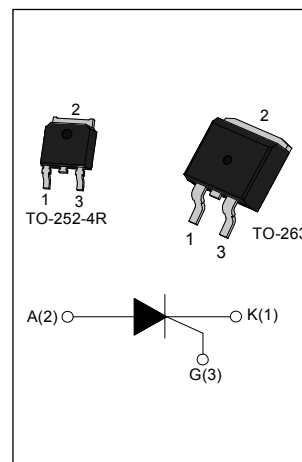




### DESCRIPTION:

With high ability to withstand the shock loading of large current, JCTx16 series of silicon controlled rectifiers provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-263 & TO-252-4R are RoHS compliant. (2011/65/EU)



### MAIN FEATURES

Symbol	JCT616	JCT816
$V_{DRM}/V_{RRM}$	600V	800V
$I_{T(RMS)}$	16A	
$I_{GT}$	$\leq 15mA$	

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	$^{\circ}C$
Operating junction temperature range	$T_j$	-40-150	$^{\circ}C$
Repetitive peak off-state voltage( $T_j=25^{\circ}C$ )	$V_{DRM}$	600/800	V
Repetitive peak reverse voltage( $T_j=25^{\circ}C$ )	$V_{RRM}$	600/800	V
RMS on-state current	TO-252-4R ( $T_c=120^{\circ}C$ )	16	A
	TO-263( $T_c=95^{\circ}C$ )		
Non repetitive surge peak on-state current ( $t_p=10ms$ )	$I_{TSM}$	180	A
$I^2t$ value for fusing ( $t_p=10ms$ )	$I^2t$	162	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	$di/dt$	50	$A/\mu s$
Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W

Peak gate power	$P_{GM}$	5	W
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**ELECTRICAL CHARACTERISTICS** ( $T_j=25^{\circ}C$  unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12V R_L=33\Omega$	-	-	15	mA
$V_{GT}$		-	-	1.3	V
$V_{GD}$	$V_D=V_{DRM} T_j=150^{\circ}C R_L=3.3K\Omega$	0.2	-	-	V
$I_L$	$I_G=1.2I_{GT}$	-	-	60	mA
$I_H$	$I_T=500mA$	-	-	50	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^{\circ}C$	200	-	-	V/ $\mu s$

**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM}=32A t_p=380\mu s$	$T_j=25^{\circ}C$	1.55	V
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}C$	5	$\mu A$
$I_{RRM}$		$T_j=150^{\circ}C$	2	mA

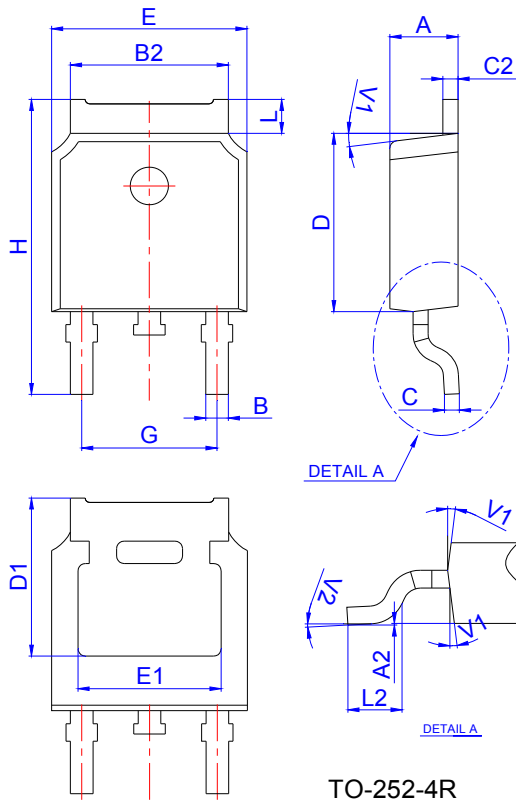
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-252-4R	1.4	$^{\circ}C/W$
		TO-263	2.7	
$R_{th(j-c)}$	junction to case(AC)	TO-252-4R	70	$^{\circ}C/W$
		TO-263	45	

**ORDERING INFORMATION**

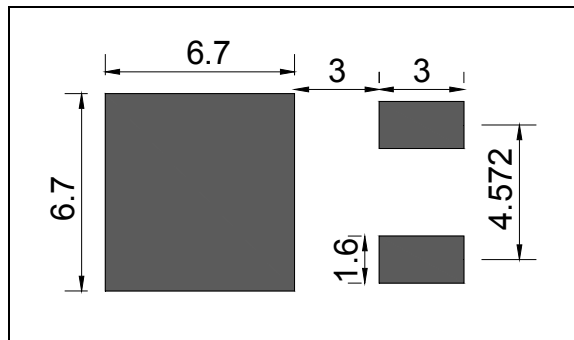
<p><b>J</b></p> <p>JieJie Microelectronics Co.,Ltd</p>	<p><b>CT</b></p> <p>SCRs</p> <p>6:<math>V_{DRM}/V_{RRM} \geq 600V</math> 8:<math>V_{DRM}/V_{RRM} \geq 800V</math></p>	<p><b>6</b></p>	<p><b>16</b></p> <p><math>I_T(RMS):16A</math></p>	<p><b>K</b></p> <p>E:TO-263 K:TO-252-4R ETR:TO-263(Tape&amp;Reel) KTR:TO-252-4R(Tape&amp;Reel)</p>
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PACKAGE MECHANICAL DATA

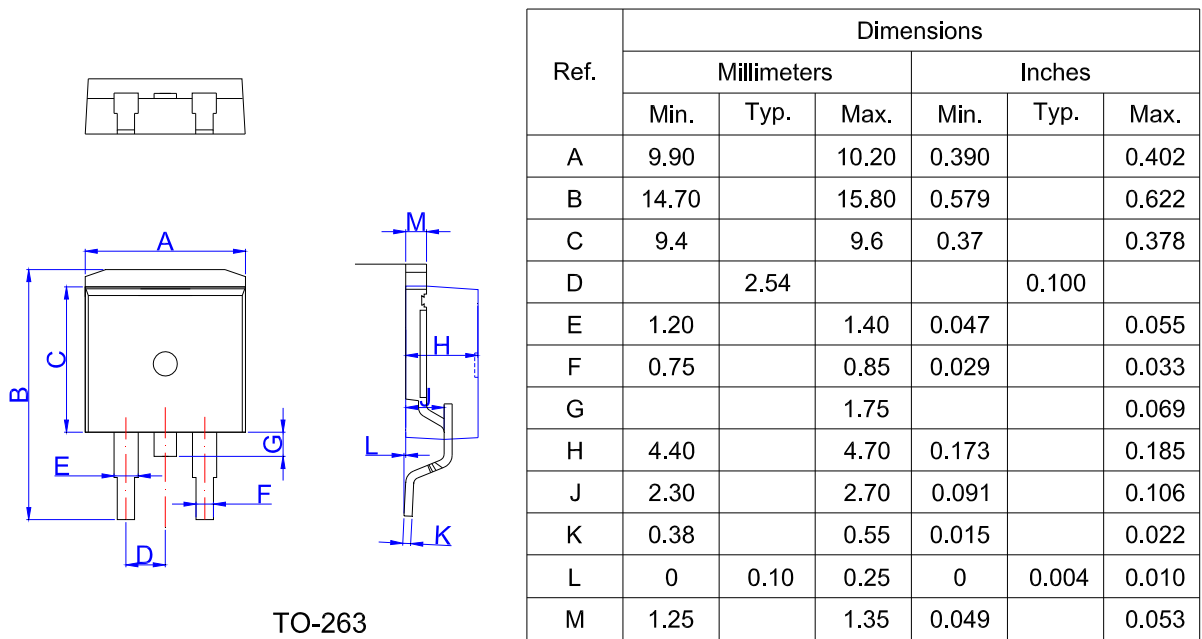


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
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°

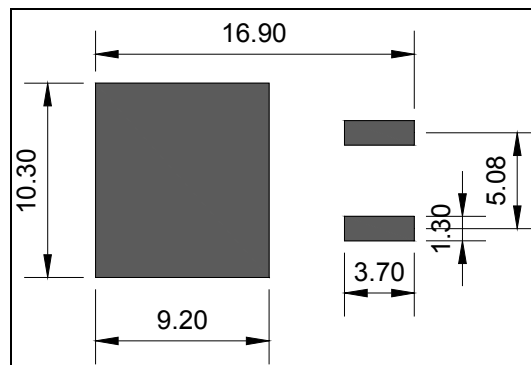
FOOTPRINT-TO-252-4R (dimensions in mm)



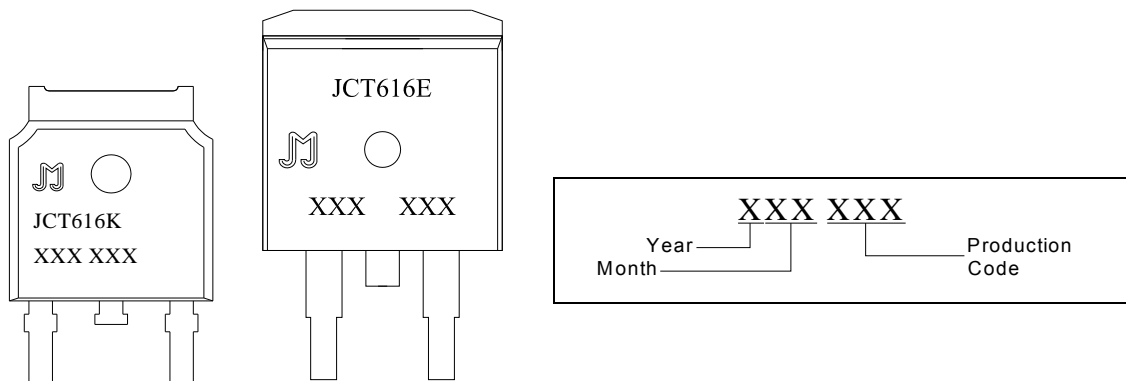
PACKAGE MECHANICAL DATA



FOOTPRINT-TO-263 (dimensions in mm)



MARKING



PACKAGE INFORMATION

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	8,000
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

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

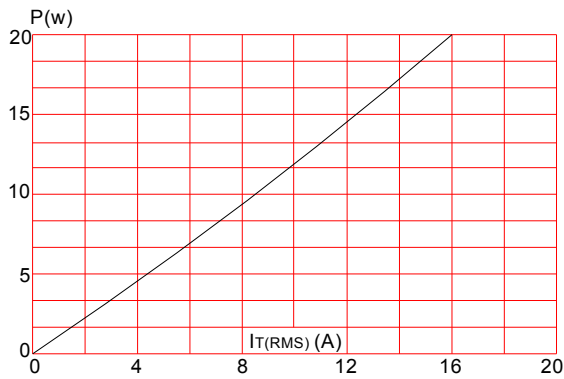


FIG.3: Surge peak on-state current versus number of cycles

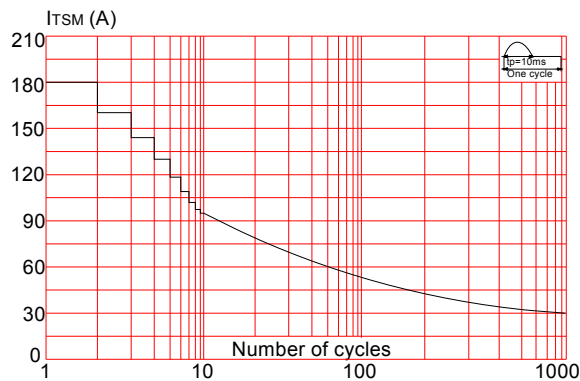


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35μm)(full cycle)

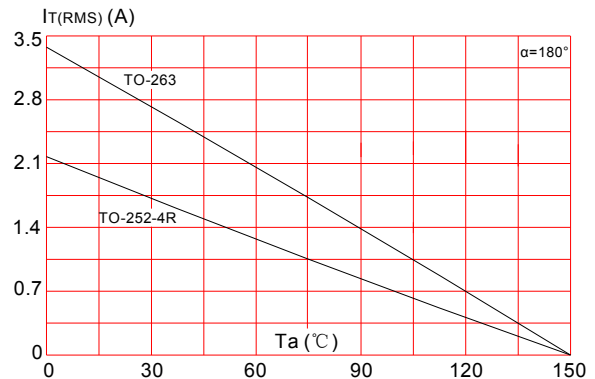
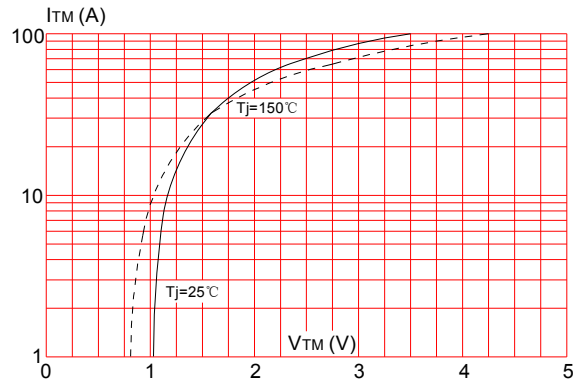
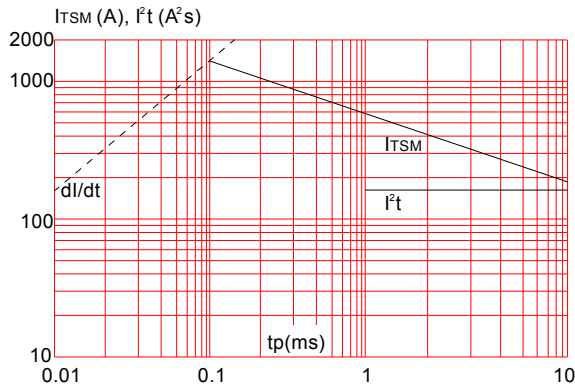


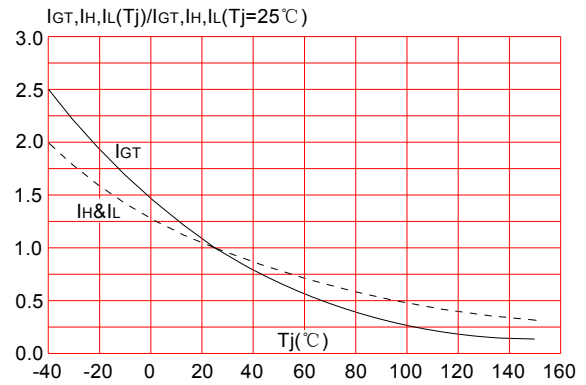
FIG.4: On-state characteristics (maximum values)



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

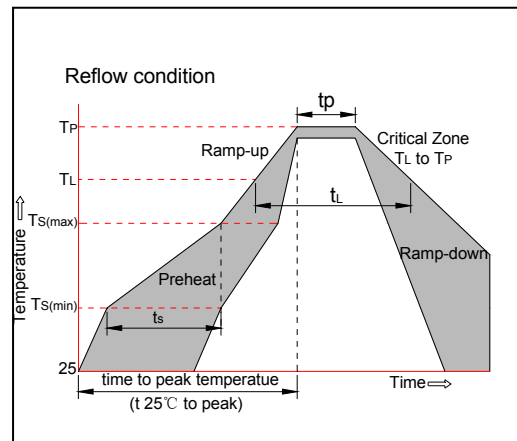


**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature




**SOLDERING PARAMETERS**

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+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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