



JCT1055Z 55A SCR

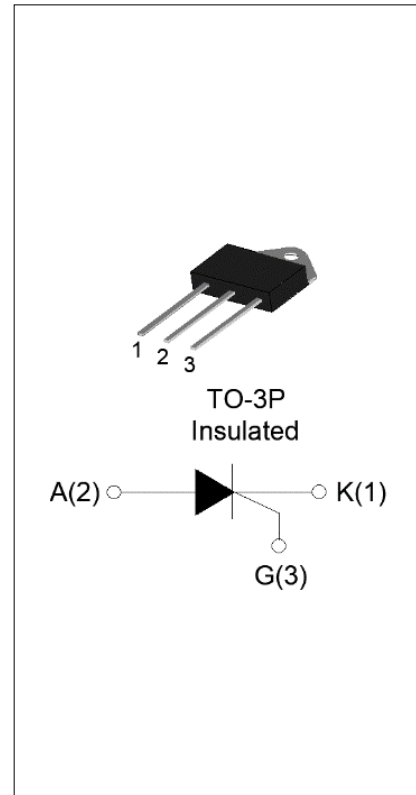
Rev.A.1.1

DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1055Z 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. From all three terminals to external heatsink, JCT1055Z provides a rated insulation voltage of 2500 V_{RMS} , complying with UL standards (File ref: E252906). Package TO-3P is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	55	A
V_{DRM}/V_{RRM}	1000	V
I_{GT}	≤ 50	mA



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}	1000	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	1000	V
Average on-state current ($T_c \leq 60^{\circ}C$)	$I_{T(AV)}$	35	A
RMS on-state current ($T_c \leq 60^{\circ}C$)	$I_{T(RMS)}$	55	A
Non repetitive surge peak on-state current ($t_p=10ms$, $T_j=25^{\circ}C$)	I_{TSM}	700	A
Non repetitive surge peak on-state current ($t_p=8.3ms$, $T_j=25^{\circ}C$)		750	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	2450	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=125^{\circ}C$)	di/dt	200	$A/\mu s$

Peak gate current ($t_p=20\mu s$, $T_j=125^\circ C$)	I_{GM}	10	A
Average gate power dissipation ($T_j=125^\circ C$)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	20	W
Peak pulse voltage ($T_j=25^\circ C$; non-repetitive, off-state; FIG.7)	V_{pp}	0.7	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V$ $R_L=33\Omega$	-	-	50	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3k\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	120	mA
I_H	$I_T=500mA$	-	-	100	mA
dV/dt	$V_D=670V$ Gate Open $T_j=125^\circ C$	1500	-	-	V/ μs
t_{on}	$I_G=50mA$ $I_A=500mA$ $I_R=50mA$ $T_j=25^\circ C$	-	4	-	μs
t_{off}		-	130	-	

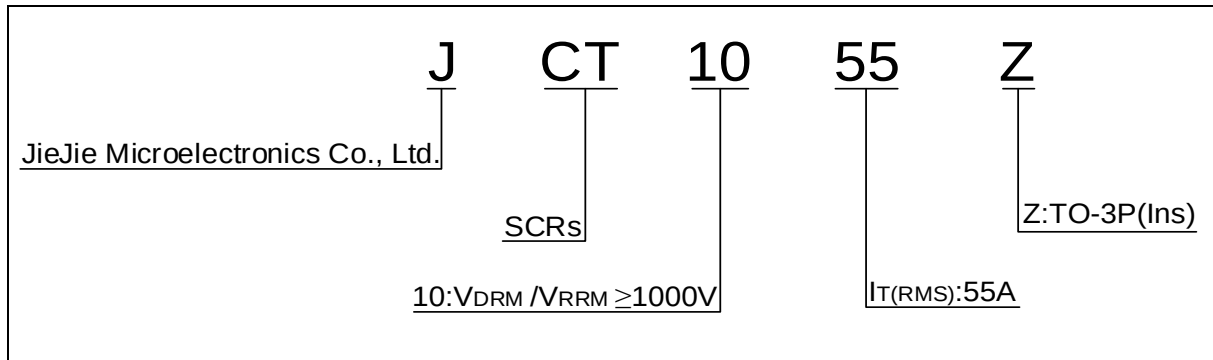
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=80A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^\circ C$	0.76	V
R_D	Dynamic resistance	$T_j=125^\circ C$	8.5	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	8	μA
I_{RRM}		$T_j=125^\circ C$	5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	0.85	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (DC)	55	$^\circ C/W$

ORDERING INFORMATION



MARKING

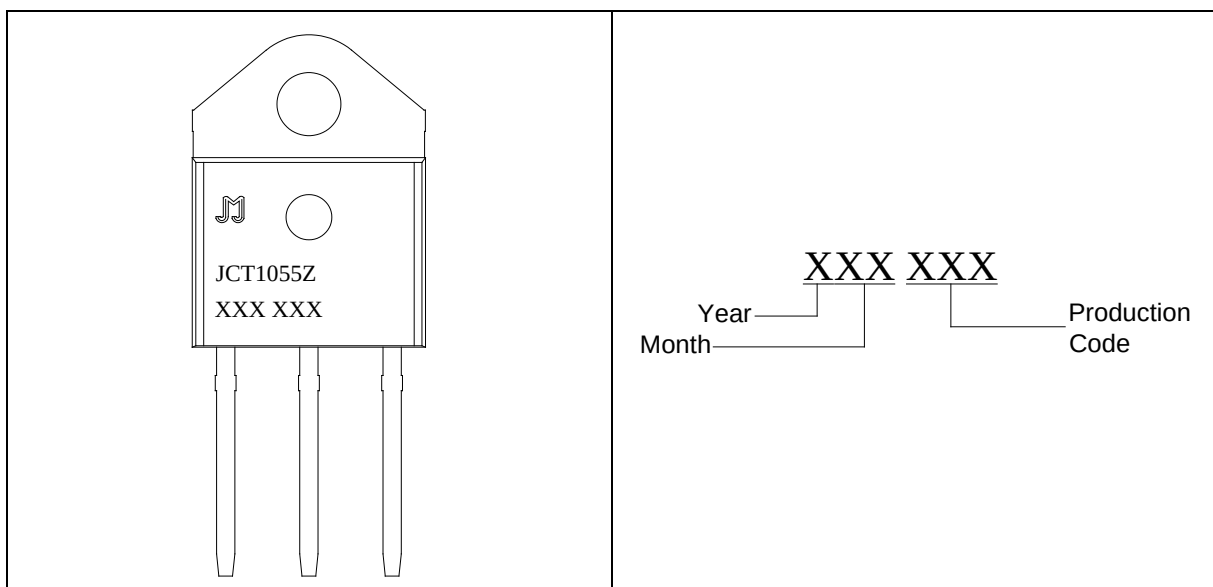


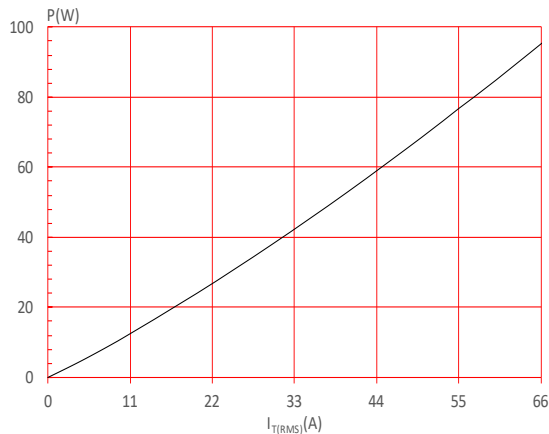
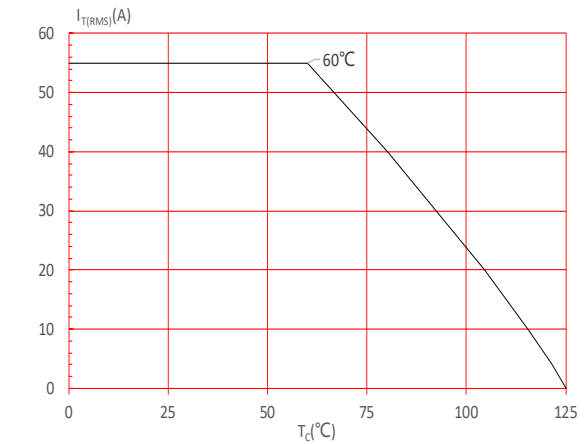
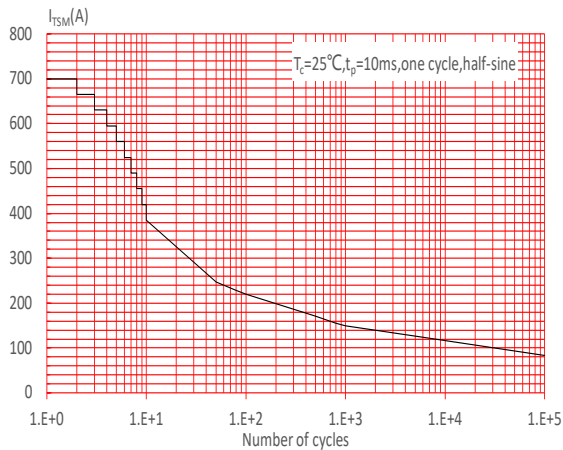
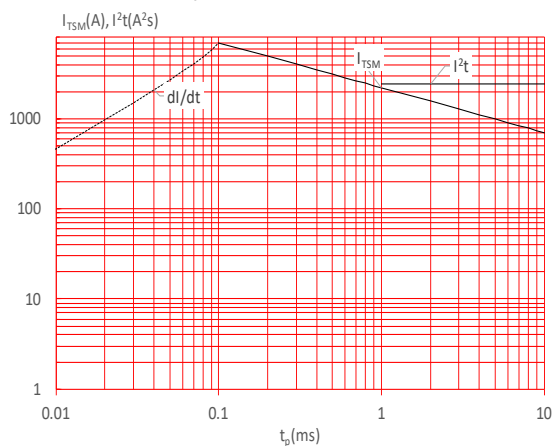
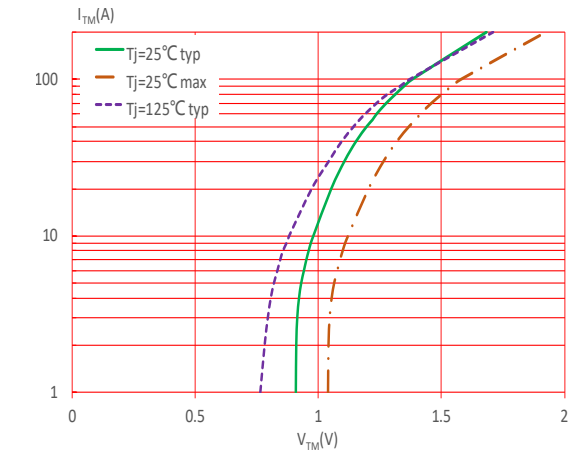
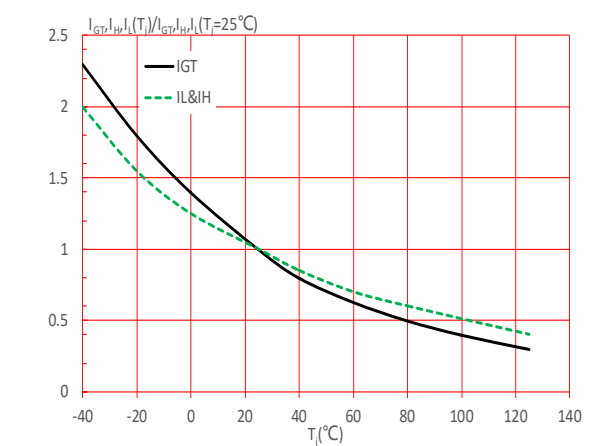
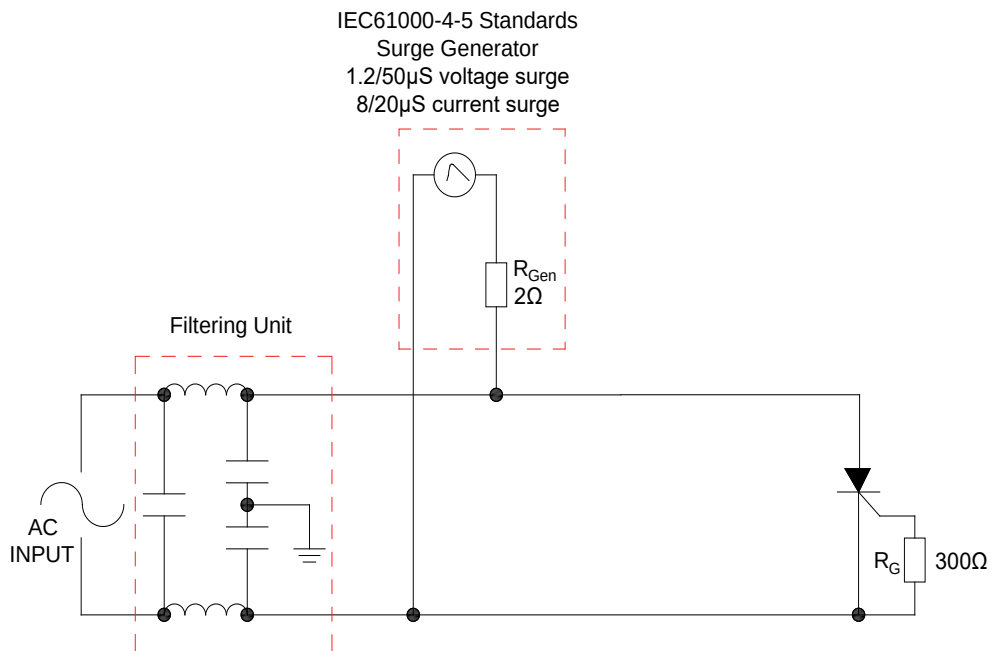
FIG.1: Maximum power dissipation versus RMS on-state current**FIG.2:** RMS on-state current versus case temperature**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 200\text{A}/\mu\text{s}$)**FIG.4:** On-state characteristics**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package” released by JieJie Microelectronics

ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1055Z	1000	50	TO-3P(Ins)	30	Tube

Document Revision History

Date	Revision	Changes
May 17, 2023	A.1.0	Last update
Oct.16, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 10-pin D-sub connector housing. The drawing includes three views: a top view, a side view, and a front view. Dimensions are indicated by blue lines and labels:

- Top View:**
 - $2-R0.5$: Fillet radius on the top edge.
 - $\Phi 4.05-4.25\text{mm}$: Hole diameter for the mounting screw.
 - H : Total height of the housing.
 - B : Width of the housing.
 - I : Distance from the mounting hole center to the side edge.
 - F : Distance from the top edge to the start of the pin area.
 - C : Total length of the housing.
 - L : Pin length (left).
 - P : Pin length (right).
 - J : Pin length (left, alternative).
 - K : Pin length (right, alternative).
 - Q : Distance between pin centers.
- Side View:**
 - A : Pin length.
 - B : Pin length.
 - N : Total height of the pin assembly.
 - M : Distance from the base to the start of the pin area.
 - E : Pin length.
 - D : Pin length.
- Front View:**
 - $H1$: Thickness of the housing.
 - $F1$: Distance from the base to the start of the pin area.

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
F1	2.45		2.85	0.096		0.112
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
H1	1.10		1.50	0.043		0.059
I	7.25		7.65	0.285		0.301
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.25		1.45	0.049		0.057
M	12.37		12.77	0.487		0.503
N	7.80		8.20	0.307		0.323
P	2.80		3.00	0.110		0.118
Q	10.70		11.10	0.421		0.437
R		4.35			0.171	

Technical drawing of a component with three views: front, side, and cross-section.

Front View: Shows a rectangular component with a circular feature at the top center. The overall width is 471.0 and the height is 29.50. The component has three vertical pins at the bottom.

Side View: Shows a curved profile of the component. The overall width is 530±0.5 and the height is 17. A circular feature is shown with a diameter of $\phi 3.00 \pm 0.05$.

Cross-section View: Shows the internal structure of the component. The overall width is 41. The height is 17.25. The component has a central circular feature with a diameter of $\phi 3.00 \pm 0.05$. The cross-section shows a 95° angle and various internal dimensions: 0.6, 7.5, 0.6, 0.8, 13.21, 3.9, 3.1, 9.6, 6.2, 3.4, and 0.8.

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-3P	TUBE	30	450	2,250

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