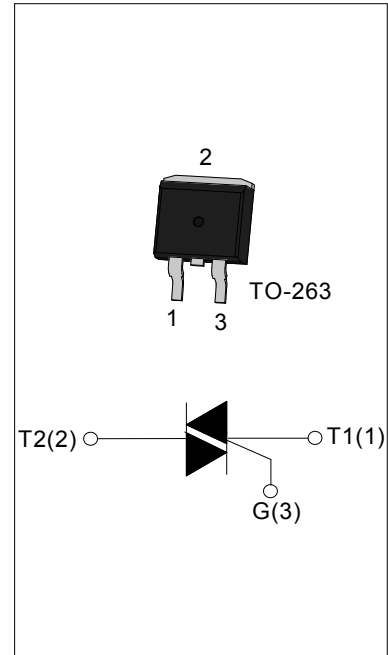


**DESCRIPTION:**

With high ability to withstand the shock loading of large current, JST24 series triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended focus on inductive load. Package TO-263 is RoHS compliant. (2011/65/EU)


**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
$V_{DRM}/V_{RRM}$	600/800/1200/1600	V

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	°C
Operating junction temperature range	$T_j$	-40-125	°C
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{DRM}$	600/800/1200/1600	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	600/800/1200/1600	V
RMS on-state current	$I_{T(RMS)}$	25	A
TO-263 ( $T_c=75^\circ\text{C}$ )			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )	$I_{TSM}$	250	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	340	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	$di/dt$	50	$\text{A}/\mu\text{s}$
Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	10	W

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

$V_{\text{DRM}}/V_{\text{RRM}}$ : 600/800V

Symbol	Test Condition	Quadrant		JST24-600/800V		Unit
				BW	CW	
$I_{\text{GT}}$	$V_{\text{D}}=12\text{V } R_{\text{L}}=33\Omega$	I - II -III	MAX	50	35	mA
$V_{\text{GT}}$		I - II -III	MAX	1.3		V
$V_{\text{GD}}$	$V_{\text{D}}=V_{\text{DRM}} T_j=125^\circ\text{C}$ $R_{\text{L}}=3.3\text{K}\Omega$	I - II -III	MIN	0.2		V
$I_{\text{L}}$	$I_{\text{G}}=1.2I_{\text{GT}}$	I -III	MAX	80	70	mA
		II		100	80	
$I_{\text{H}}$	$I_{\text{T}}=100\text{mA}$		MAX	75	50	mA
dV/dt	$V_{\text{D}}=2/3V_{\text{DRM}}$ Gate Open $T_j=125^\circ\text{C}$		MIN	1000	500	V/ $\mu\text{s}$

$V_{\text{DRM}}/V_{\text{RRM}}$ : 1200/1600V

Symbol	Test Condition	Quadrant		JST24-1200V/1600V		Unit
				BW	CW	
$I_{\text{GT}}$	$V_{\text{D}}=12\text{V } R_{\text{L}}=33\Omega$	I - II -III	MAX	50	35	mA
$V_{\text{GT}}$		I - II -III	MAX	1.5		V
$V_{\text{GD}}$	$V_{\text{D}}=V_{\text{DRM}} T_j=125^\circ\text{C}$ $R_{\text{L}}=3.3\text{K}\Omega$	I - II -III	MIN	0.2		V
$I_{\text{L}}$	$I_{\text{G}}=1.2I_{\text{GT}}$	I -III	MAX	90	70	mA
		II		100	80	
$I_{\text{H}}$	$I_{\text{T}}=100\text{mA}$		MAX	80	60	mA
dV/dt	$V_{\text{D}}=2/3V_{\text{DRM}}$ Gate Open $T_j=125^\circ\text{C}$		MIN	1500	1000	V/ $\mu\text{s}$

$V_{\text{DRM}}/V_{\text{RRM}}$ : 600/800V

Symbol	Test Condition	Quadrant		JST24-600/800V		Unit
				B	C	
$I_{\text{GT}}$	$V_{\text{D}}=12\text{V } R_{\text{L}}=33\Omega$	I - II -III	MAX	50	25	mA
		IV		70	50	
$V_{\text{GT}}$		ALL	MAX	1.3		V
$V_{\text{GD}}$	$V_{\text{D}}=V_{\text{DRM}} T_j=125^\circ\text{C}$ $R_{\text{L}}=3.3\text{K}\Omega$	ALL	MIN	0.2		V

I <sub>L</sub>	I <sub>G</sub> = 1.2I <sub>GT</sub>	I -III-IV	MAX	80	70	mA
		II	MAX	100	90	
I <sub>H</sub>	I <sub>T</sub> = 100mA		MAX	75	60	mA
dV/dt	V <sub>D</sub> = 2/3V <sub>DRM</sub> Gate Open T <sub>J</sub> = 125°C		MIN	500	200	V/μs

**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
V <sub>TM</sub>	I <sub>TM</sub> = 35A tp = 380μs	T <sub>J</sub> = 25°C	1.5	V
I <sub>DRM</sub>	V <sub>D</sub> = V <sub>DRM</sub> V <sub>R</sub> = V <sub>R</sub> RM	T <sub>J</sub> = 25°C	5	μA
I <sub>RRM</sub>		T <sub>J</sub> = 125°C	3	mA

**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub>	junction to case(AC)	TO-263	1.3	°C/W
R <sub>th(j-a)</sub>	junction to ambient		45	

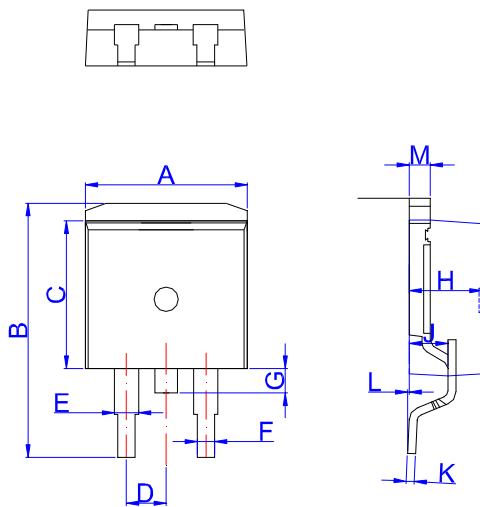
**ORDERING INFORMATION**

<p>JieJie Microelectronics Co.,Ltd</p>	<p><b>J</b></p> <p>Triacs</p> <p>I<sub>T(RMS)</sub>:25A</p> <p>E:TO-263</p> <p>ETR:TO-263 (Tape&amp;Reel)</p>	<p><b>ST</b></p>	<p><b>24</b></p>	<p><b>E</b></p>	<p><b>-600</b></p> <p>600:V<sub>DRM</sub> /V<sub>RRM</sub> ≥ 600V</p> <p>800:V<sub>DRM</sub> /V<sub>RRM</sub> ≥ 800V</p> <p>1200:V<sub>DRM</sub> /V<sub>RRM</sub> ≥ 1200V</p> <p>1600:V<sub>DRM</sub> /V<sub>RRM</sub> ≥ 1600V</p>	<p><b>BW</b></p> <p>BW:I<sub>GT1-3</sub> ≤ 50mA</p> <p>CW:I<sub>GT1-3</sub> ≤ 35mA</p> <p>B:I<sub>GT1-3</sub> ≤ 50mA I<sub>GT4</sub> ≤ 70mA</p> <p>C:I<sub>GT1-3</sub> ≤ 25mA I<sub>GT4</sub> ≤ 50mA</p>
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**PACKAGE INFORMATION**

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	6,000
TO-263	TUBE	50	1,000	8,000
PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch

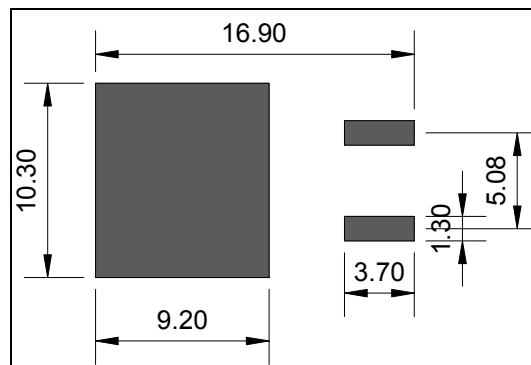
PACKAGE MECHANICAL DATA



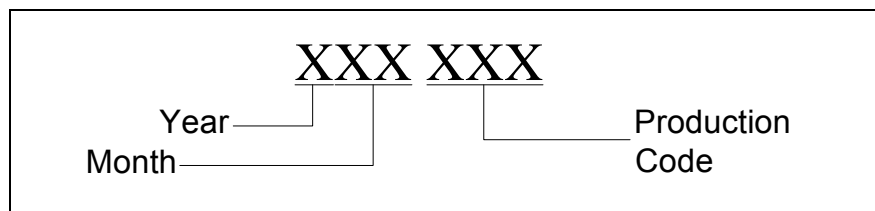
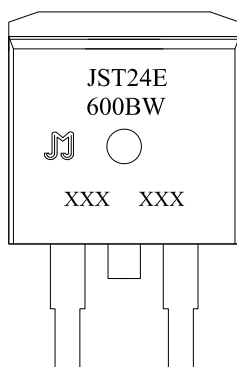
TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053

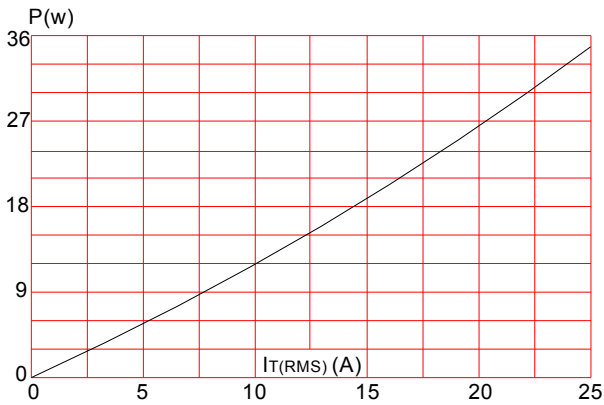
FOOTPRINT-TO-263 (dimensions in mm)



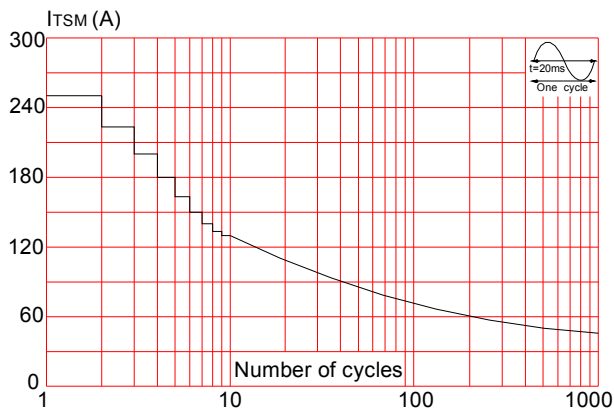
MARKING



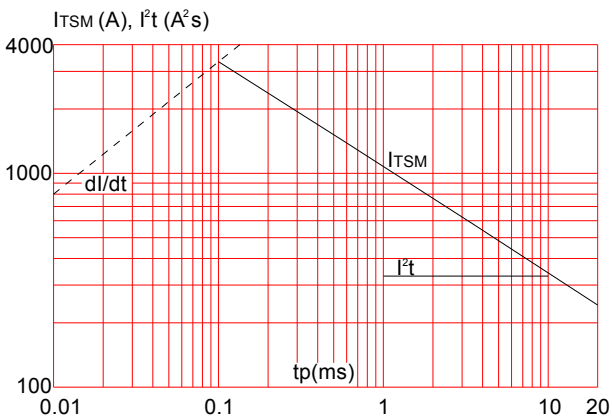
**FIG.1:** Maximum power dissipation versus RMS on-state current



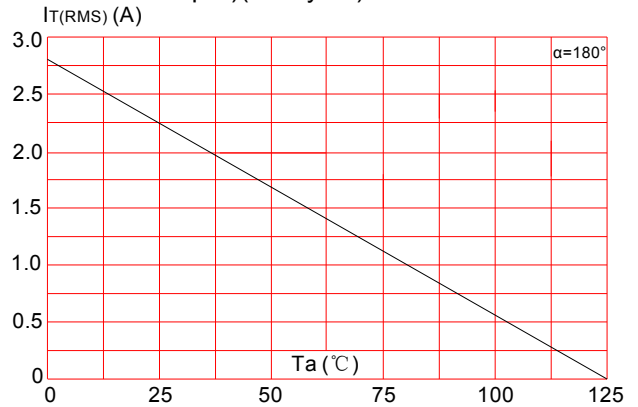
**FIG.3:** Surge peak on-state current versus number of cycles



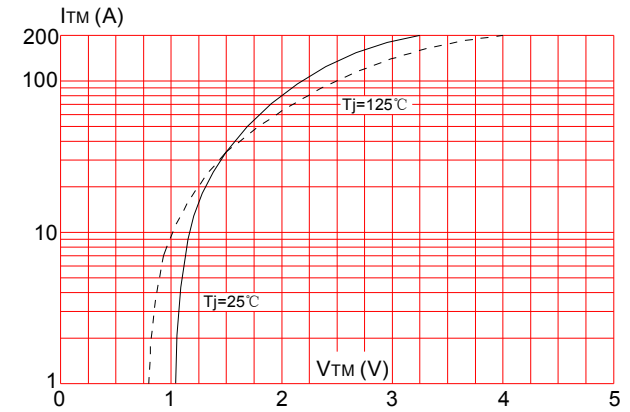
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



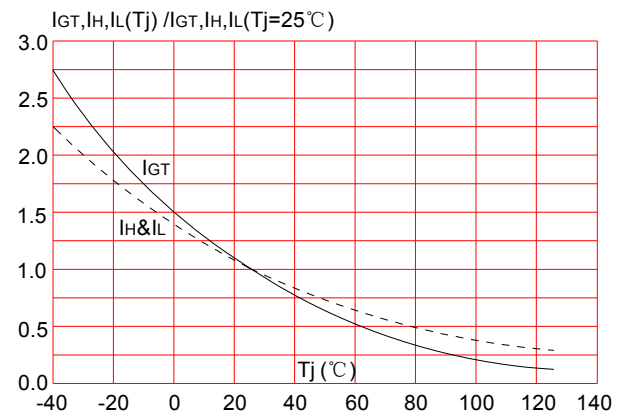
**FIG.2:** RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:  $35\mu\text{m}$ )(full cycle)



**FIG.4:** On-state characteristics (maximum values)

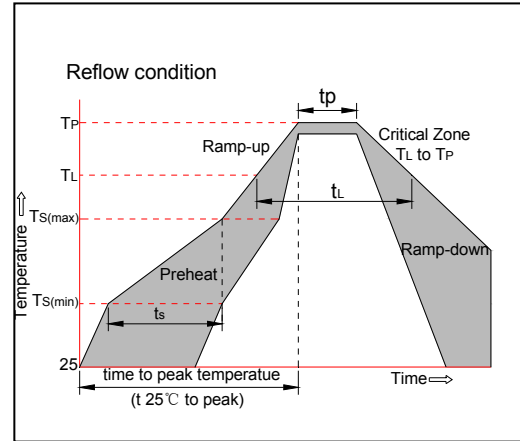


**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



**SOLDERING PARAMETERS**

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ ) (Liquidus)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C




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