



JST12/JST12i Series 12A TRIACs

DESCRIPTION:

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

JST12/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.

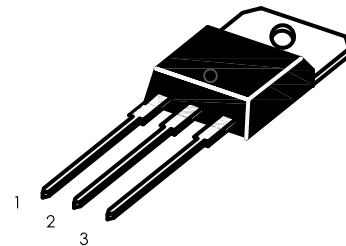
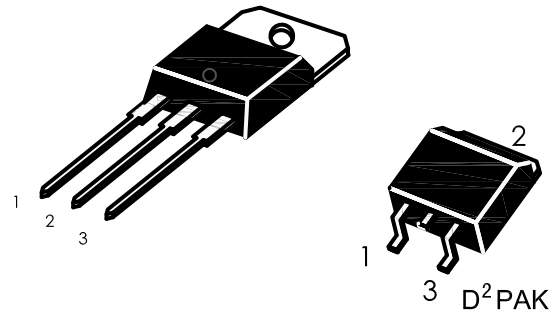
JST12/JST12i- $\times\times\times$ TW、 $-\times\times\times$ SW、 $-\times\times\times$ CW、 $-\times\times\times$ BW are 3 Quadrants triacs, They are specially recommended for use on inductive loads.

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

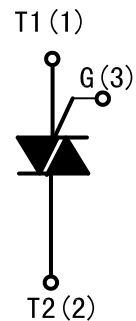
MAIN FEATURES

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

TO-220AB(JST12)



TO-220AB insulated (JST12i)



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	Tstg	-40 to +150	°C
Operating junction temperature range	Tj	-40 to +125	
Repetitive Peak Off-state Voltage Repetitive Peak Reverse Voltage	V_{DRM} V_{RRM}	600and800 600and800	V
Non repetitive Surge Peak Off-state Voltage Non repetitive Peak Reverse Voltage	V_{DSM} V_{RSM}	700and900 700and900	V
RMS on-state current (full sine wave)	D ² PAK / TO-220AB Tc=105°C	12	A
	TO-220AB Ins Tc=90°C		
Non repetitive surge peak on-state current (full cycle, Tj=25°C)	f = 50 Hz t=20ms	120 126	A
	f = 60 Hz t=16.7ms		
I ² t Value for fusing tp=10ms	I ² t	78	A ² 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		JST12/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
$(dl/dt)_c$	(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		JST12/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
$(dl/dt)_c$	(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 $T_j=125^\circ\text{C}$			----	----	

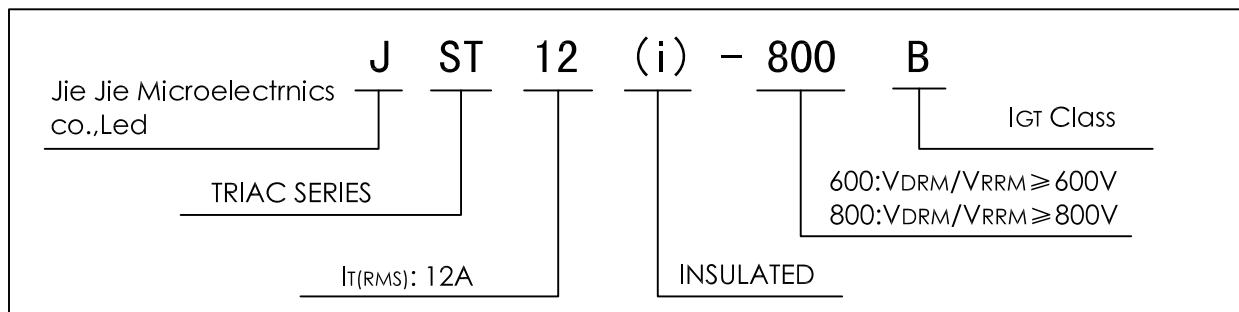
STATIC CHARACTERISTICS

Symbol	Test Conditions		Value (MAX)	Unit
V _{TM}	I _{TM} =17A, t _p =380uS	T _j =25°C	1.55	V
I _{DRM}	V _D =V _{DRM}	T _j =25°C	5	uA
I _{RRM}	V _R =V _{RRM}	T _j =125°C	1	mA

THERMAL RESISTANCES

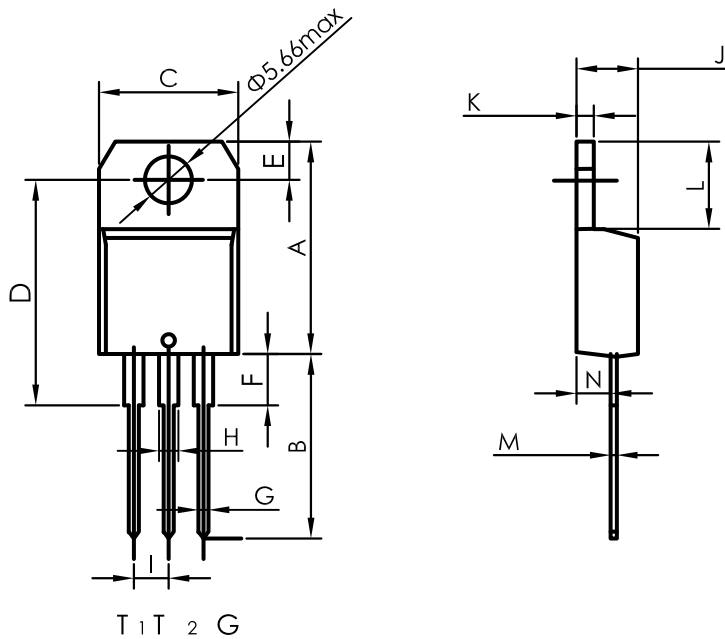
Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case (AC)	D ² PAK/TO-220AB	1.4	°C/W
		TO-220AB Insulated	2.3	

ORDERING INFORMATION



PACKAGE MECHANICAL DATA

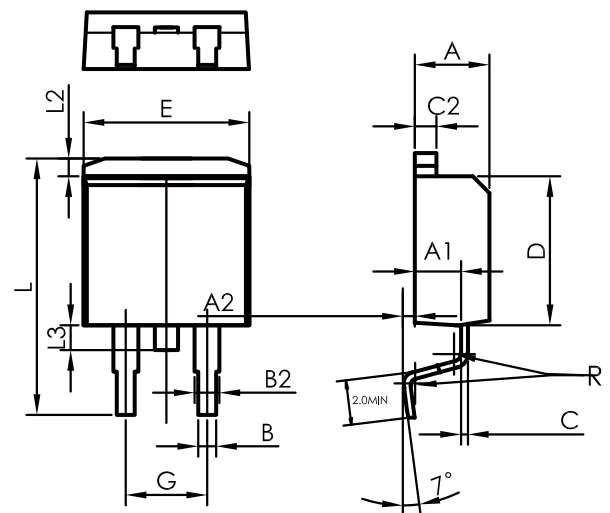
TO-220AB



DIMENSIONS (mm)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MAX	15.9	14.0	10.4	16.8	2.95		0.88	1.70	2.70	4.60	1.32	6.60	0.70	2.72
TYP				16.4		3.75								
MIN	15.2	13.0	10.0	15.8	2.65		0.61	1.14	2.40	4.40	1.23	6.20	0.49	2.40

D² PAK



DIMENSIONS (mm)

	A	A1	A2	B	B2	C	C2	D	E	G	L	L2	L3	R
MIN	4.30	2.49	0.03	0.70	1.25	0.45	1.21	8.95	10.0	4.88	15.0	1.27	1.40	
TYP					1.40									0.40
MAX	4.60	2.69	0.23	0.93		0.60	1.36	9.35	10.28	5.28	15.85	1.40	1.75	

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

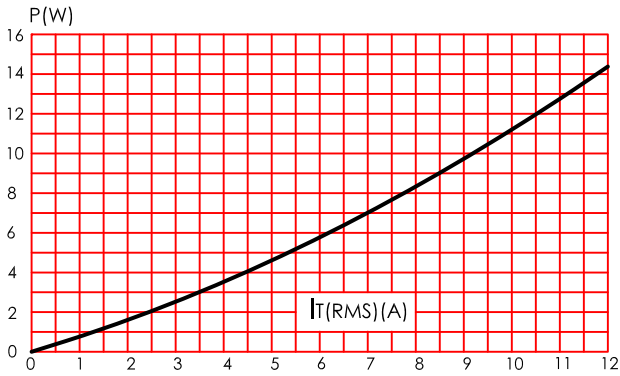


Fig. 2: RMS on-state current versus case temperature(full cycle)

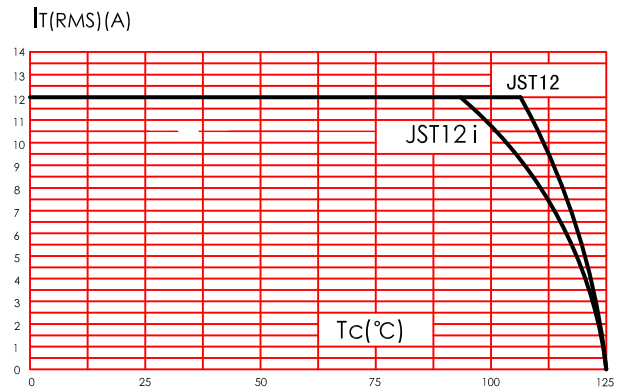


Fig. 3: on-state characteristics (maximum values)

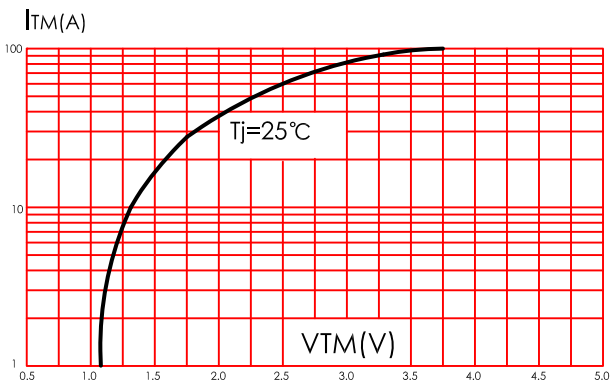


Fig. 4: Surge peak on-state current versus number of cycles

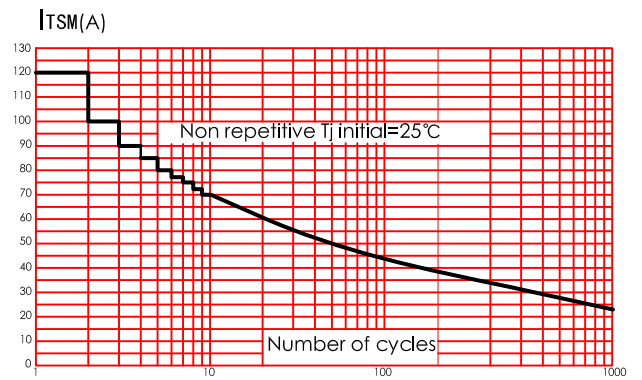


Fig. 5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

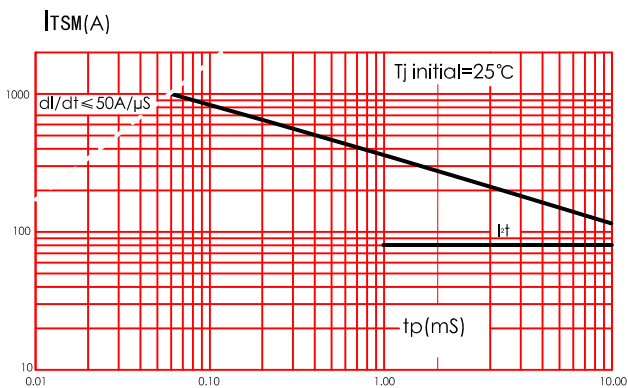


Fig. 6: Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values)

