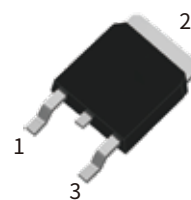


FEATURES

- | Direct interfacing to logic level ICs
- | Direct interfacing to low power gate drive circuits
- | High blocking voltage capability
- | Planar passivated for voltage ruggedness and reliability
- | Triggering in all four quadrant



TO-252

APPLICATIONS

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



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)		V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)		V_{RRM}	600	V
RMS on-state current ($T_c=100^\circ\text{C}$)		$I_{\text{T(RMS)}}$	4	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)		I_{TSM}	35	
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	6.1	A^2S
Critical rate of rise of on-state current ($I_G=2 \cdot I_{\text{GT}}$)	I - II - III	di/dt	50	$\text{A}/\mu\text{s}$
	IV		10	
Peak gate current		I_{GM}	2	A
Average gate power dissipation		$P_{\text{G(AV)}}$	0.5	W
Peak gate power		P_{GM}	5	W
Operating junction temperature range		T_j	-40~+125	$^\circ\text{C}$
Storage junction temperature range		T_{STG}	-40~+150	

ELECTRICAL CHARACTERISTICS (T_j=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant	Value				Unit
			T	D	E	F	
I _{GT}	V _D =12V	I - II - III	≤5	≤5	≤10	≤25	mA
		IV	≤5	≤10	≤25	≤70	
V _{GT}		ALL	≤1.3				V
V _{GD}	V _D =V _{DRM} , R _L =3.3KΩ, T _j =125°C		≥0.2				V
I _H	I _T =100mA		≤5	≤15	≤25	≤30	mA
I _L	I _G =1.2I _{GT}	I - III	≤10	≤20	≤30	≤40	
		II - IV	≤15	≤35	≤45	≤60	
dV _D /dt	V _D =67%V _{DRM} , T _j =125°C		≥20	≥50	≥100	≥150	V/μs
V _{TM}	I _{TM} =5.5A, tp=380μs		≤1.6				V
I _{DRM}	V _D =V _{DRM} , V _R =V _{RRM}	T _j =25°C	≤5				uA
I _{RRM}		T _j =125°C	≤0.5				mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case(AC)	2.8	°C/W

PARAMETER CHARACTERISTIC CURVE

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

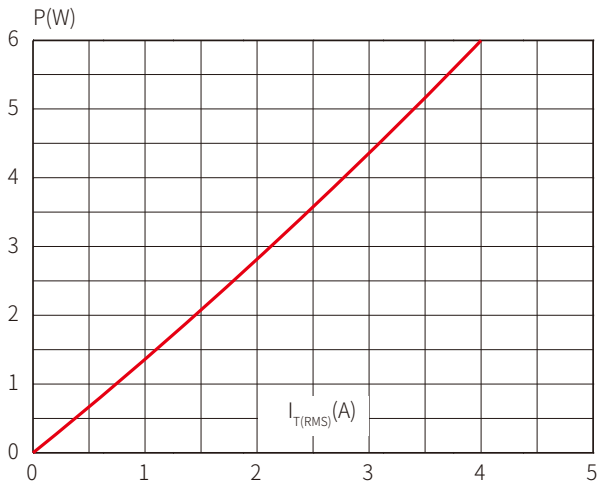


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 μ m)

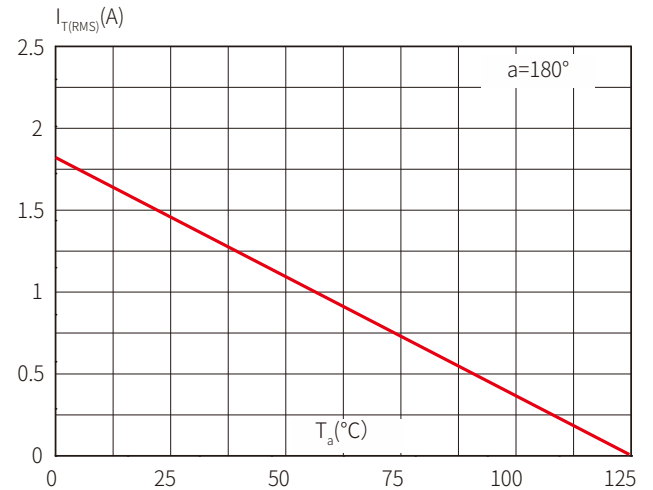


FIG.3: Surge peak on-state current versus number of cycles

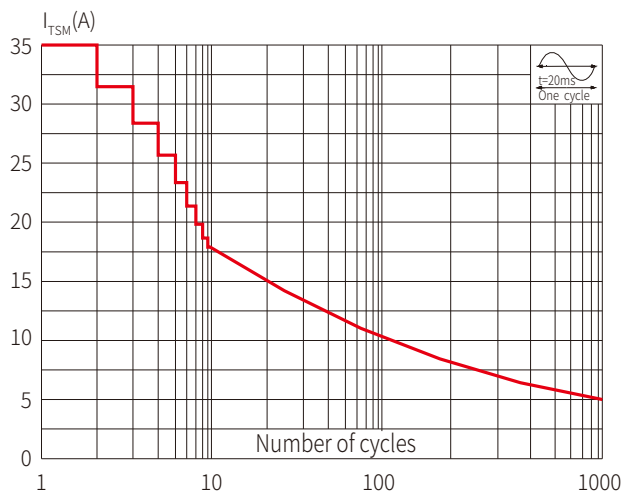


FIG.4 On-state characteristics (maximum values)

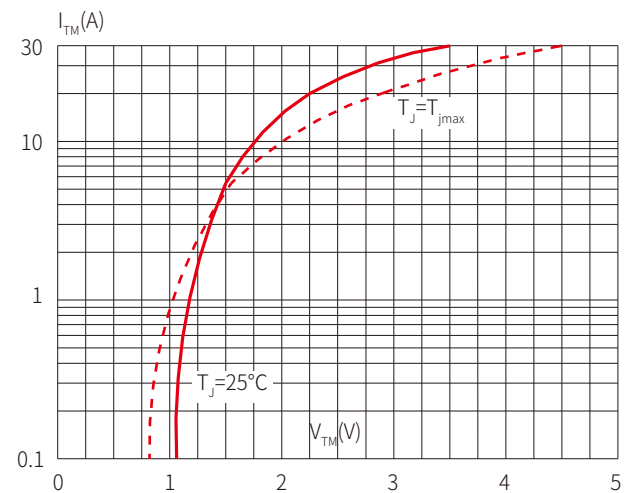


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

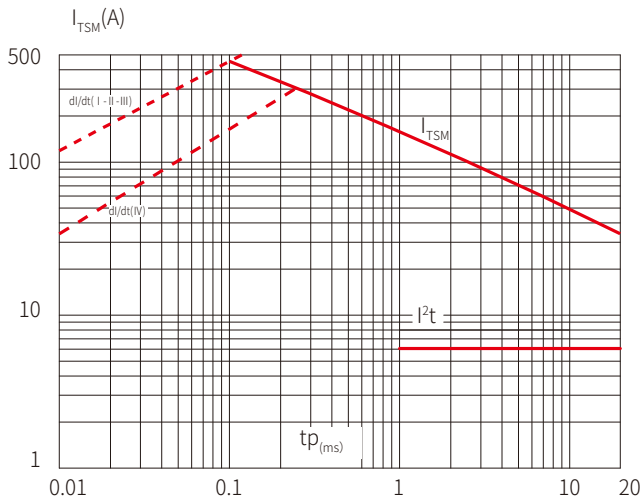


FIG.6 Relative variations of gate trigger current versus junction temperature

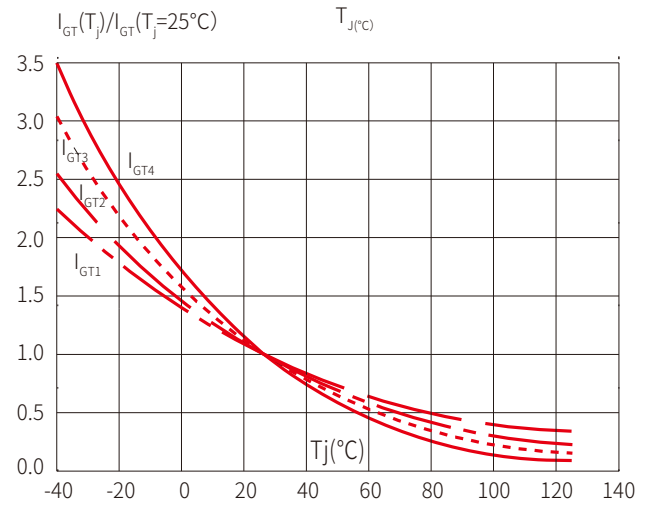


FIG.7 Relative variations of holding current versus junction temperature

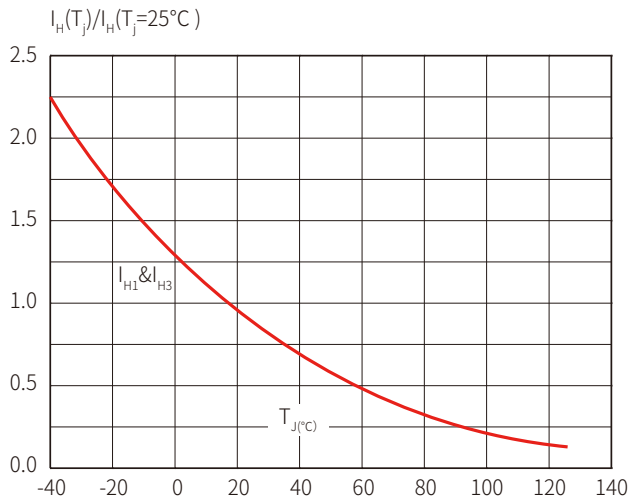
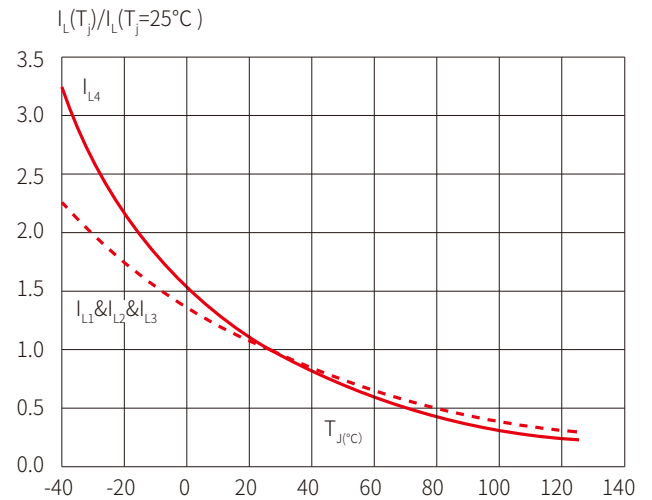
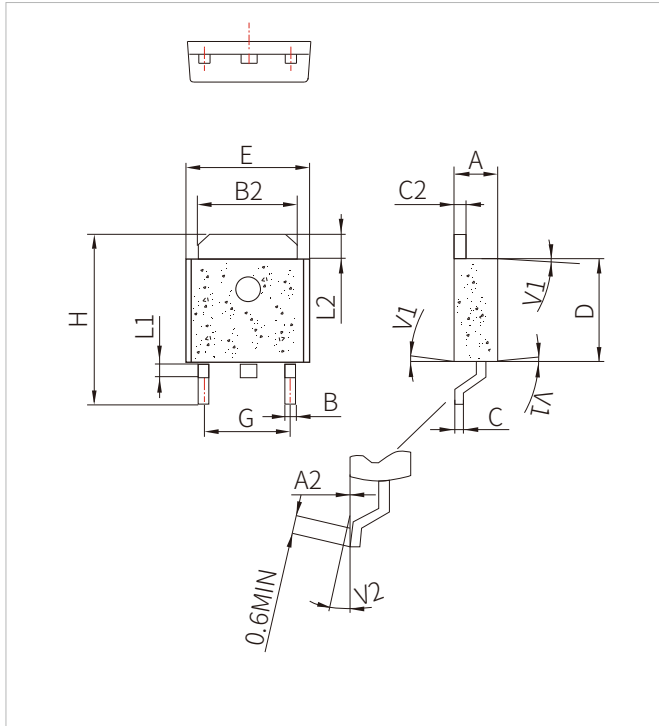


FIG.8 Relative variations of latching current versus junction temperature



TO-252 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.80	0.252		0.268
G	4.40		4.70	0.173	0.1	0.185
H	9.35		10.7	0.368		0.421
L1	1.30		1.70	0.051	0.143	0.067
L2	1.37		1.50	0.054		0.059
V1		4°			0.130	
V2	0°		8°	0°		8°

ORDERING INFORMATION

Part Number	Package	QTY/Reel	Reel Size
STD4Q60T(D/E/F)	TO-252	2500CS	13"

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