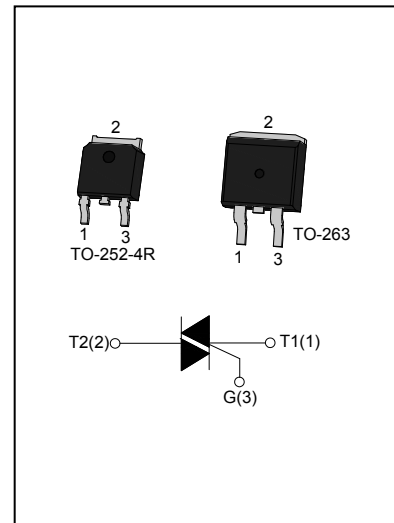




### DESCRIPTION:

JST137 series triacs with low holding and latching current are especially recommended for use on middle and small resistance type power load. Package TO-252-4R & TO-263 are RoHS compliant. (2011/65/EU)



### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
$V_{DRM}/V_{RRM}$	600/800	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	V
Repetitive peak reverse voltage( $T_j=25^\circ\text{C}$ )		$V_{RRM}$	600/800	V
RMS on-state current	TO-252-4R ( $T_c=103^\circ\text{C}$ )	$I_{T(RMS)}$	8	A
	TO-263 ( $T_c=85^\circ\text{C}$ )			
Non repetitive surge peak on-state current (full cycle, F=50Hz)		$I_{TSM}$	65	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )		$I^2t$	21	$\text{A}^2\text{s}$
Peak gate current		$I_{GM}$	2	A
Critical rate of rise of on-state current( $I_G=2 \times I_{GT}$ )	I - II - III	$di/dt$	50	$\text{A}/\mu\text{s}$
	IV		10	
Average gate power dissipation		$P_{G(AV)}$	0.5	W
Peak gate power		$P_{GM}$	5	W

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

Symbol	Test Condition	Quadrant		Value				Unit
				D	E	F	G	
$I_{GT}$	$V_D=12\text{V } R_L=30\Omega$	I - II -III	MAX	5	10	25	50	mA
		IV		10	25	70	100	
$V_{GT}$		ALL	MAX	1.3				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	MAX	10	20	50	70	mA
		II -IV		20	30	70	100	
$I_H$	$I_T=100\text{mA}$		MAX	10	15	40	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	20	50	50	200	V/ $\mu\text{s}$

## STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM}=10\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.6	V
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^{\circ}\text{C}$	1	mA

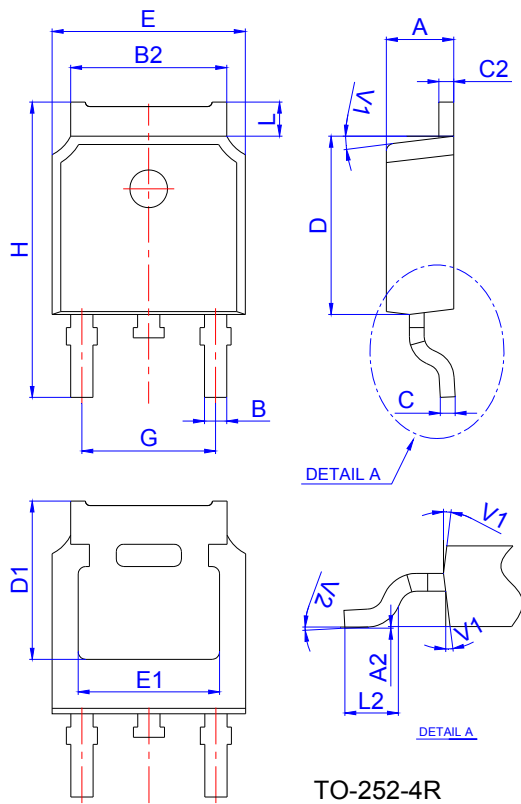
## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-252-4R	2.1	$^{\circ}\text{C}/\text{W}$
		TO-263	3.1	
$R_{th(j-a)}$	junction to ambient	TO-252-4R	70	$^{\circ}\text{C}/\text{W}$
		TO-263	45	

**ORDERING INFORMATION**

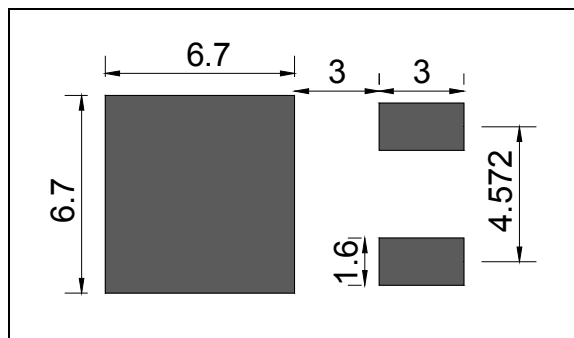
<p>JieJie Microelectronics Co.,Ltd</p>	<p><b>J</b></p>	<p><b>ST</b></p> <p>Triacs</p>	<p><b>137</b></p> <p><math>I_{T(RMS)}:8A</math></p>	<p><b>K</b></p>	<p><b>-600</b></p>	<p><b>E</b></p>
						<p>D: <math>I_{GT1-3} \leq 5mA</math> <math>I_{GT4} \leq 10mA</math>                  E: <math>I_{GT1-3} \leq 10mA</math> <math>I_{GT4} \leq 25mA</math>                  F: <math>I_{GT1-3} \leq 25mA</math> <math>I_{GT4} \leq 70mA</math>                  G: <math>I_{GT1-3} \leq 50mA</math> <math>I_{GT4} \leq 100mA</math></p>
			<p>E: TO-263                  ETR: TO-263(Tape&amp;Reel)                  K: TO-252-4R                  KTR: TO-252-4R(Tape&amp;Reel)</p>		<p>600: <math>V_{DRM}/V_{RRM} \geq 600V</math>                  800: <math>V_{DRM}/V_{RRM} \geq 800V</math></p>	

**PACKAGE MECHANICAL DATA**

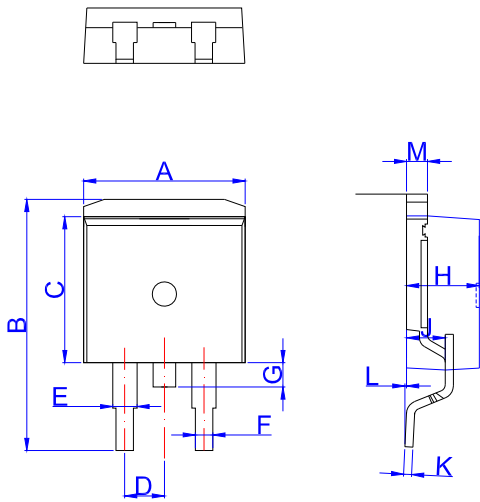


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

**FOOTPRINT-TO-252-4R (dimensions in mm)**



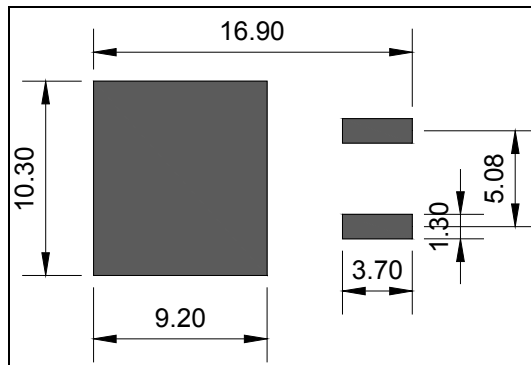
**PACKAGE MECHANICAL DATA**



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

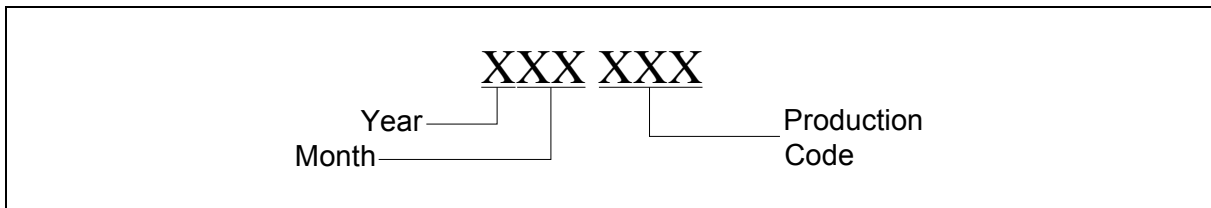
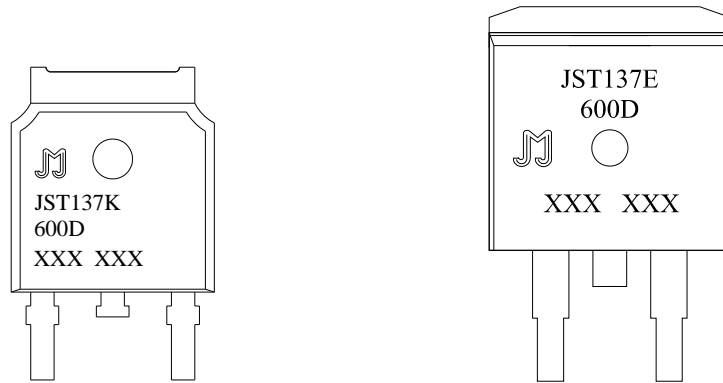
**FOOTPRINT-TO-263 (dimensions in mm)**



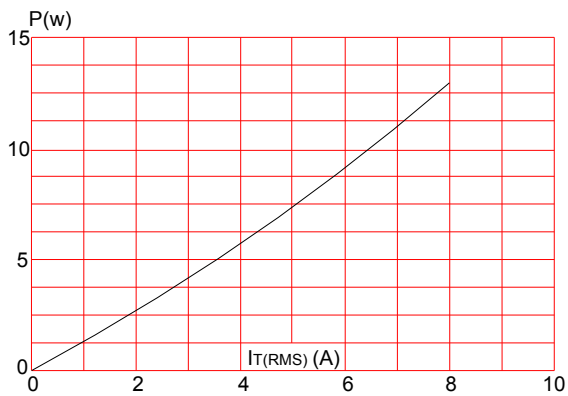
**PACKAGE INFORMATION**

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	6,000
TO-252-4R	TUBE	80	4,000	32,000
PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch
TO-252-4R	TAPING	2,500	25,000	13 inch

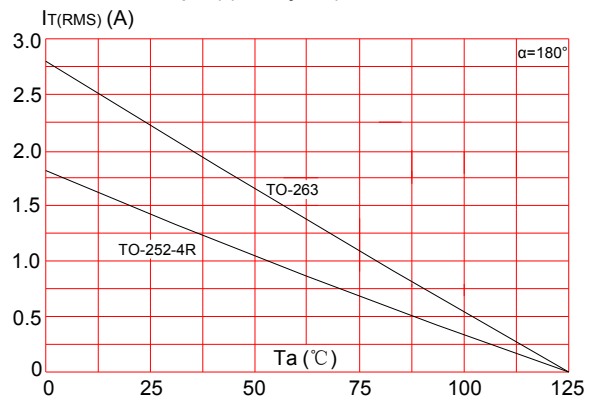
MARKING



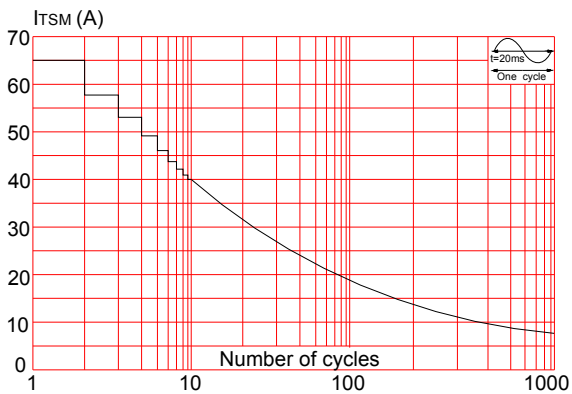
**FIG.1:** Maximum power dissipation versus RMS on-state current



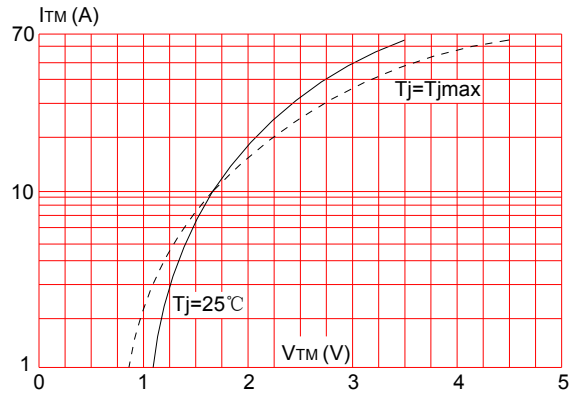
**FIG.2:** RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35μm)(full cycle)



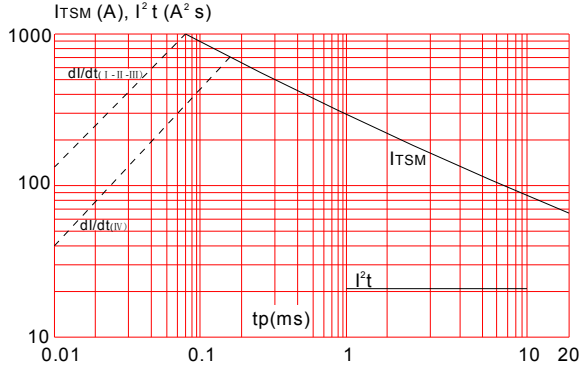
**FIG.3:** Surge peak on-state current versus number of cycles



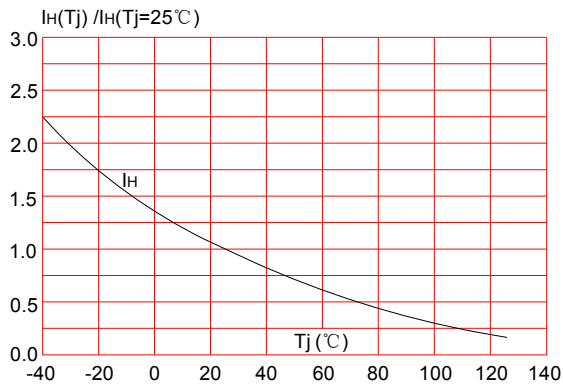
**FIG.4:** On-state characteristics (maximum values)



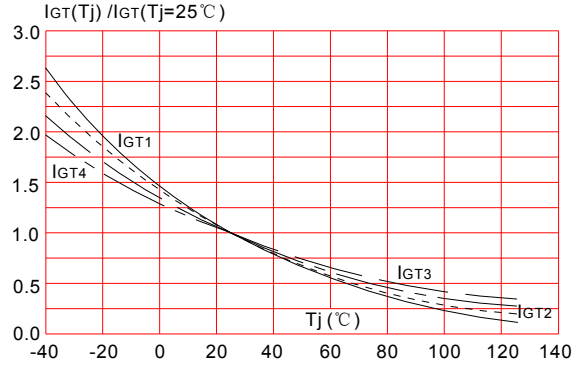
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( I - II -III:  $dI/dt < 50\text{A}/\mu\text{s}$ ; IV:  $dI/dt < 10\text{A}/\mu\text{s}$ )



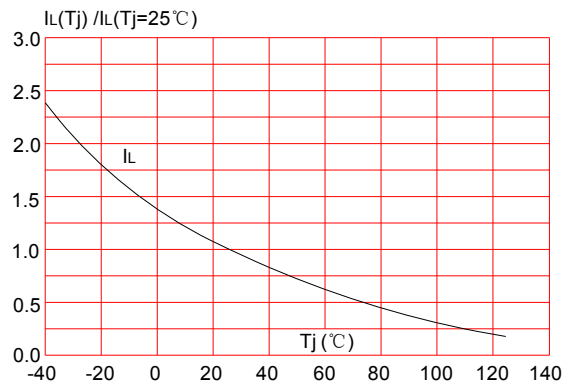
**FIG.7:** Relative variations of holding current versus junction temperature



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

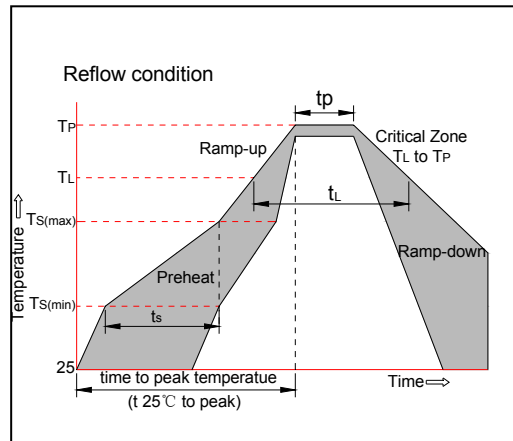


**FIG.8:** Relative variations of latching current versus junction temperature




**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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