



JST12i Series 12A TRIACs

DESCRIPTION:

High current density due to double mesa technology; SIPOS and Glass Passivation.

JST12i series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF Function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation light dimmers, motorspeed controllers.

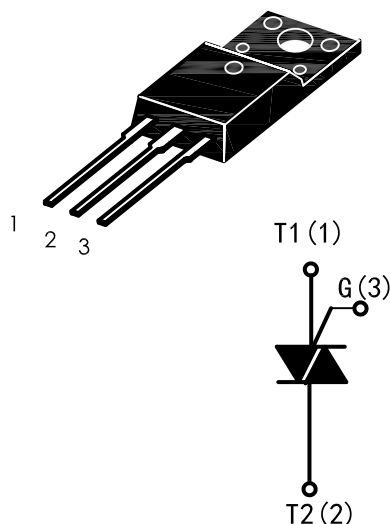
JST12i- $\times\times\times$ TW、 $\times\times\times$ SW、 $\times\times\times$ CW、 $\times\times\times$ BW are 3 Quadrants triacs, They are specially recommended for use on inductive loads.

JST12i are isolated internally, they provides a 2500V RMS isolation voltage from all three terminals to external heatsink.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	600and800	V
V_{TM}	≤ 1.55	V

TO-220F



ABSOLUTE MAXIMUM RATINGS

Parameter				Symbol	Value	Unit
Storage junction temperature range				Tstg	-40 to +150	°C
Operrating junction temperature range				Tj	-40 to +125	
Repetitive Peak Off-state Voltage		Tj=25°C	VDRM	600and800	V	
Repetitive Peak Reverse Voltage			VRRM	600and800		
Non repetitive Surge Peak Off-state Voltage		Tj=25°C	VDSM	700and900	V	
Non repetitive Peak Reverse Voltage			VRSM	700and900		
RMS on-state current (full sine wave)		TC=79°C	IT(RMS)	12	A	
Non repetitive surge peak on-state current (full cycle,Tj=25°C)	f = 50 Hz	t=20ms	ITSM	120	A	
	f = 60 Hz	t=16.7ms		126		
I²t Value for fusing tp=10ms			I² t	78	A² s	
Critical rate of rise of on-state current IG=2×IGT, tr≤100 ns, f=120Hz, Tj=125°C				dI /dt	50	A/us
Peak gate current tp=20us, Tj=125°C				IGM	4	A
Average gate power dissipation Tj=125°C				PG(AV)	1	W

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

Symbol	Test Condition	Quadrant		JST12i				Unit
				TW	SW	CW	BW	
I_{GT}	$V_D=12\text{V}$ $R_L=30\Omega$	I - II - III	MAX.	5	10	35	50	mA
V_{GT}		I - II - III	MAX.	1.3				V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3\text{K}\Omega$ $T_j=125^{\circ}\text{C}$	I - II - III	MIN..	0.2				V
I_L	$I_G=1.2I_{GT}$	I - III	MAX.	10	25	50	70	mA
		II		15	30	60	80	
I_H	$I_T=100\text{mA}$		MAX.	10	15	35	50	mA
dV/dt	$V_D=67\%V_{DRM}$ gate open $T_j=125^{\circ}\text{C}$		MIN.	20	40	500	1000	V/ μs
$(dI/dt)_c$	(dV/dt) $c=0.1\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		MIN.	3.5	6.5	----	----	A/ms
	(dV/dt) $c=10\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$			1.0	2.9	----	----	
	Without snubber $T_j=125^{\circ}\text{C}$			----	----	6.5	12	

 4 Quadrants

Symbol	Test Condition	Quadrant		JST12i		Unit
				C	B	
I_{GT}	$V_D=12\text{V}$ $R_L=30\Omega$	I - II - III IV	MAX.	25 50	50 100	mA
V_{GT}		ALL	MAX.	1.3		V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3\text{K}\Omega$ $T_j=125^{\circ}\text{C}$	ALL	MIN.	0.2		V
I_L	$I_G=1.2I_{GT}$	I - III - IV	MAX.	40	50	mA
		II		80	100	
I_H	$I_T=100\text{mA}$		MAX.	25	50	mA
dV/dt	$V_D=67\%V_{DRM}$ gate open $T_j=125^{\circ}\text{C}$		MIN.	200	400	V/ μs
$(dI/dt)_c$	(dV/dt) $c=0.1\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		MIN.	----	----	
	(dV/dt) $c=10\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$			----	----	
	Without snubber $T_j=125^{\circ}\text{C}$			----	----	

STATIC CHARACTERISTICS

Symbol	Test Conditions		Value (MAX)	Unit
V_{TM}	$I_{TM}=17A$, $t_p=380\mu s$	$T_j=25^{\circ}C$	1.55	V
I_{DRM}	$V_D=V_{DRM}$	$T_j=25^{\circ}C$	5	μA
I_{RRM}	$V_R=V_{RRM}$	$T_j=125^{\circ}C$	1	mA

THERMAL RESISTANCES

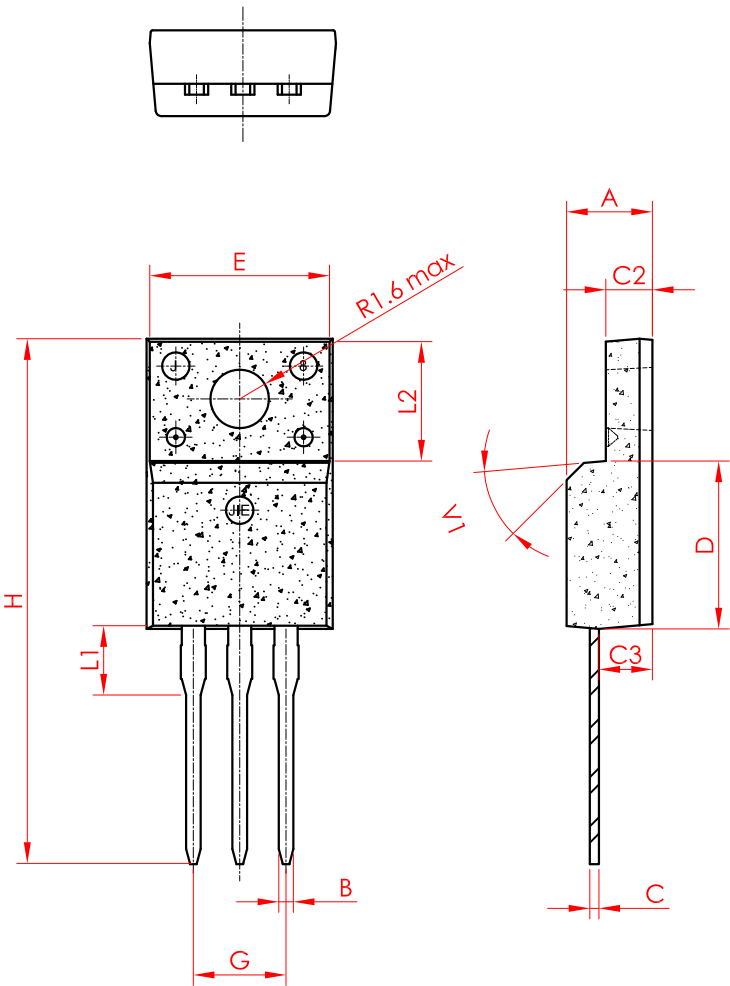
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	3.3	$^{\circ}C/W$

ORDERING INFORMATION

Jie Jie Microelectrnics co.,Led	J	ST	12	(i)	- 800	B	IGT Class
	TRIAC SERIES		$I_{T(RMS)}: 12A$	INSULATED		$600: V_{DRM}/V_{RRM} \geq 600V$ $800: V_{DRM}/V_{RRM} \geq 800V$	

PACKAGE MECHANICAL DATA

TO-220F



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max	Min.	Typ.	Max.
A	4.3		4.7	0.169		0.185
B	0.74	0.8	0.83	0.029	0.031	0.033
C	0.5		0.75	0.020		0.030
C2	2.4		2.7	0.094		0.106
C3	2.5		2.9	0.098		0.114
D	8.6		9.2	0.338		0.362
E	9.7		10.3	0.382		0.406
G	5.0		5.2	0.197		0.205
H	28.0		29.8	11.0		11.7
L1		3.63			0.143	
L2	6.3		6.5	0.136		0.143
V1		40°			40°	

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

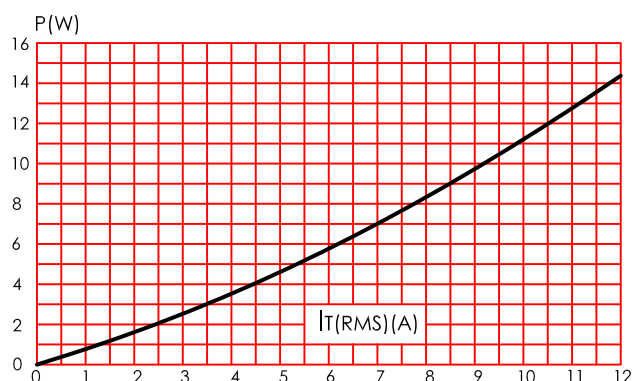


Fig. 2: RMS on-state current versus case temperature(full cycle)

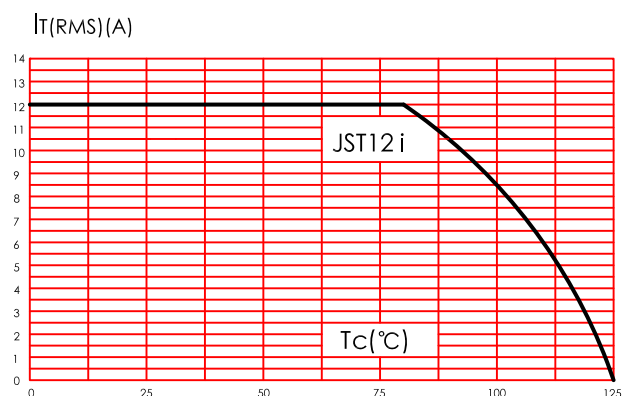


Fig. 3: on-state characteristics (maximum values)

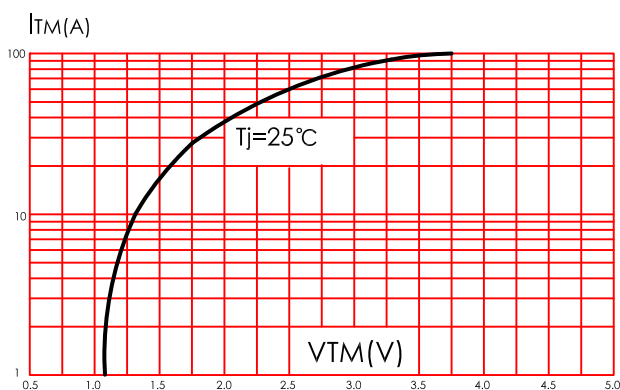


Fig. 4: Surge peak on-state current versus number of cycles

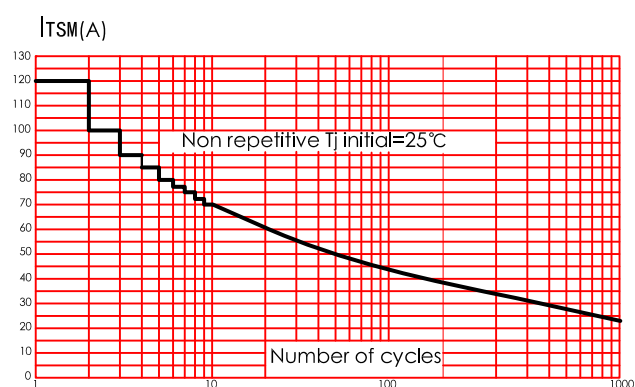


Fig. 5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$

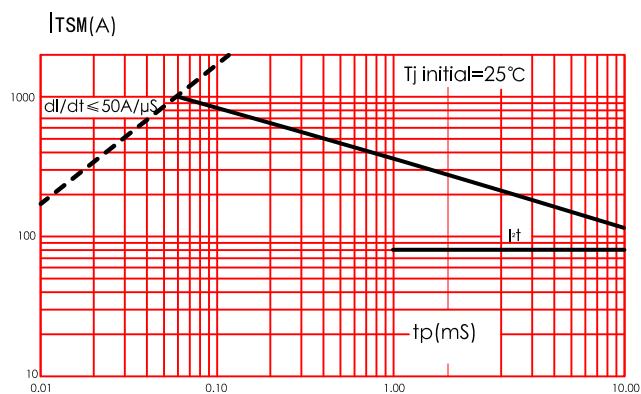


Fig. 6: Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values)

