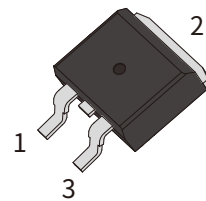


FEATURES

- | 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-263

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}	800	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)		V_{RRM}	800	V
RMS on-state current ($T_c=95^\circ\text{C}$)		$I_{\text{T(RMS)}}$	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 ($I_G=2 \times I_{\text{GT}}$)	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				μA
I _{RRM}		T _j =125°C	≤0.5				mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case(AC)	3.8	°C/W

PARAMETER CHARACTERISTIC CURVE

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

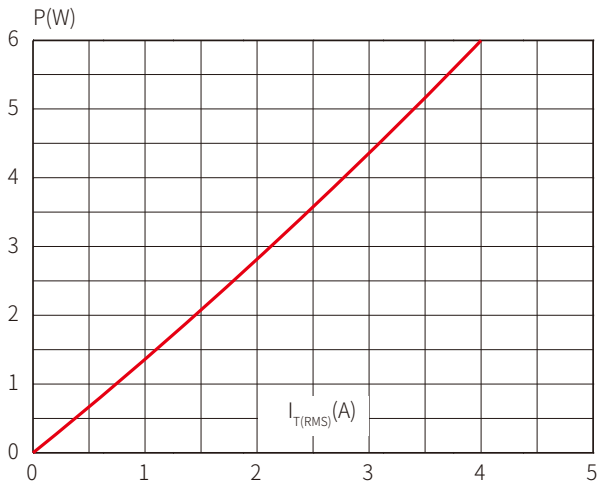


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 μ m)

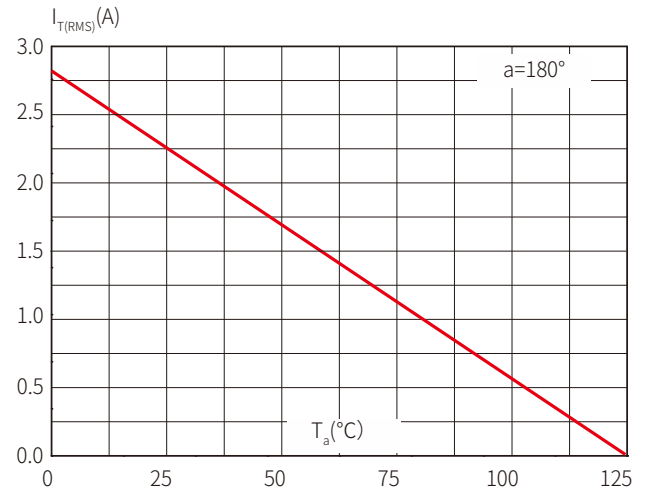


FIG.3: Surge peak on-state current versus number of cycles

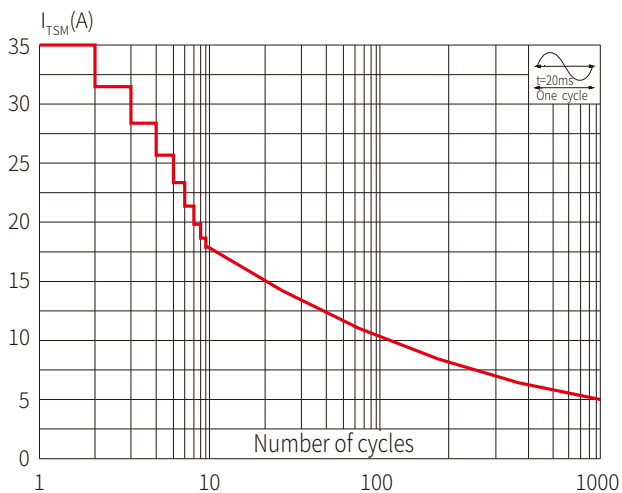


FIG.4 On-state characteristics (maximum values)

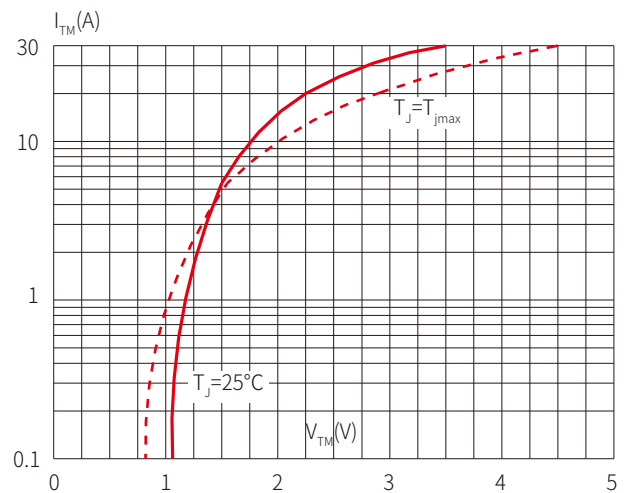


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

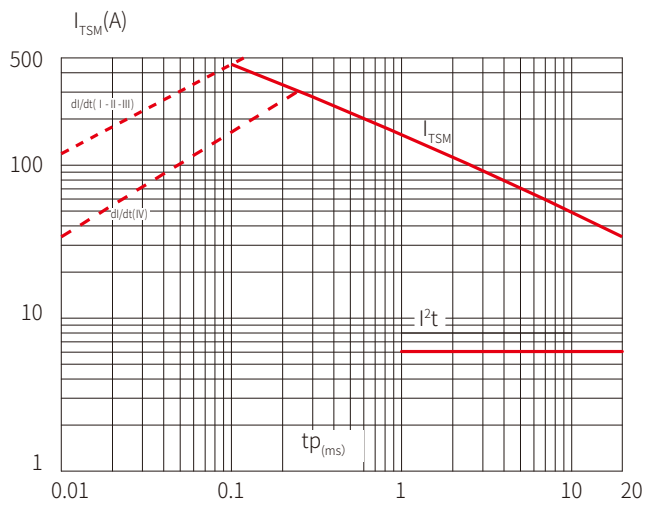


FIG.6 Relative variations of gate trigger current versus junction temperature

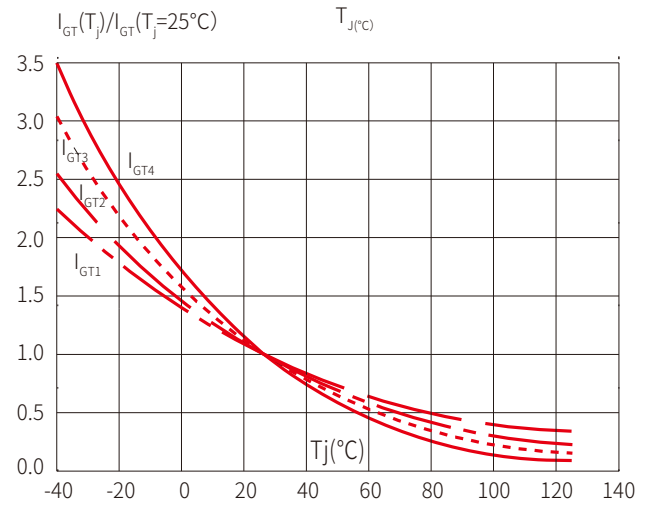


FIG.7 Relative variations of holding current versus junction temperature

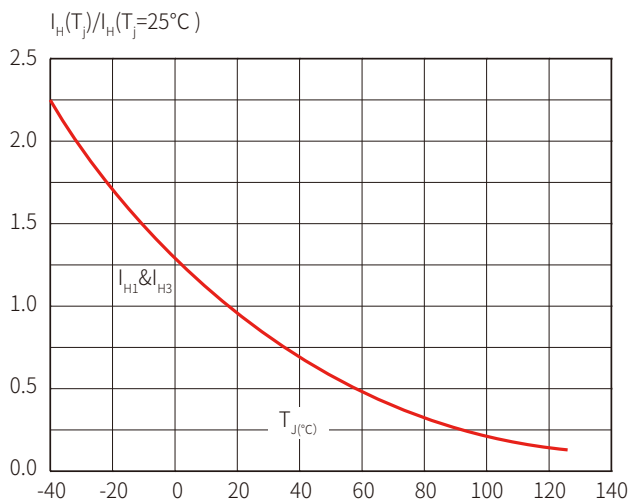
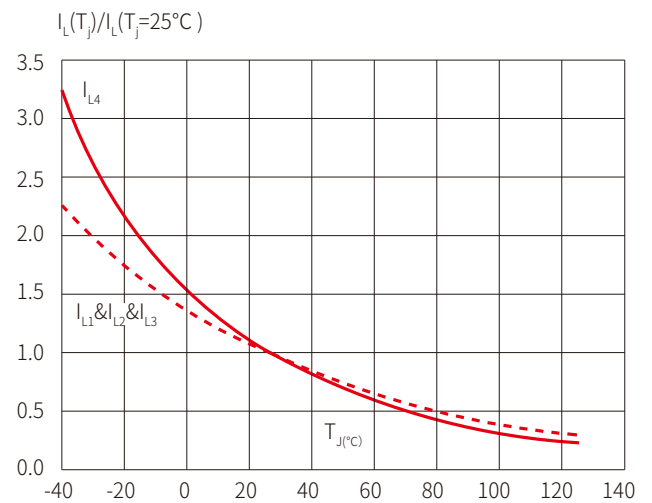
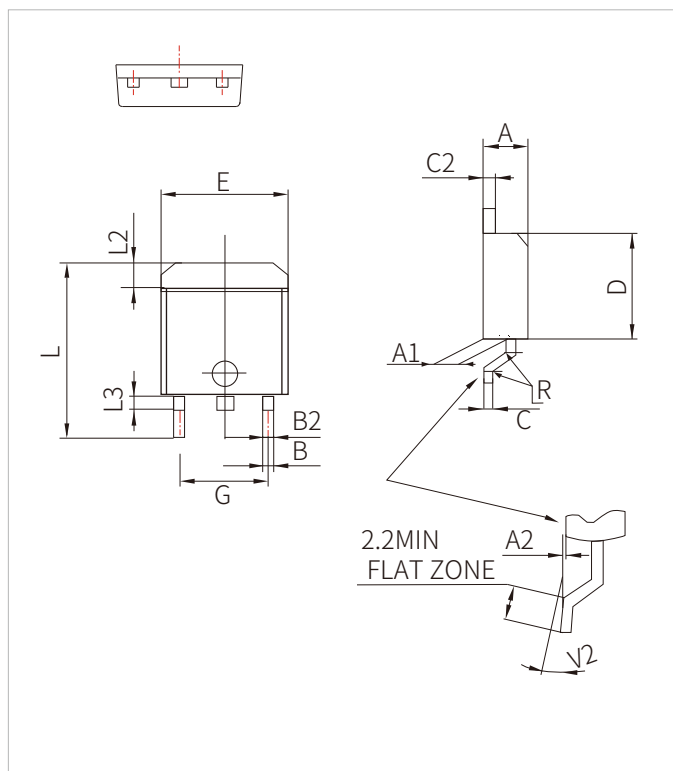


FIG.8 Relative variations of latching current versus junction temperature



TO-263 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.80	0.169		0.189
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.048	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.80		9.50	0.346		0.374
E	9.70		10.40	0.382		0.410
G	4.88		5.28	0.192		0.208
L	14.80		15.85	0.583		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

ORDERING INFORMATION

Part Number	Package	QTY/Reel	Reel Size
STE4Q80T(D/E/F)	TO-263	800CS	13"

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