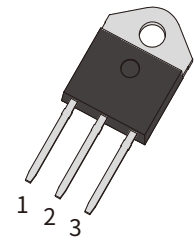


FEATURES

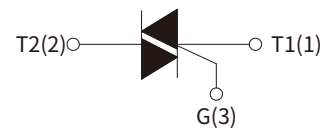
- | High current 40 A RMS current Triac
- | Low thermal resistance
- | High commutation or very high commutation capability



TO-3P

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	40	A
V_{DRM}	Off-state repetitive peak voltage	1600	V
V_{TM}	On-state voltage	1.5	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage ($T_j=25^{\circ}\text{C}$)	V_{DRM}	1600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}\text{C}$)	V_{RRM}	1600	V
RMS on-state current ($T_c=90^{\circ}\text{C}$)	$I_{\text{T(RMS)}}$	40	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)	I_{TSM}	400	
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	880	A^2S
Critical rate of rise of on-state current ($I_G=2 \cdot I_{\text{GT}}$)	di/dt	50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{\text{G(AV)}}$	1	W
Storage junction temperature range	T_{STG}	$-40 \sim +150$	$^{\circ}\text{C}$
Operating junction temperature range	T_j	$-40 \sim +125$	

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
			B	C	
I_{GT}	$V_D=12\text{V}, R_L=33\Omega$	I - II - III	≤ 50	≤ 25	mA
		IV	≤ 70	≤ 50	
V_{GT}		ALL	≤ 1.3		V
V_{GD}	$V_D=V_{\text{DRM}}, R_L=3.3\text{K}\Omega, T_j=125^{\circ}\text{C}$	ALL	≥ 0.2		V
I_{H}	$I_T=100\text{mA}$		≤ 80	≤ 30	mA
I_{L}	$I_G=1.2I_{\text{GT}}$	I - III - IV	≤ 90	≤ 60	
		II	≤ 100	≤ 80	
dV_D/dt	$V_D=67\%V_{\text{DRM}}, T_j=125^{\circ}\text{C}$		≥ 1000	≥ 500	$\text{V}/\mu\text{s}$
V_{TM}	$I_{\text{TM}}=60\text{A}, t_p=380\mu\text{s}$		≤ 1.5		V
I_{DRM}	$V_D=V_{\text{DRM}}, V_R=V_{\text{RRM}}$	$T_j=25^{\circ}\text{C}$	≤ 10		μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	≤ 5		mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	1.1	°C/W

PARAMETER CHARACTERISTIC CURVE

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

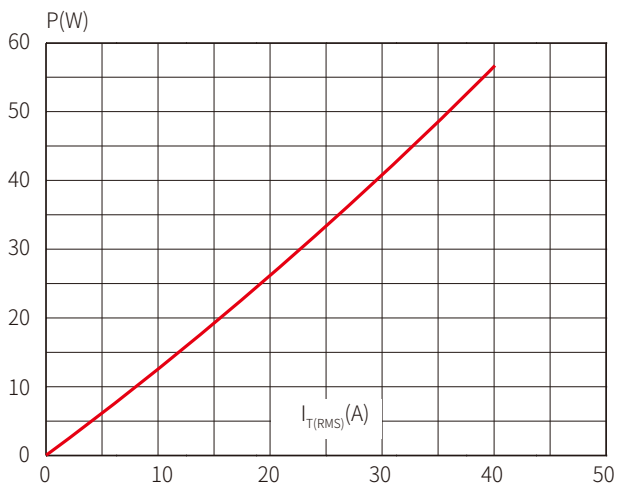


FIG.2: RMS on-state current versus case temperature

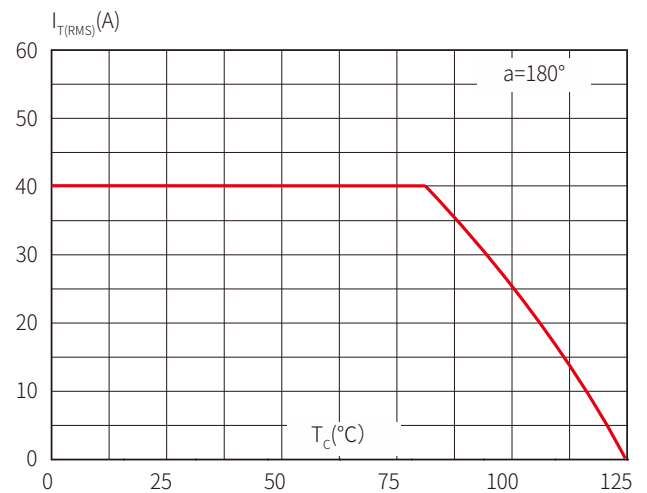


FIG.3: Surge peak on-state current versus number of cycles

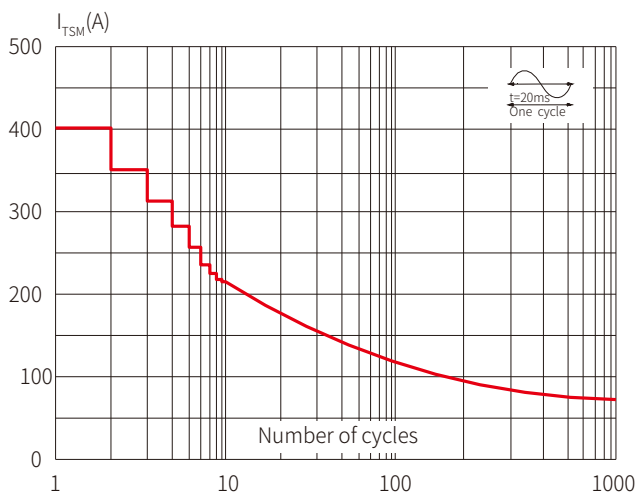


FIG.4 On-state characteristics (maximum values)

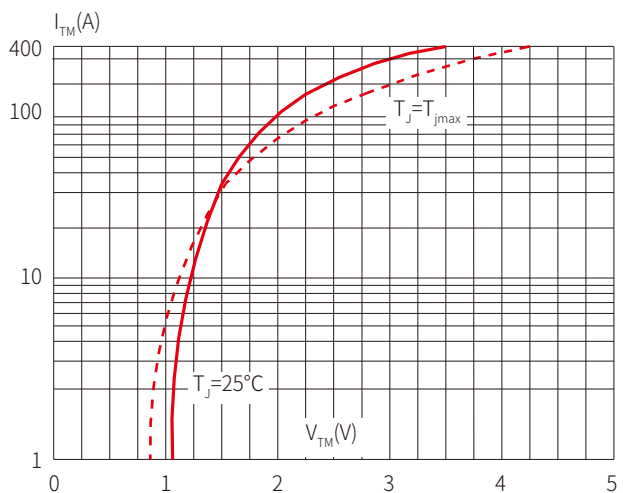


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

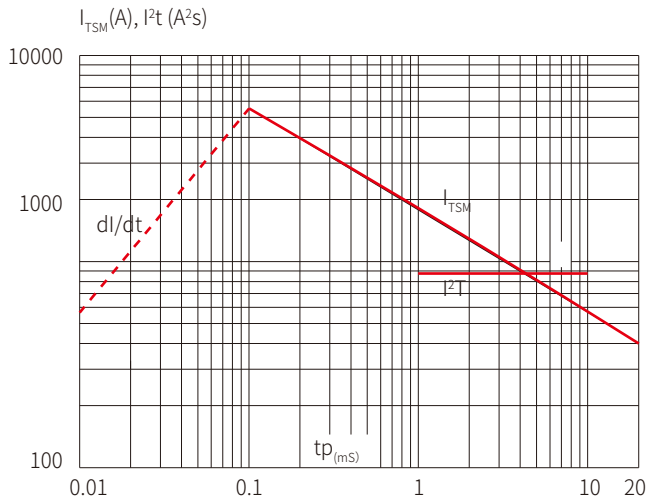


FIG.6 Relative variations of gate trigger current versus junction temperature

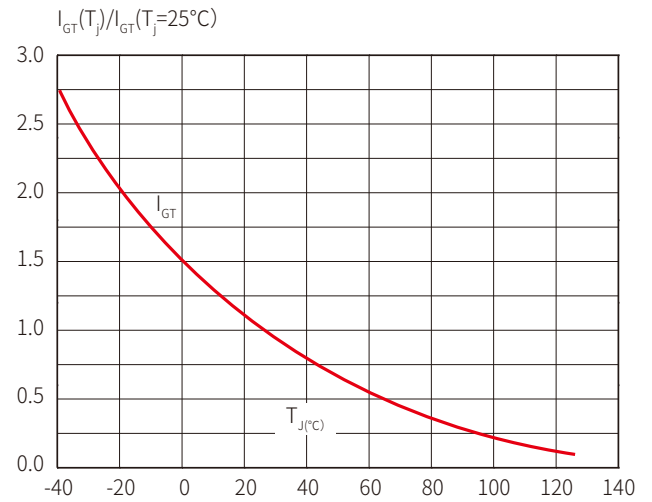


FIG.7 Relative variations of holding current versus junction temperature

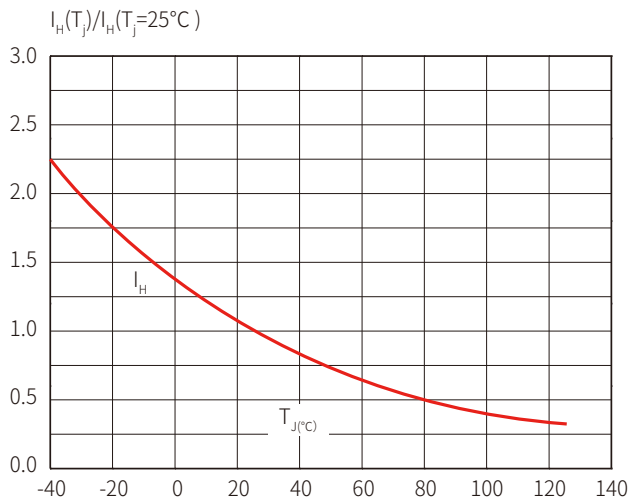
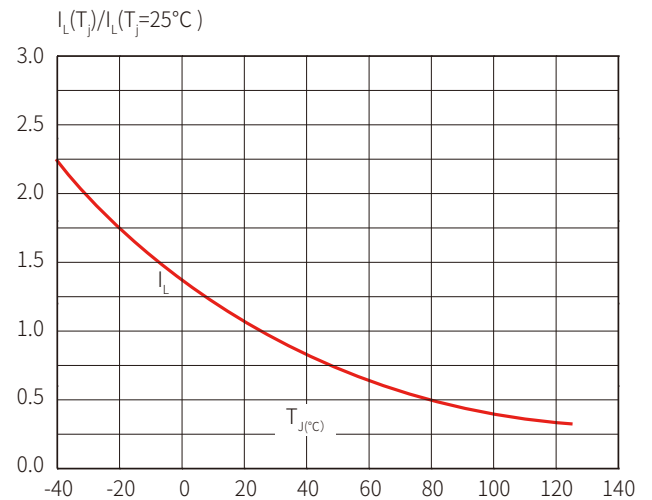
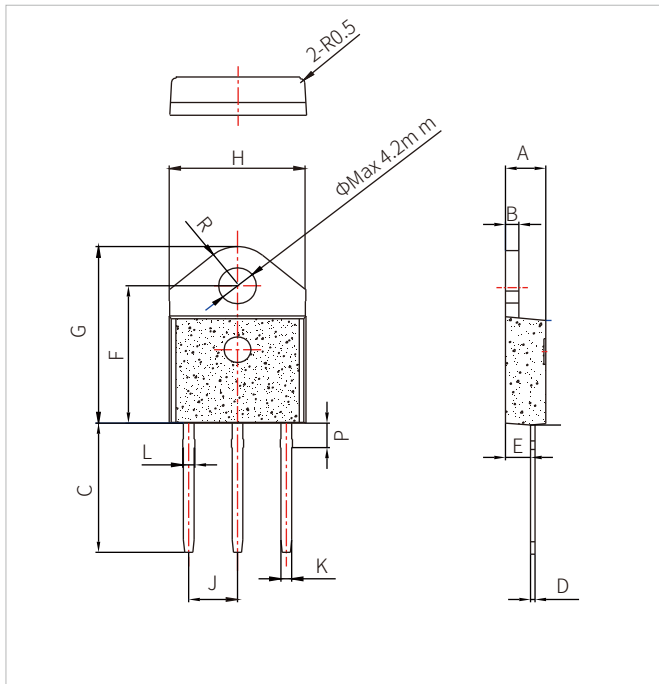


FIG.8 Relative variations of latching current versus junction temperature



TO-3P PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.70	0.169		0.185
B	1.40		1.60	0.056		0.063
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.70		16.60	0.618		0.654
G	20.40		21.10	0.803		0.831
H	15.00		15.60	0.591		0.614
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.20		1.50	0.047		0.059
P	2.80		3.80	0.110		0.150
R		4.35			0.171	

ORDERING INFORMATION

Part Number	Package	Qty/pcs		
		Tube	Inner Box	Carton
STZ40Q160B(C)	TO-3P	30	450	3600

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