



JX075E 12A Sensitive SCR

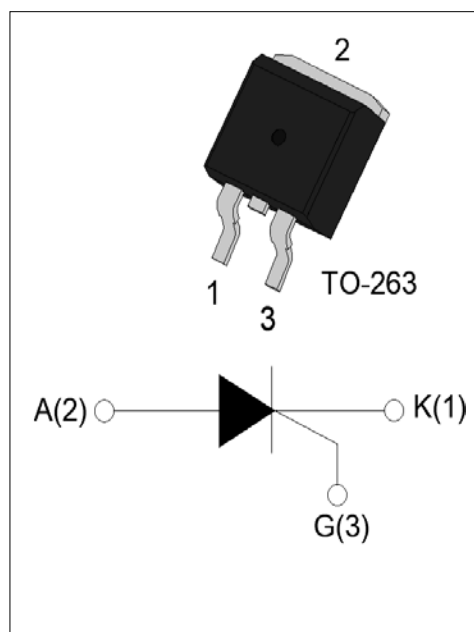
Rev.A.1.1

DESCRIPTION:

The JX075E SCR provides high dV/dt rate with strong resistance to electromagnetic interface. It is especially recommended for use on residual current circuit breaker, straight hair, igniter etc. Package TO-263 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	800	V
I_{GT}	≤ 200	μA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range	T_j	-40-110	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	800	V
Average on-state current ($T_c \leq 83^{\circ}C$)	$I_{T(AV)}$	7.5	A
RMS on-state current ($T_c \leq 83^{\circ}C$)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current ($t_p=10ms$, $T_j=25^{\circ}C$)	I_{TSM}	120	A
Non repetitive surge peak on-state current ($t_p=8.3ms$, $T_j=25^{\circ}C$)		130	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	72	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=110^{\circ}C$)	di/dt	100	$A/\mu s$
Peak gate current ($t_p=20\mu s$, $T_j=110^{\circ}C$)	I_{GM}	4	A
Average gate power dissipation ($T_j=110^{\circ}C$)	$P_{G(AV)}$	1	W

Peak gate power	P_{GM}	10	W
Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.8)	V_{pp}	0.5	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	-	60	200	μA
V_{GT}		-	-	0.8	V
V_{GD}	$V_D=V_{DRM}$ $T_j=110^{\circ}\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	6	mA
I_H	$I_T=0.05\text{A}$	-	-	5	mA
dV/dt	$V_D=540\text{V}$ $T_j=25^{\circ}\text{C}$ $R_{GK}=1\text{k}\Omega$	50	-	-	V/ μs
	$V_D=540\text{V}$ $T_j=25^{\circ}\text{C}$ $R_{GK}=220\Omega$	200	-	-	
t_{on}	$I_G=10\text{mA}$ $I_A=20\text{mA}$ $I_R=2\text{mA}$ $T_j=25^{\circ}\text{C}$	-	2	-	μs
t_{off}		-	70	-	μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_T=24\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.6	V
V_{TO}	Threshold voltage	$T_j=110^{\circ}\text{C}$	0.9	V
R_D	Dynamic Resistance	$T_j=110^{\circ}\text{C}$	0.02	Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=110^{\circ}\text{C}$	0.5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	1.7	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC, in free air, $S=1\text{cm}^2$)	45	$^{\circ}\text{C/W}$

ORDERING INFORMATION

<u>J</u>	<u>X</u>	<u>075</u>	<u>E</u>	<u>-/</u>
JieJie Microelectronics Co., Ltd.				Blank: Tube -TR: Tape & Reel
Sensitive gate SCRs				
		<u>IT(AV):7.5A</u>		<u>K:TO-263</u>

MARKING

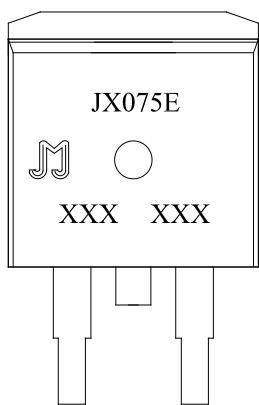
 Diagram showing the marking on the JX075E package. The marking includes the part number JX075E, the JieJie logo (a stylized M), a circle, and two XXX markings. The package has three pins.	Diagram showing the marking on the package. The marking includes the part number JX075E, the JieJie logo (a stylized M), a circle, and two XXX markings. The package has three pins. Year <u>XXX</u> <u>XXX</u> Production Code Month _____
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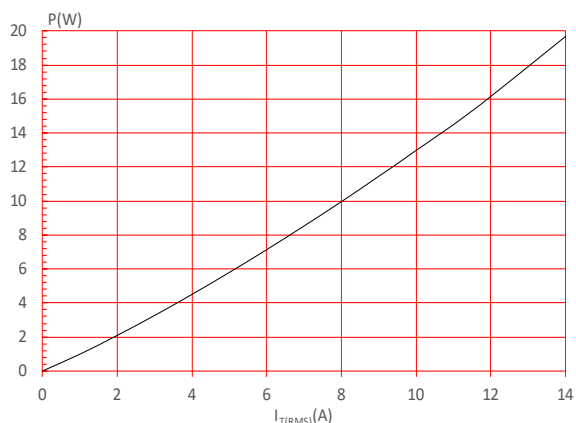
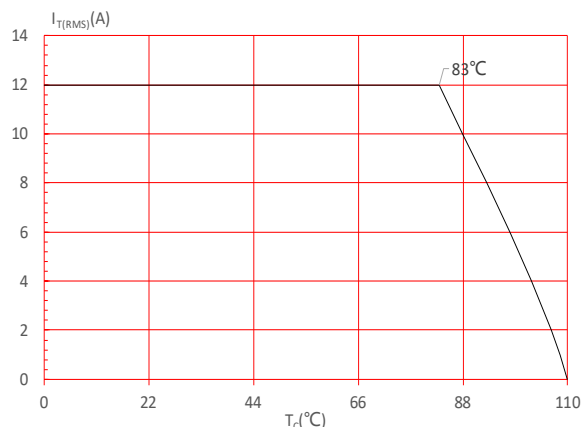
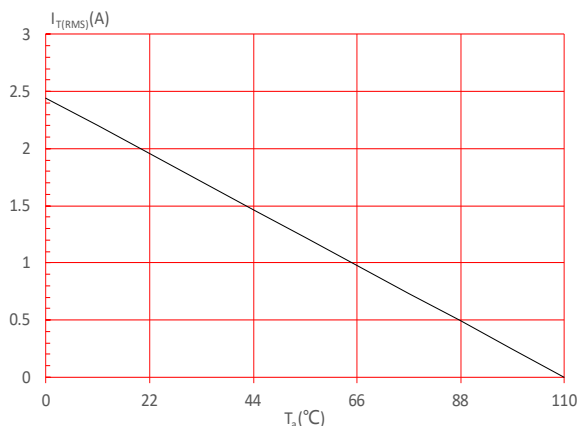
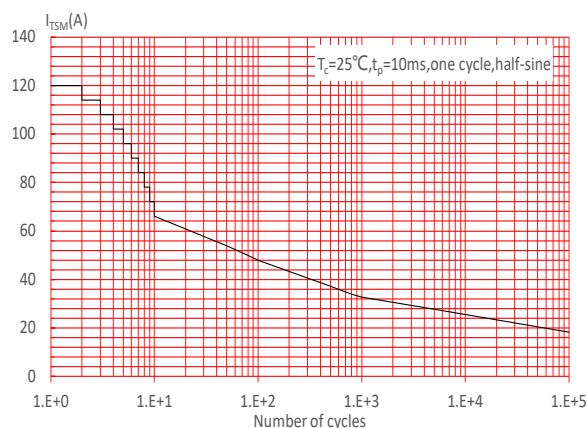
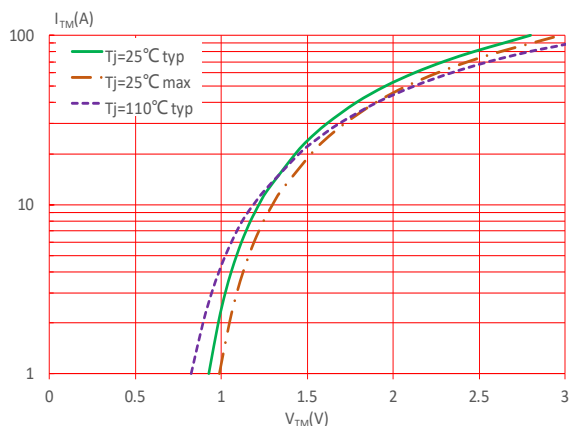
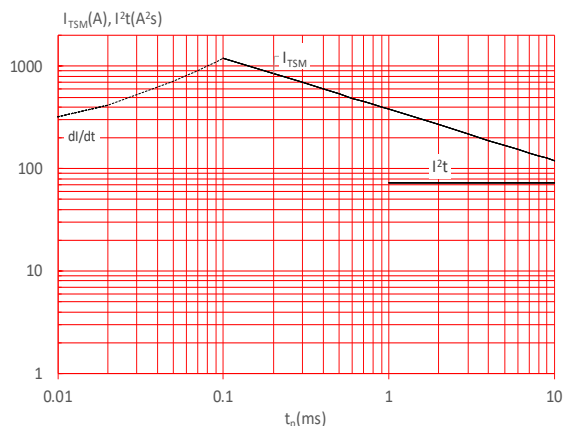
FIG.1: Maximum power dissipation versus RMS on-state current

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

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

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

FIG.5: On-state characteristics

FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($dI/dt < 100\text{A}/\mu\text{s}$)


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

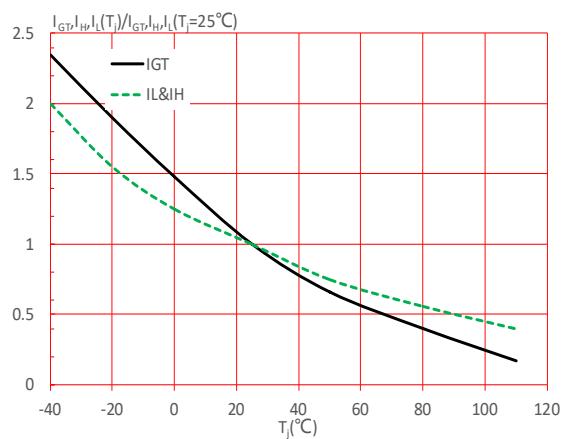
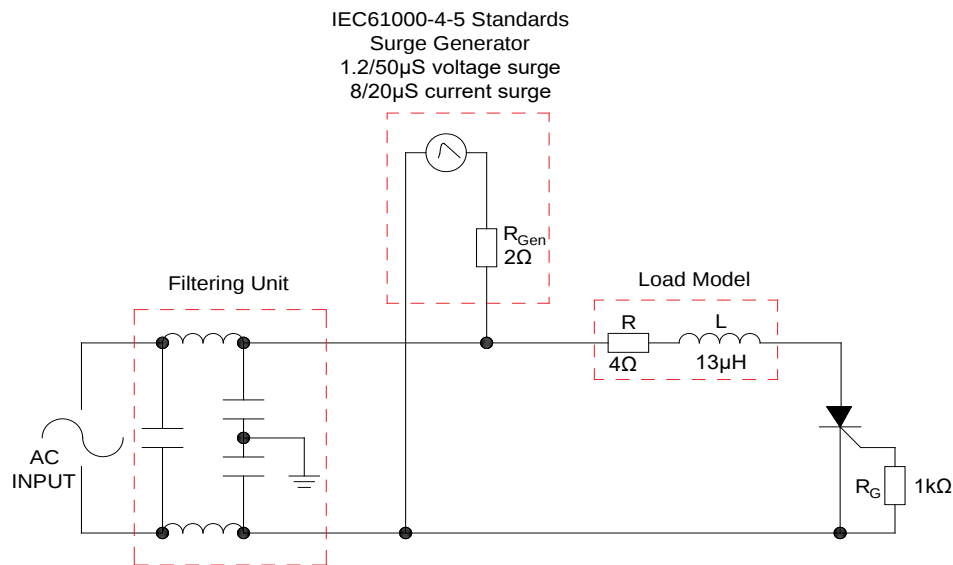
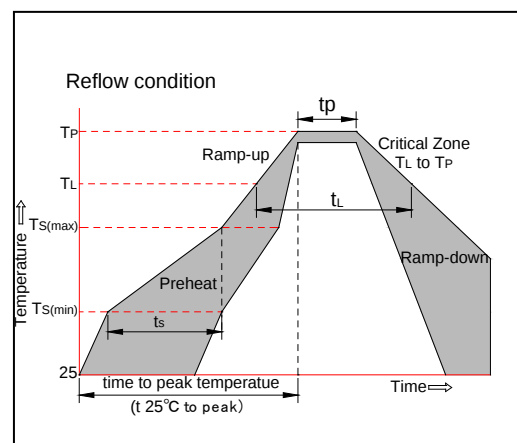


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



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



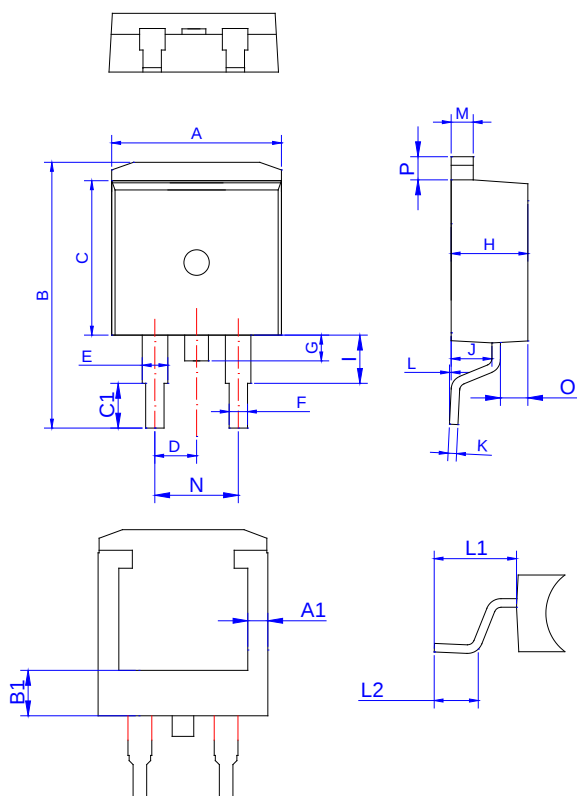
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(μA)	Package	Base qty. (pcs)	Delivery mode
JX075E	800	≤ 200	TO-263	50	Tube
JX075E-TR				800	Tape & Reel

Document Revision History

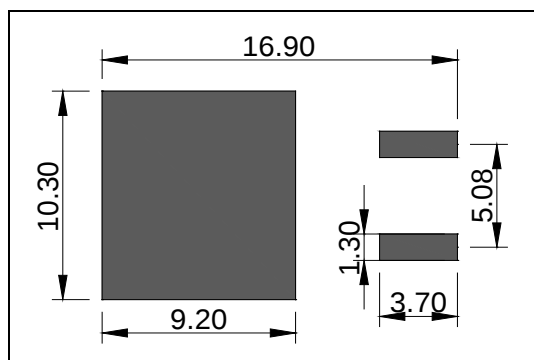
Date	Revision	Changes
Apr.12, 2023	A.1.0	Last update
Oct.17, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
A1	0.80		1.20	0.031		0.047
B	14.70		15.80	0.579		0.622
B1	2.15		2.55	0.085		0.100
C	9.40		9.60	0.370		0.378
C1	2.40		2.80	0.094		0.110
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
I	1.80		2.20			
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
L1	4.65		5.05	0.183		0.199
L2	1.90			0.075		
M	1.25		1.35	0.049		0.053
N	4.80		5.20			
O	1.30		1.50			
P	1.20		1.50	0.047		0.059

FOOTPRINT-TO-263 (dimensions in mm)



Technical drawing of a mechanical part, showing a side view and a cross-section view. The side view includes dimensions: 530±0.5, 518, 12.9, and a hole diameter of Ø3.0. The cross-section view shows internal features with dimensions: 7⁰_{-0.2}, 1.5, 0.6, 2.6, 10^{4st}_{st}, 17^{3st}_{st}, and a tolerance of ±0.05.

Technical drawing of a 100mm diameter wheel with four spokes. The drawing includes a front view, a side view (B-B), a cross-section A-A, and a top view. Dimensions are given in millimeters.

Front View Dimensions:

- Overall width: W
- Hub width: $B0$
- Spoke width: $A0$
- Distances between spokes: $P0$, $P1$, $P2$
- Spoke angle: 10°

Side View (B-B) Dimensions:

- Hub thickness: E
- Spoke thickness: F
- Spoke width at base: 3.6
- Spoke width at top: 10.6
- Spoke width at bottom: 4.20 ± 0.1
- Overall width: $K0$

Cross-section A-A Dimensions:

- Spoke angle: 10°

Top View Dimensions:

- Outer diameter: $\phi 330$
- Inner diameter: $\phi 276$
- Spoke diameter: $\phi 100$
- Spoke thickness: $\phi 13$

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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