

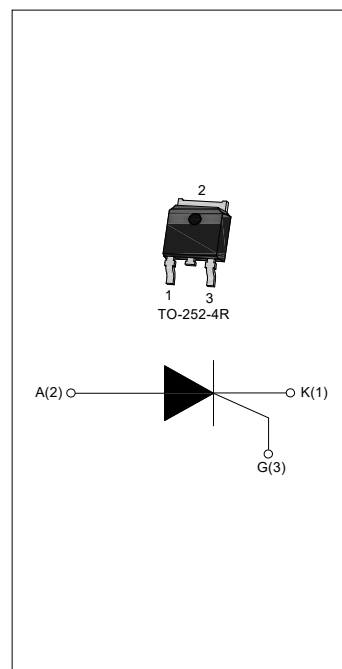


### DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT616K 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-252-4Ris RoHS compliant. (2011/65/EU)

### MAIN FEATURES

Symbol	JCT616K
$V_{DRM}/V_{RRM}$	600V
$I_{T(RMS)}$	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	$T_j$	-40-125	$^{\circ}C$
Repetitive peak off-state voltage( $T_j=25^{\circ}C$ )	$V_{DRM}$	600	V
Repetitive peak reverse voltage( $T_j=25^{\circ}C$ )	$V_{RRM}$	600	V
RMS on-state current TO-252-4R ( $T_c=110^{\circ}C$ )	$I_{T(RMS)}$	16	A
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

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

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

**STATIC CHARACTERISTICS**

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

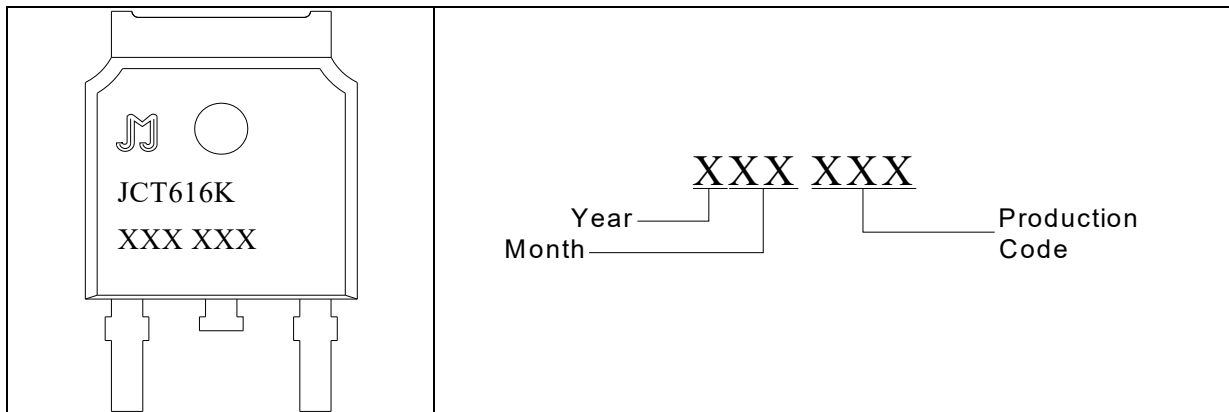
**THERMAL RESISTANCES**

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

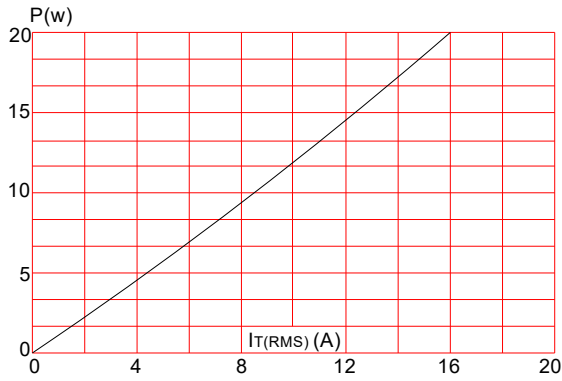
## ORDERING INFORMATION

<b>J</b>	<b>CT</b>	<b>6</b>	<b>16</b>	<b>K</b>	<b>-TR</b>
JieJie Microelectronics Co.,Ltd	SCRs			K:TO-252-4R	Blank: Tube TR: Tape & Reel
6:VDRM /VRRM ≥600V		IT(RMS):16A			

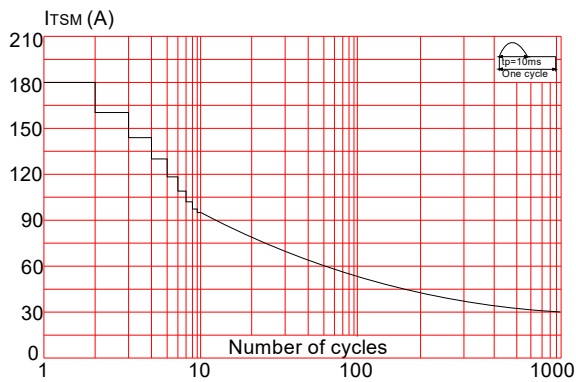
## MARKING



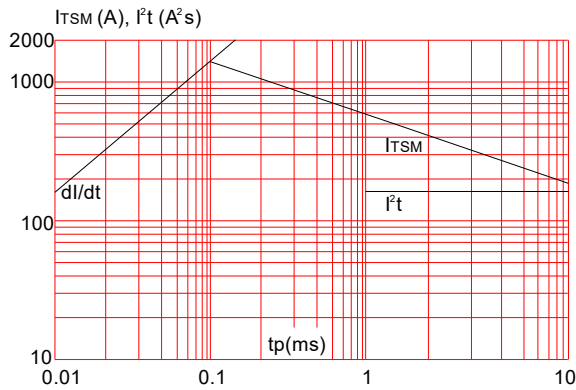
**FIG.1** Maximum power dissipation versus RMS on-state current



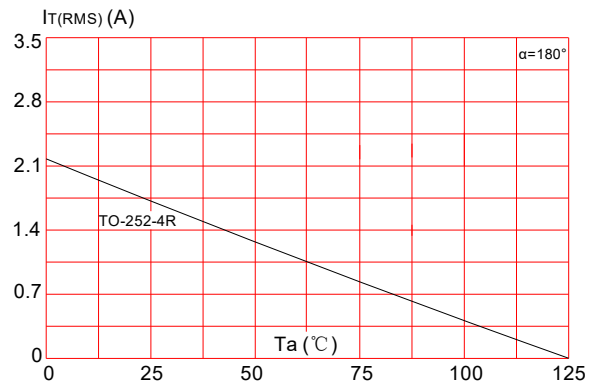
**FIG.3:** Surge peak on-state current versus number of cycles



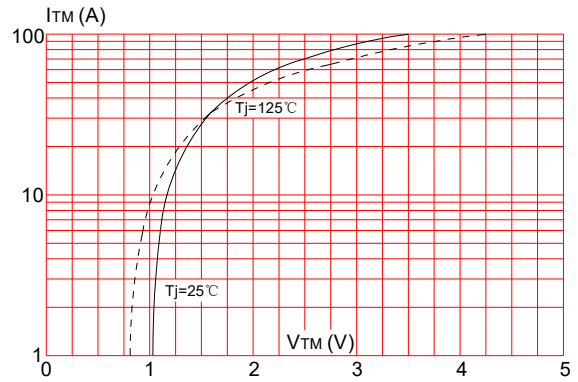
for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $f \cdot t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



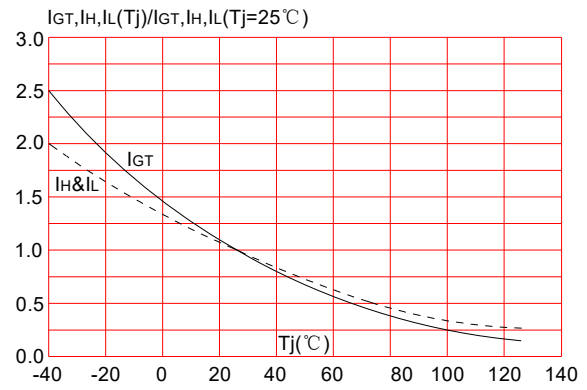
**FIG.2:** RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 $\mu\text{m}$ )(full cycle)



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

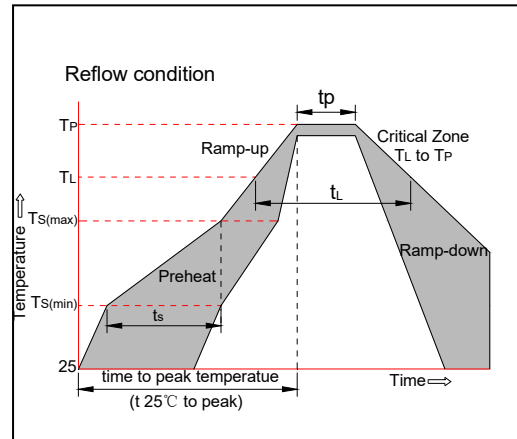


current, holding current and latching current versus junction temperature



**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



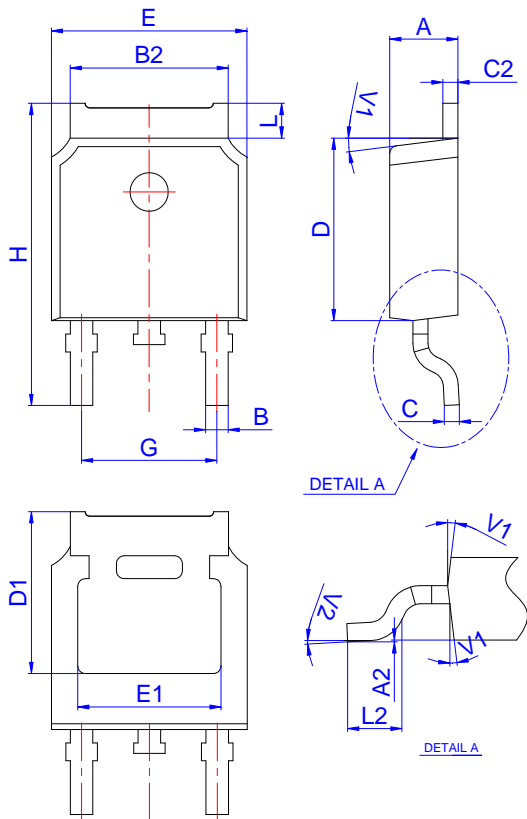
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT616K	600	15	TO-252-4R	80	Tube
				2500	Tape & Reel

**Document Revision History**

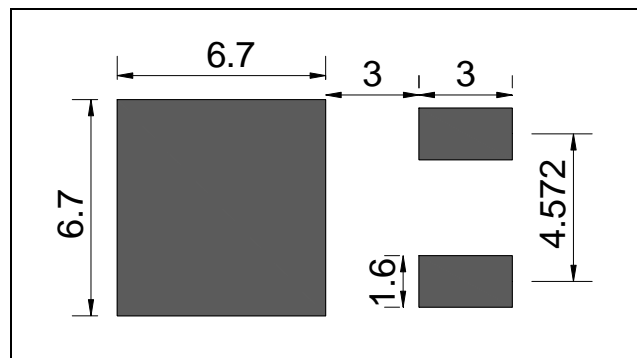
Date	Revision	Changes
Mar 17, 2022	1	Last update

**PACKAGE MECHANICAL DATA**

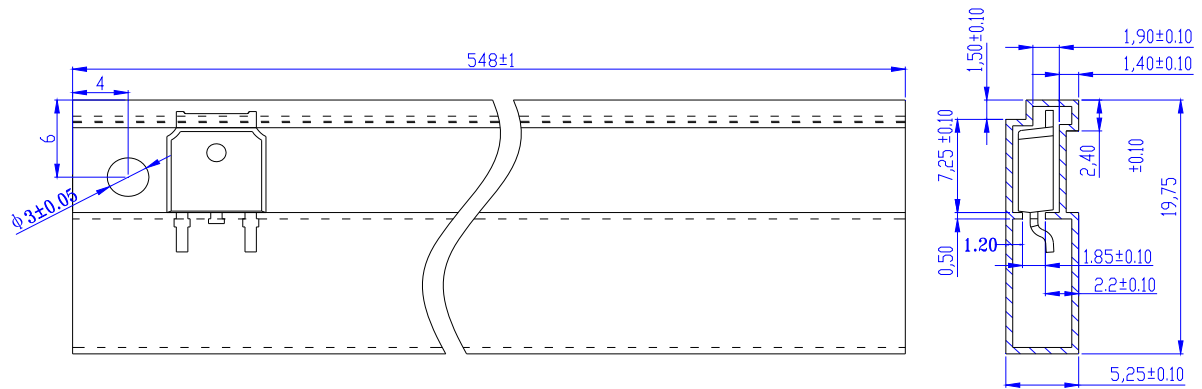


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268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

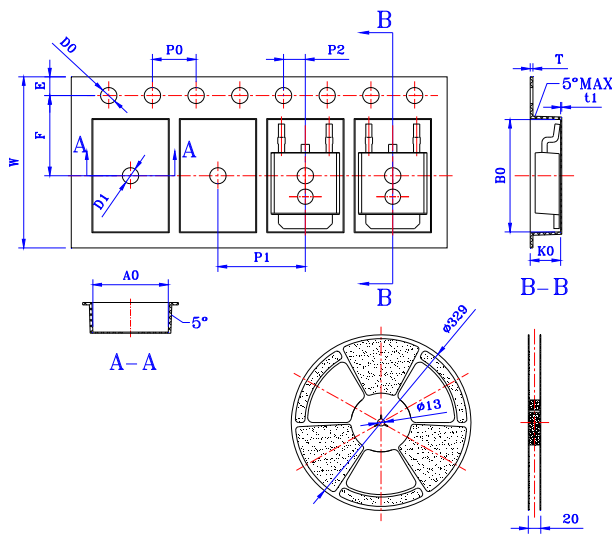
**FOOTPRINT-TO-252-4R (dimensions in mm)**



DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-252-4R	TUBE	80	4,000	20,000



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.630	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
10P0	39.80	40.00	40.20	1.567	1.575	1.583
A0	6.85	6.90	7.00	0.270	0.272	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.106	0.109	0.113
T	0.24	-	0.27	0.009	-	0.011
t1	0.10	-	-	0.004	-	-

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-252-4R	TAPING	2,500	25,000	13 inch





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