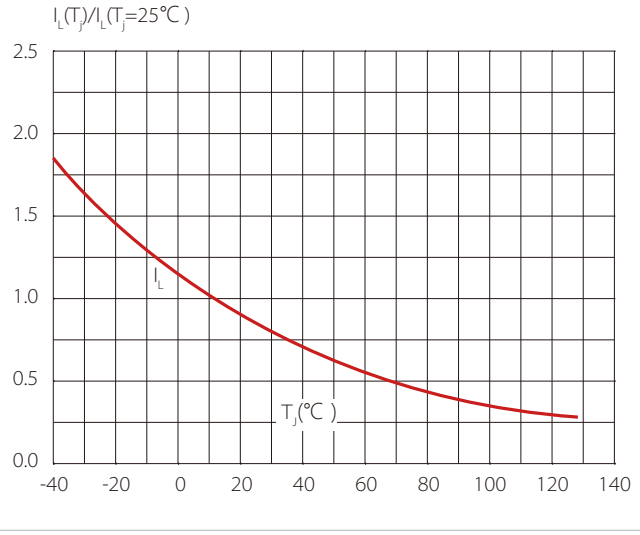
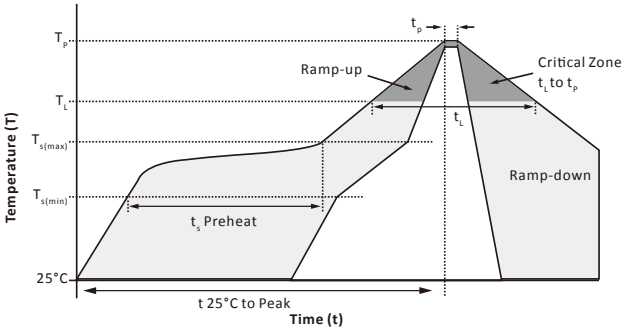


FIG.8 Relative variations of atching current versus junction temperature

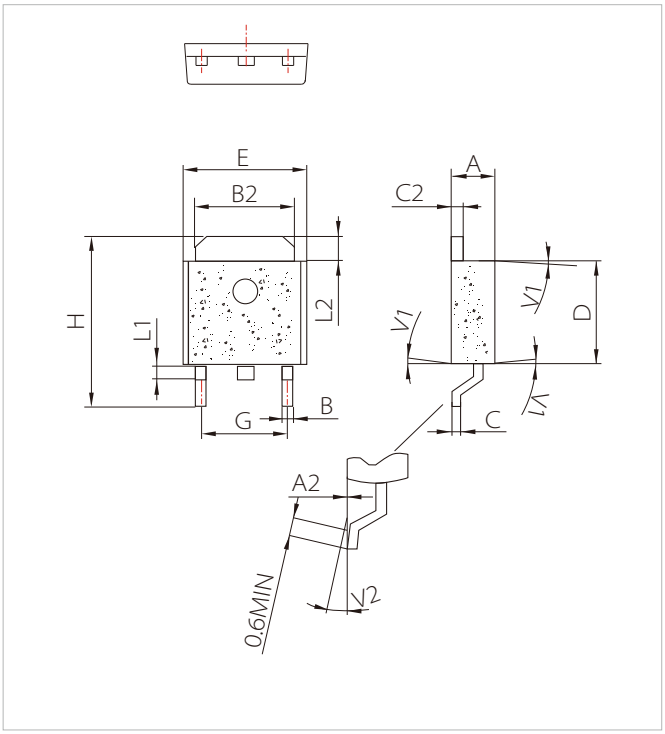


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
	$T_{S(max)}$ to T_L - Ramp-up Rate	3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

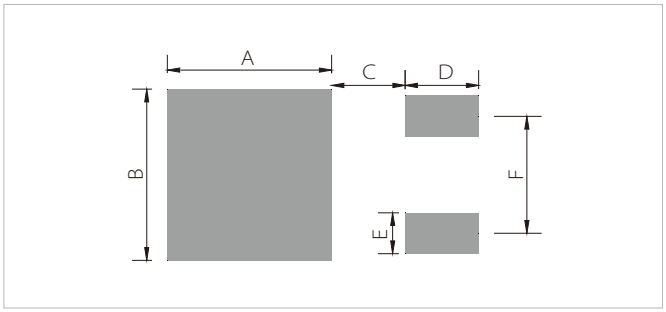


TO-252 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.15		2.45	0.085		0.096
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.20		5.40	0.204		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	5.90		6.30	0.232		0.248
E	6.30		6.70	0.248		0.264
G	4.40		4.60	0.173		0.181
H	9.30		10.20	0.366		0.402
L1		0.8			0.031	
L2	1.37		1.50	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref	mm
A	6.5
B	6.7
C	3
D	3
E	1.6
F	4.5

ORDERING INFORMATION

Part Number	Package	Marking	QTY/Reel	Reel Size
STD6A80TW(SW/CW/BW)	TO-252		2500PCS	13″

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