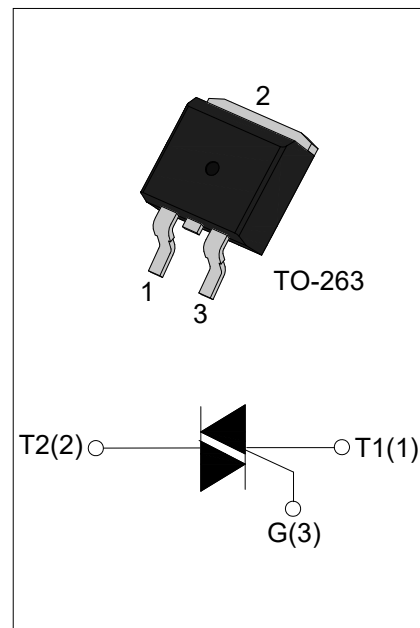




### DESCRIPTION:

With high ability to withstand the shock loading of large current, JST16 series triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load. Package TO-263 is RoHS compliant. (2011/65/EU)



### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
$V_{DRM} / V_{RRM}$	600/800/1200	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	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	600/800/1200	V
RMS on-state current TO-263 ( $T_C=70^\circ\text{C}$ )	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	$I_{TSM}$	160	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	128	$\text{A}^2\text{s}$
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	$P_{GM}$	5	W

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

3 Quadrants

Symbol	Test Condition	Quadrant		Value				Unit
				BW	CW	SW	TW	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	I - II -III	MAX	50	35	10	5	mA
$V_{GT}$		I - II -III	MAX	1.3				V
$V_{GD}$	$V_D=V_{DRM} T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	I - II -III	MIN	0.2				V
$I_L$	$I_G=1.2I_{GT}$	I -III	MAX	70	50	30	15	mA
		II		80	60	40	20	
$I_H$	$I_T=100\text{mA}$		MAX	60	40	25	15	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	1500	1000	200	100	V/ $\mu\text{s}$

4 Quadrants

Symbol	Test Condition	Quadrant		Value		Unit
				B	C	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	I - II -III	MAX	50	25	mA
		IV		70	50	
$V_{GT}$		ALL	MAX	1.5		V
$V_{GD}$	$V_D=V_{DRM} T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	ALL	MIN	0.2		V
$I_L$	$I_G=1.2I_{GT}$	I -III-IV	MAX	70	50	mA
		II		100	80	
$I_H$	$I_T=100\text{mA}$		MAX	60	40	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	1000	500	V/ $\mu\text{s}$

**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)			Unit
			-600V	-800V	-1200V	
V <sub>TM</sub>	I <sub>TM</sub> =22.5A tp=380μs	T <sub>j</sub> =25°C	1.5			V
V <sub>TO</sub>	Threshold voltage	T <sub>j</sub> =125°C	0.93			V
R <sub>d</sub>	Dynamic resistance	T <sub>j</sub> =125°C	26			mΩ
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>R<sub>RRM</sub></sub>	T <sub>j</sub> =25°C	5	5	10	μA
I <sub>R<sub>RRM</sub></sub>		T <sub>j</sub> =125°C	1	1	2	mA

**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub>	junction to case(AC)	TO-263	2.75	°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>:16A</p>	<p><b>ST</b></p>	<p><b>16</b></p> <p>E:TO-263</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><b>E</b></p>	<p><b>-600</b></p>	<p><b>BW</b></p> <p>BW:I<sub>G</sub>T1-3≤50mA</p> <p>CW:I<sub>G</sub>T1-3≤35mA</p> <p>SW:I<sub>G</sub>T1-3≤10mA</p> <p>TW:I<sub>G</sub>T1-3≤5mA</p> <p>B:I<sub>G</sub>T1-3≤50mA I<sub>G</sub>T4≤70mA</p> <p>C:I<sub>G</sub>T1-3≤25mA I<sub>G</sub>T4≤50mA</p>	<p><b>-/</b></p> <p>Blank: Tube</p> <p>TR: Tape &amp; Reel</p>
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MARKING

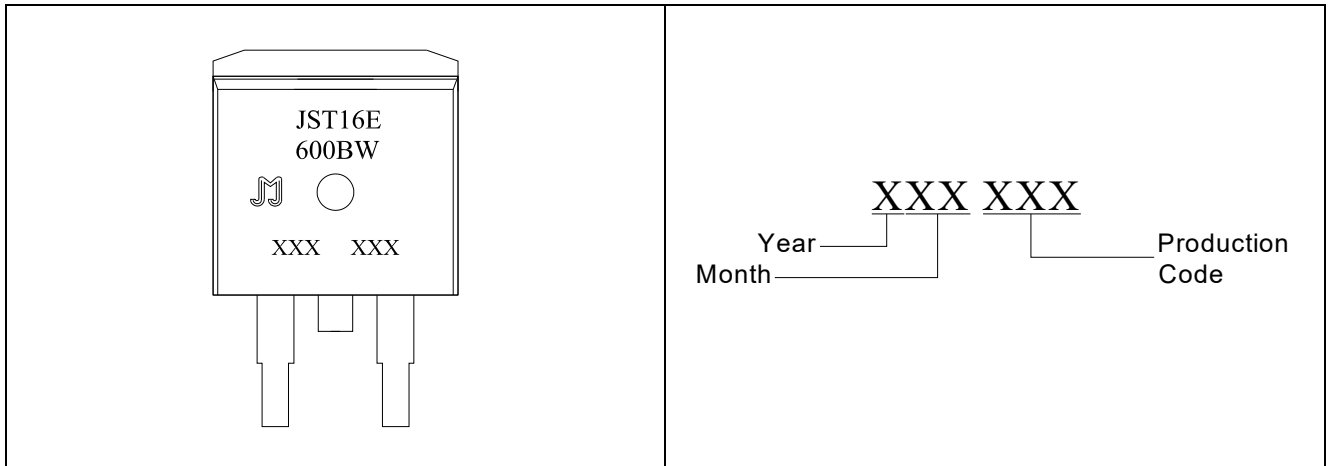


FIG.1: Maximum power dissipation versus RMS on-state current

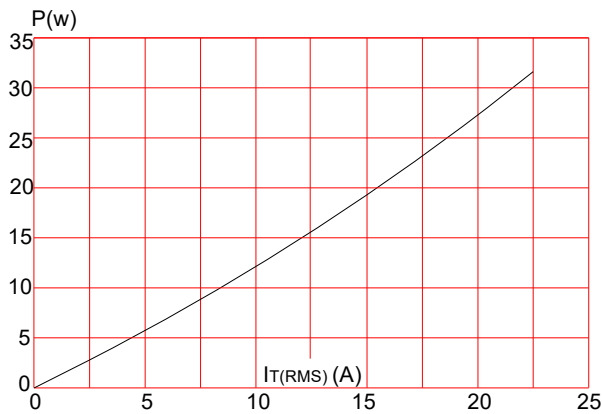


FIG.3: Surge peak on-state current versus number of cycles

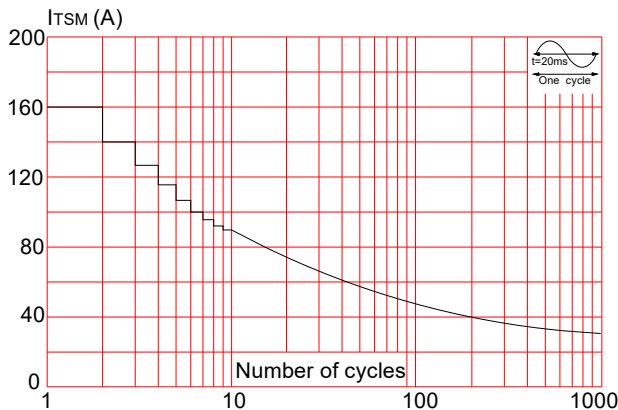


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:  $35\mu m$ ) (full cycle)

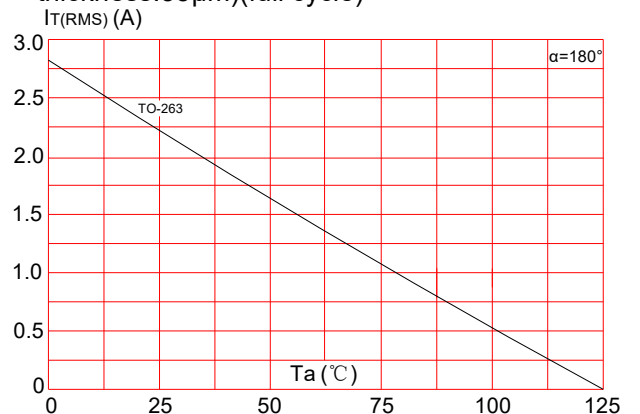
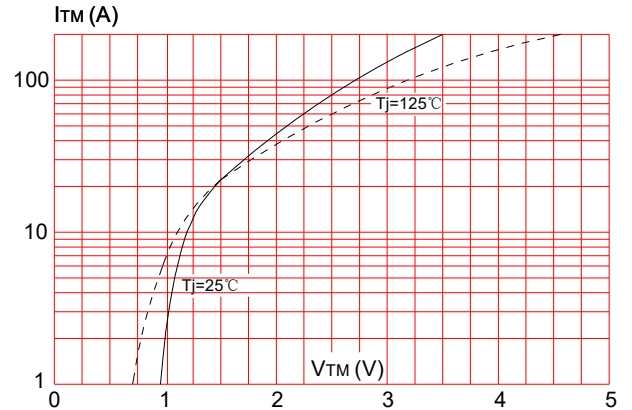
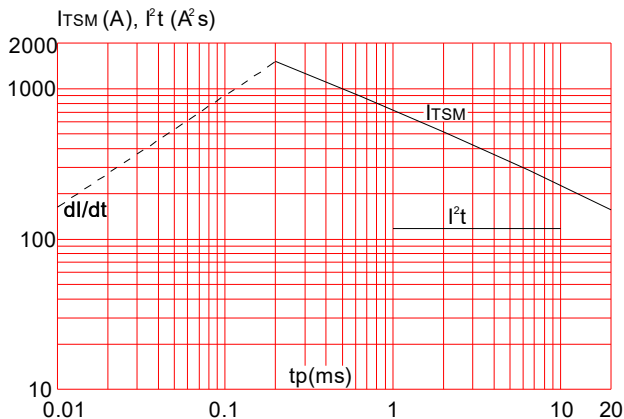


FIG.4: On-state characteristics (maximum values)

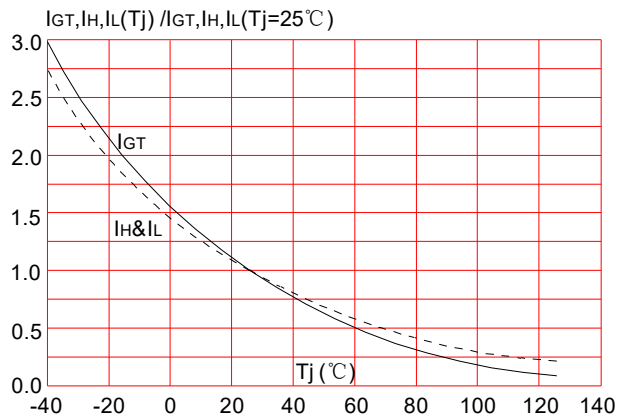




**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )

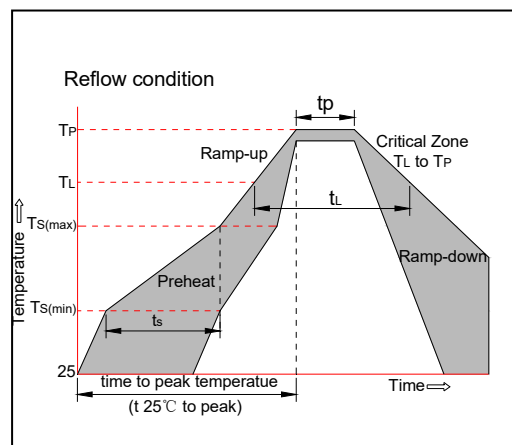


**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



## SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(\text{min})}$ )	+150°C
	-Temperature Max( $T_{s(\text{max})}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(\text{max})}$ 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



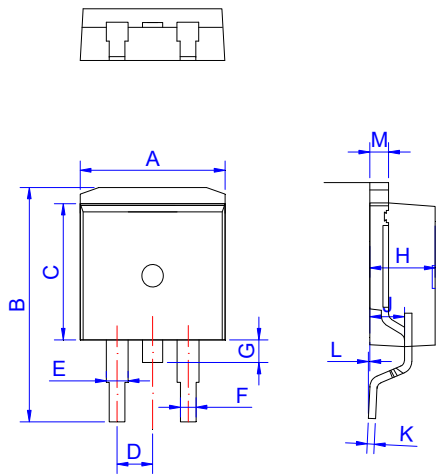
**ORDERING INFORMATION**

Order code	Voltage V <sub>DRM</sub> /V <sub>R<sub>RRM</sub></sub> (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		I -II-III	IV			
JST16E-600/800/1200B	600/800/1200	50	70	TO-263	50	Tube
JST16E-600/800/1200C		25	50		800	Tape & Reel
Order code	Voltage V <sub>DRM</sub> /V <sub>R<sub>RRM</sub></sub> (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
JST16E-600/800/1200TW	600/800/1200	5		TO-263	50	Tube
JST16E-600/800/1200SW		10				
JST16E-600/800/1200CW		35				
JST16E-600/800/1200BW		50				
JST16E-600/800/1200CW	600/800/1200	35		TO-263	800	Tape & Reel
JST16E-600/800/1200BW		50				

**Document Revision History**

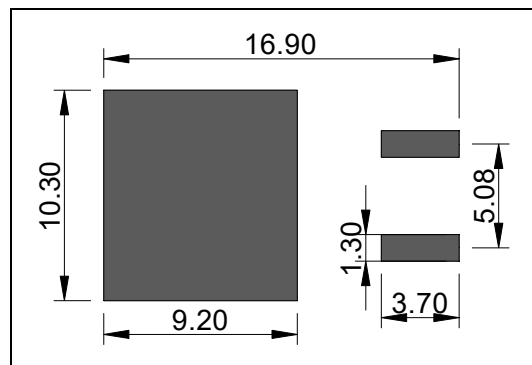
Date	Revision	Changes
July 24, 2020	6	Last update
Nov 27, 2021	7	Renew VTO & Rd

PACKAGE MECHANICAL DATA

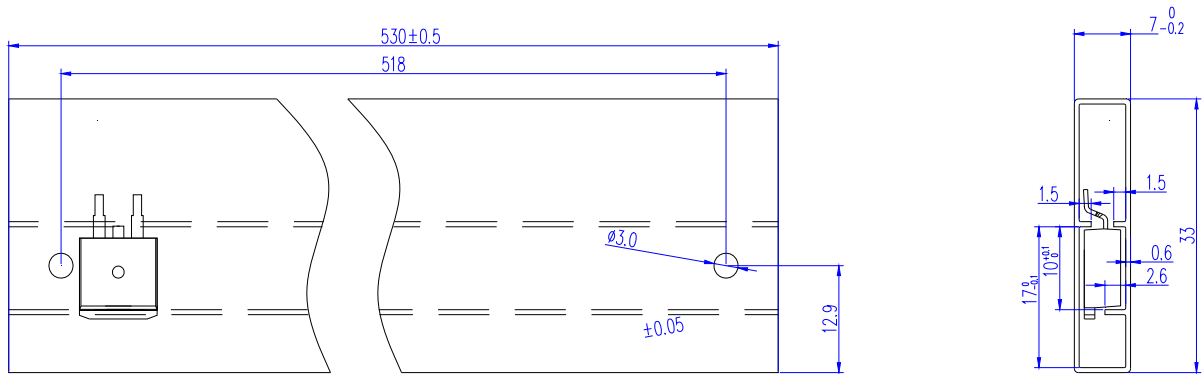


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.40		9.60	0.37		0.378
D	2.40		2.70	0.094		0.106
E	1.20		1.50	0.047		0.059
F	0.75		0.85	0.029		0.033
G	1.00		1.50	0.039		0.059
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		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

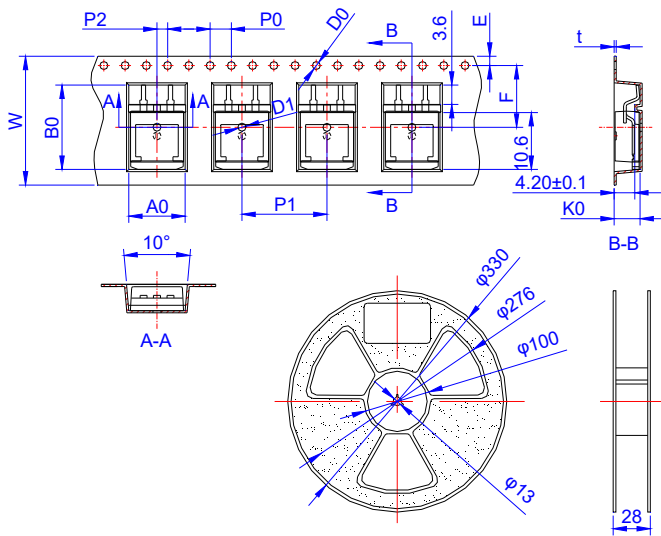
FOOTPRINT-TO-263 (dimensions in mm)



DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON	INNER BOX DIMENSION (cm)	CARTON DIMENSION (cm)
TO-263	TUBE	50	1,000	5,000	55*14*4	57*26.6*16




Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	23.70	24.00	24.30	0.933	0.945	0.957
E	1.65	1.75	1.85	0.065	0.069	0.073
F	11.40	11.50	11.60	0.449	0.453	0.457
D0	-	1.50	1.60	-	0.059	0.063
D1	-	1.50	1.60	-	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	15.90	16.00	16.10	0.626	0.630	0.634
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	10.80	10.90	11.00	0.425	0.429	0.433
B0	16.20	16.30	16.40	0.638	0.642	0.646
K0	4.80	4.90	5.00	0.189	0.193	0.197
t	0.35	0.40	0.45	0.014	0.016	0.018

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL	INNER BOX DIMENSION (cm)	CARTON DIMENSION (cm)
TO-263	TAPING	800	4,000	13 inch	35*33.5*3.5	38*35.5*21





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