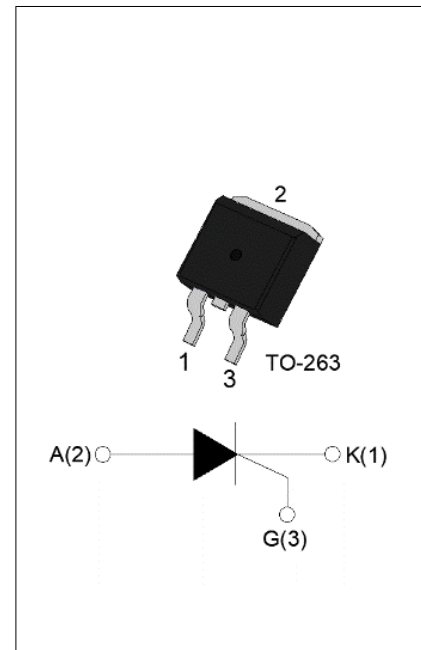


**DESCRIPTION:**

With high ability to withstand the shock loading of large current, JCT1225E SCR provides high dV/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-263 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	1200	V
I_{GT}	≤ 40	mA

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}\text{C}$
Operating junction temperature range	T_j	-40-125	$^{\circ}\text{C}$
Repetitive peak off-state voltage ($T_j=25^{\circ}\text{C}$)	V_{DRM}	1200	V
Repetitive peak reverse voltage ($T_j=25^{\circ}\text{C}$)	V_{RRM}	1200	V
Average on-state current ($T_c \leq 88^{\circ}\text{C}$)	$I_{T(AV)}$	16	A
RMS on-state current ($T_c \leq 88^{\circ}\text{C}$)	$I_{T(RMS)}$	25	A
Non repetitive surge peak on-state current ($t_p=10\text{ms}$, $T_j=25^{\circ}\text{C}$)	I_{TSM}	320	A
Non repetitive surge peak on-state current ($t_p=8.3\text{ms}$, $T_j=25^{\circ}\text{C}$)		352	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^{\circ}\text{C}$)	I^2t	512	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^{\circ}\text{C}$)	di/dt	200	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^{\circ}\text{C}$)	I_{GM}	5	A
Average gate power dissipation ($T_j=125^{\circ}\text{C}$)	$P_{G(AV)}$	1	W

Peak gate power	P_{GM}	20	W
Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.8)	V_{pp}	1	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	-	-	40	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	90	mA
I_H	$I_T=500\text{mA}$	-	-	80	mA
dV/dt	$V_D=800\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$	1000	-	-	V/ μs
t_{on}	$I_G=50\text{mA}$ $I_A=500\text{mA}$ $I_R=50\text{mA}$ $T_j=25^{\circ}\text{C}$	-	5	-	μs
t_{off}		-	70	-	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=50\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.74	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	19	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	7	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	1.1	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC, in free air, $S=1\text{cm}^2$)	47	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

<u>J</u>	<u>CT</u>	<u>12</u>	<u>25</u>	<u>E</u>	<u>-/</u>
JieJie Microelectronics Co.,Ltd.	SCRs			E:TO-263	Blank:Tube -TR:Tape & Reel
<u>12:V_{DRM} /V_{RRM} ≥1200V</u>			<u>It(RMS):25A</u>		

MARKING

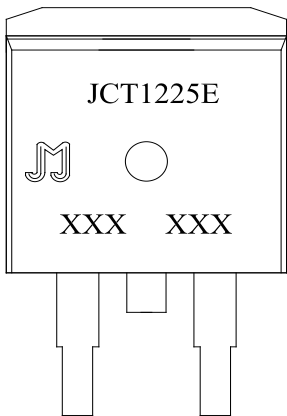
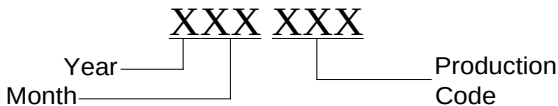
	
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FIG.1 Maximum power dissipation versus RMS on-state current

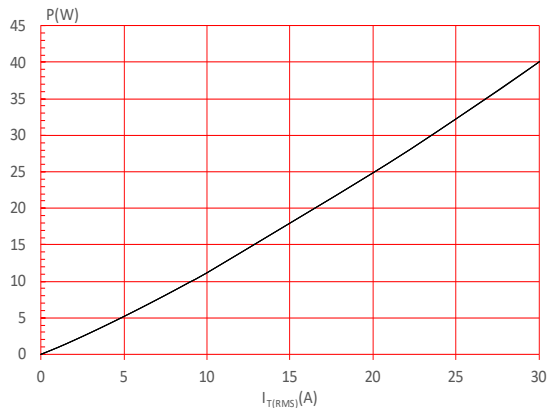


FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35 μ m)(full cycle)

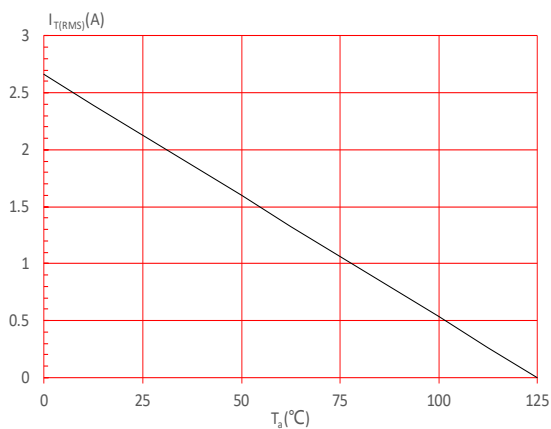


FIG.5: On-state characteristics

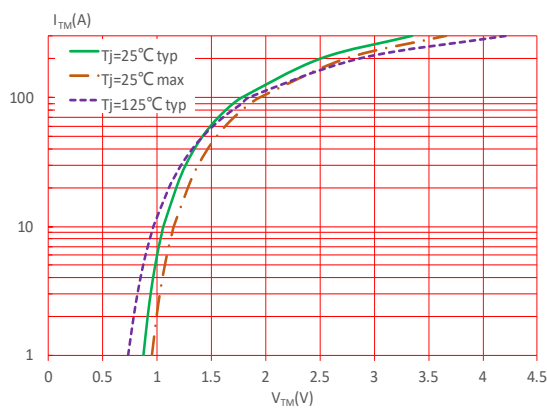


FIG.2: RMS on-state current versus case temperature

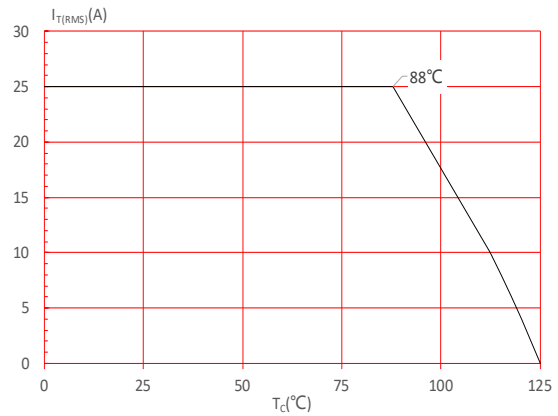


FIG.4: Surge peak on-state current versus number of cycles

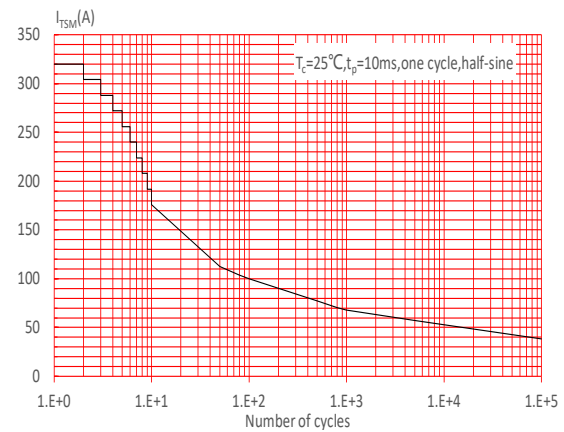


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($dI/dt < 200A/\mu s$)

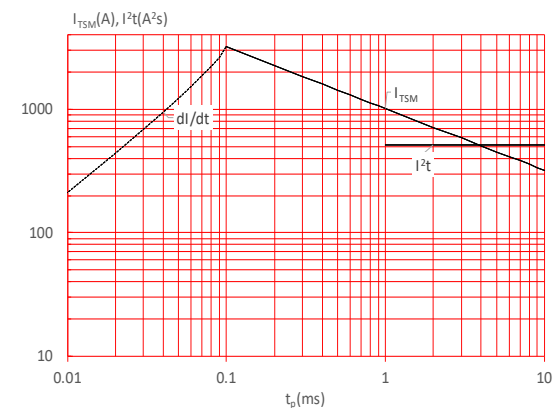


FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

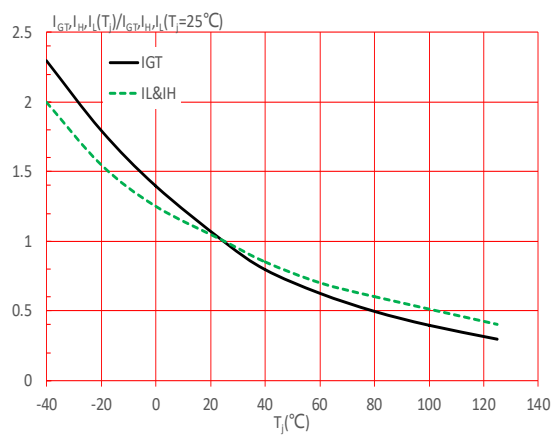
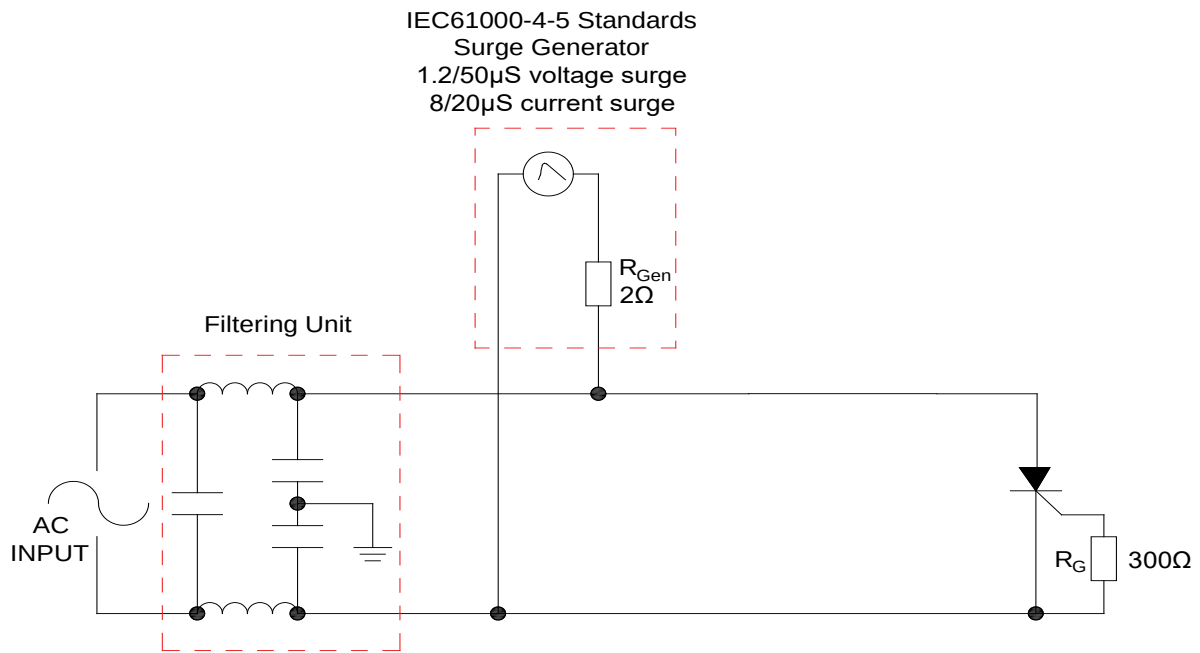
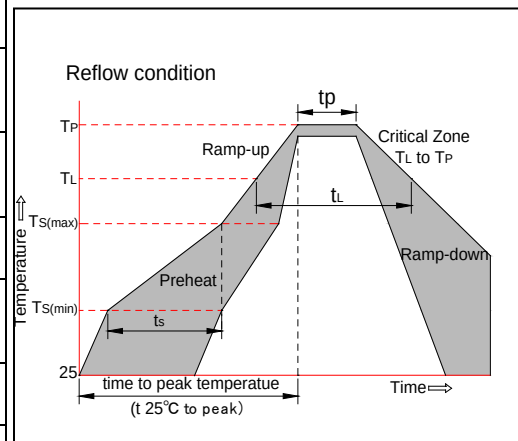


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



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





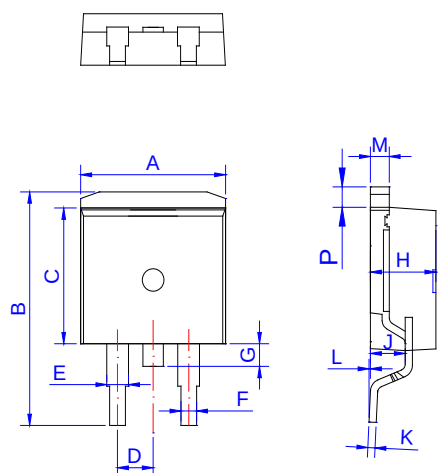
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1225E	1200	40	TO-263	50	Tube
JCT1225E-TR				800	Tape & Reel

Document Revision History

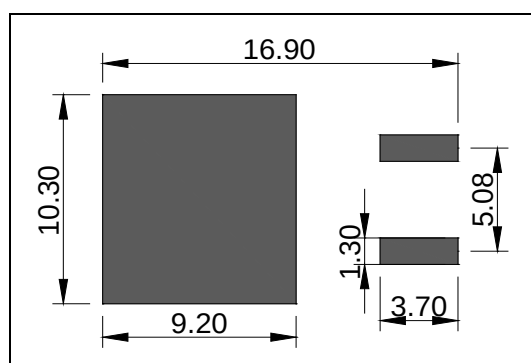
Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update

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
P	1.20		1.50	0.047		0.059

FOOTPRINT-TO-263 (dimensions in mm)



Technical drawing of a mechanical part, showing front and side views with dimensions.

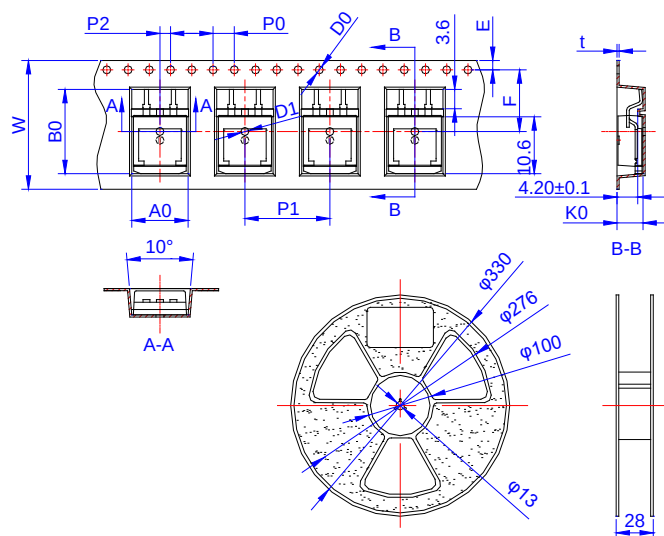
Front View Dimensions:

- Overall width: 530 ± 0.5
- Distance from left edge to center of hole: 518
- Distance from right edge to center of hole: 12.9
- Hole diameter: $\varnothing 3.0$
- Surface finish symbol: $\sqrt{0.05}$

Side View Dimensions:

- Overall height: $7 - 0.2^0$
- Distance from top edge to center of hole: 1.5
- Distance from bottom edge to center of hole: 1.5
- Distance from left edge to center of hole: 10.8
- Distance from right edge to center of hole: 2.6
- Distance from top edge to bottom edge: 17.9

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-263	TUBE	50	1,000	5,000



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
TO-263	TAPING	800	4,000	13 inch

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