



X0202&X0202A&0202B

SCRS

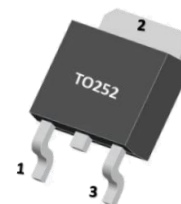
GENERAL DESCRIPTION

SENSITIVE SCRS

- The **X0202/A/B** SCR series is suitable for all applications where the available gate current is limited, such as ground fault circuit interruptors, overvoltage crowbar protection in low power supplies, capacitive ignition circuit.

FEATURES

- $I_{T(RMS)}$: 1.25A
- V_{DRM}/V_{RRM} : 600/800V/1000V



Pin1:K (Cathode)
Pin2:A (Anode)
Pin3:G (Gate)

MARKING



X0202=DeVice Code
XXXX=Date Code



X 0202A =DeVice Code
XXXX=Date Code

ABSOLUTE MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

PARAMETERS		SYMBOL	RATINGS	UNIT
Peak Repetitive Forward and Reverse Blocking Voltage ($T_J=110^{\circ}\text{C}$, $R_{GK}=1\text{k}\Omega$)	X0202	V_{DRM} , V_{RRM}	600	V
	X0202A		800	V
	X0202B		1000	V
RMS On-State Current ($T_{tab}=95^{\circ}\text{C}$)180°C Conduction Angle		$I_{T(RMS)}$	1.25	A
Average On-State Current (Ttab=95°C)180°C Conduction Angle		$I_{T(AV)}$	0.8	A
Non Repetitive Surge Peak on-State Current (tp=8.3ms TJ=25°C)		I_{TSM}	25	A
Non Repetitive Surge Peak on-State Current (tp=10ms TJ=25°C)		I_{TSM}	22.5	A
$I^2 t$ Value for Fusing (tp=10ms TJ=25°C)		$I^2 t$	2.5	A ² S
Critical Rate Of Rise Of On-state Current $I_G=2 \cdot I_{GT}$, $t_r \leq 100\text{ns}$, $f=60\text{Hz}$, $T_J=125^{\circ}\text{C}$		di/dt	50	A/ μs
Peak Gate Current (p=20 μs TJ=125°C)		I_{GM}	1.2	A
Average Gate Power Dissipation (TJ=125°C)		$P_{G(AV)}$	0.2	W
Operating Junction Temperature Range		T_J	-40 ~ +125	°C
Storage Junction Temperature Range		T_{STG}	-40 ~ +150	°C
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.				



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THERMAL RESISTANCES

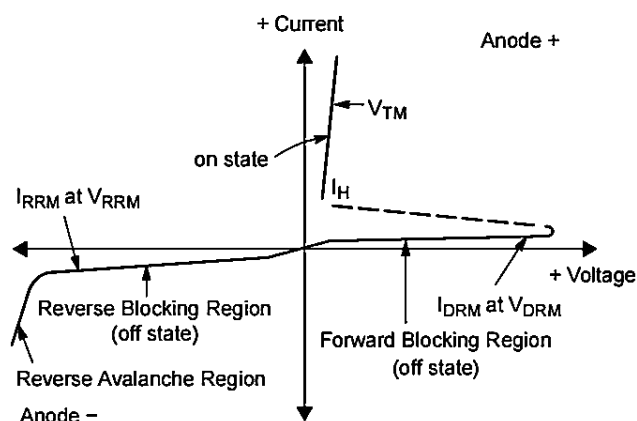
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-252	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$
	SOT 89		120	$^{\circ}\text{C}/\text{W}$
Junction to Case	TO-252	$R_{\theta JC}$	5	$^{\circ}\text{C}/\text{W}$
	SOT 89		25	$^{\circ}\text{C}/\text{W}$

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

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak Forward or Reverse Blocking Current	$T_J=25^{\circ}\text{C}$	I_{DRM} , I_{RRM}	$V_{DRM}=V_{RRM}$, $R_{GK}=1\text{k}\Omega$			5	μA
	$T_J=125^{\circ}\text{C}$					500	μA
Peak Forward On-State Voltage		V_{TM}	$I_{TM}=2.5\text{A}$, $t_p=380\mu\text{s}$			1.45	V
Gate Trigger Current		I_{GT}	$V_D=12\text{V}$, $R_L=140\Omega$			200	μA
Gate Trigger Voltage		V_{GT}	$V_D=12\text{V}$, $R_L=140\Omega$			0.8	V
Gate Non-Trigger Voltage		V_{GD}	$V_D=V_{DRM}$, $R_L=3.3\text{k}\Omega$, $R_{GK}=1\text{k}\Omega$, ($T_J=125^{\circ}\text{C}$)	0.1			V
Holding Current		I_H	$I_T=50\text{mA}$, $R_{GK}=1\text{k}\Omega$			5	mA
Latch Current		I_L	$I_G=1\text{mA}$, $R_{GK}=1\text{k}\Omega$			6	mA
Critical Rate of Rise of Off-State Voltage		dv/dt	$V_D=67\%V_{DRM}$, $R_{GK}=1\text{k}\Omega$, ($T_J=110^{\circ}\text{C}$)	10			$\text{V}/\mu\text{s}$
Peak Reversed Gate Voltage		V_{RG}	$I_{RG}=10\mu\text{A}$	8			V
Threshold Voltage		V_{TO}	($T_J=125^{\circ}\text{C}$)			0.9	V
Dynamic Resistance		R_d	($T_J=125^{\circ}\text{C}$)			200	$\text{m}\Omega$

Voltage Current Characteristic of SCR

Symbol	Parameter
V_{DRM}	Peak Repetitive Off State Forward Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Off State Reverse Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Peak On State Voltage
I_H	Holding Current



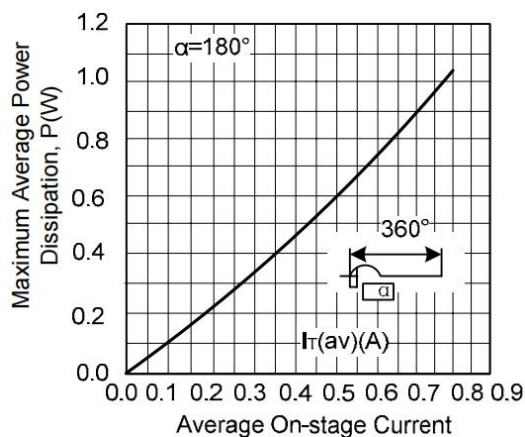


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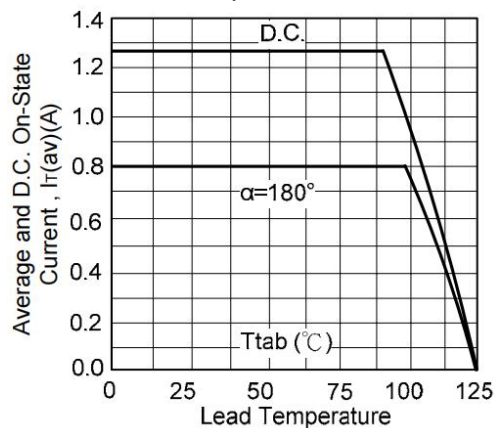
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■ TYPICAL CHARACTERISTICS(1)

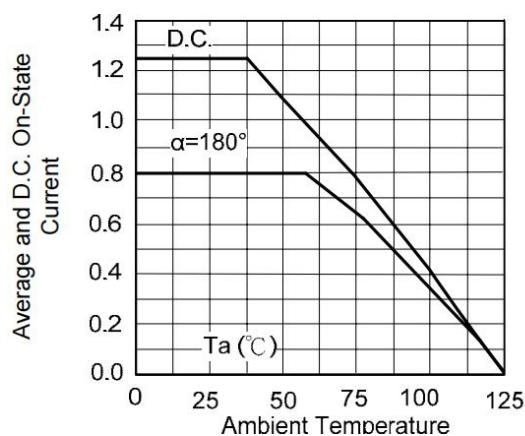
Maximum Average Power Dissipation vs.Average On-stage Current



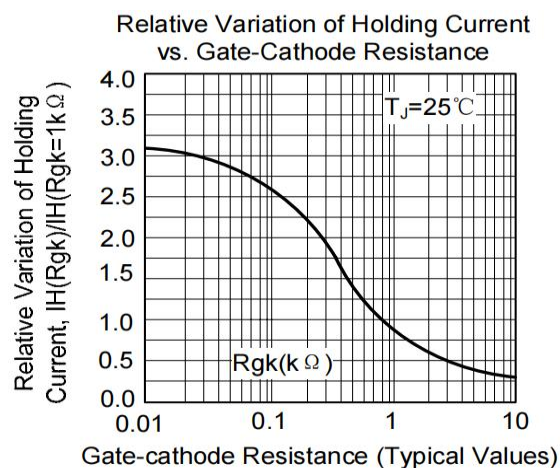
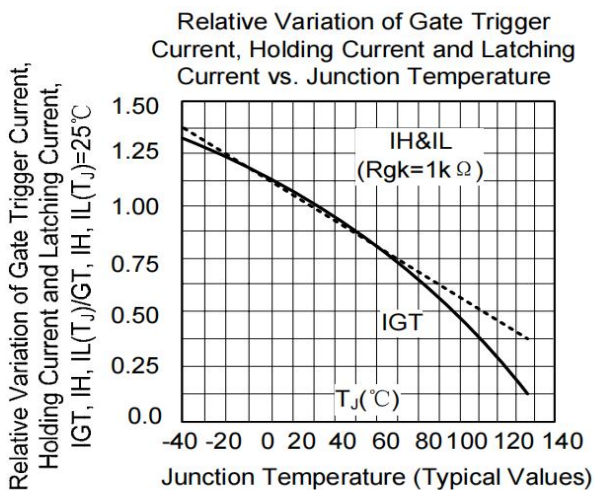
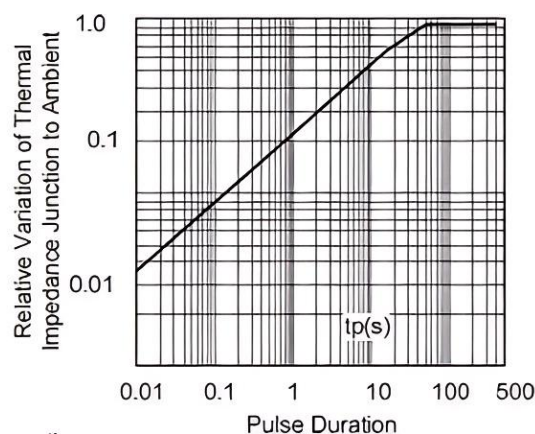
Average and D.C. On-state Current vs. Lead Temperature



Average and D.C. On-State Current vs. Ambient Temperature (Device Mounted On FR4 with Recommended Pad Layout)



Relative Variation of Thermal Impedance Junction to Ambient vs. Pulse Duration

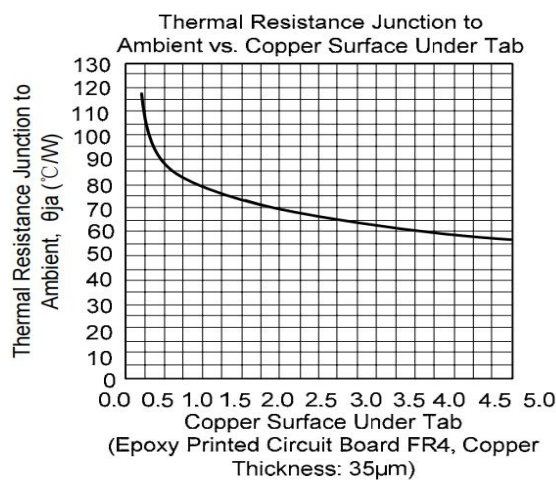
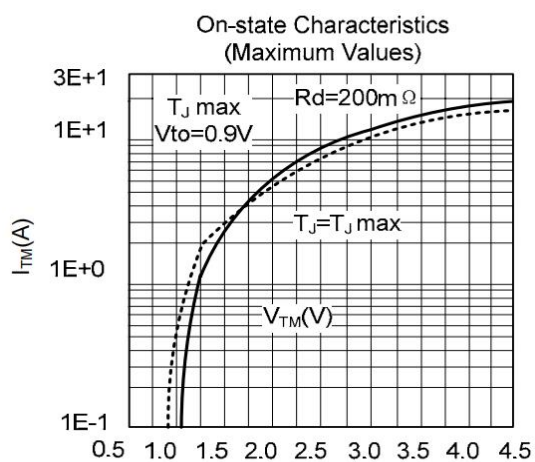
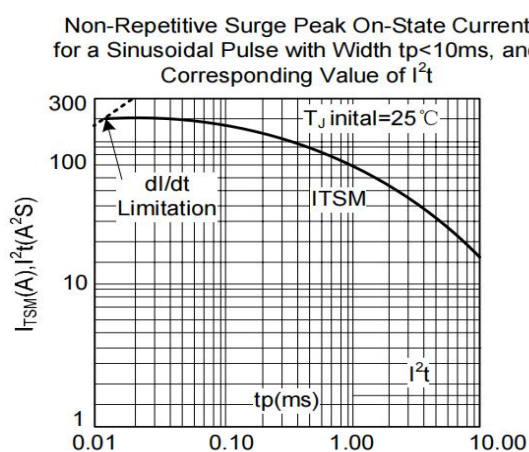
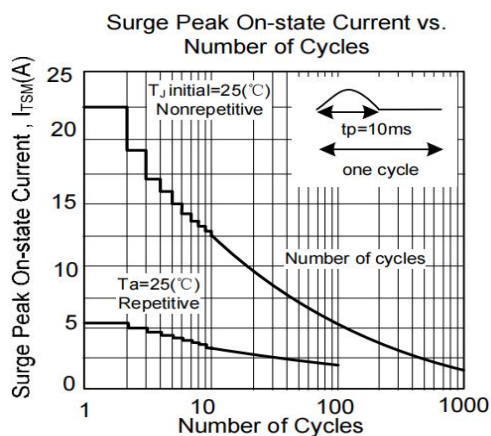
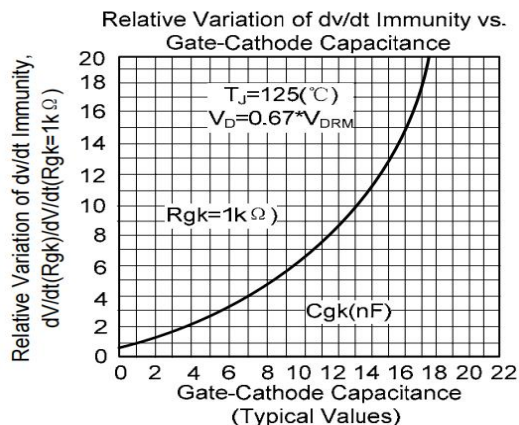
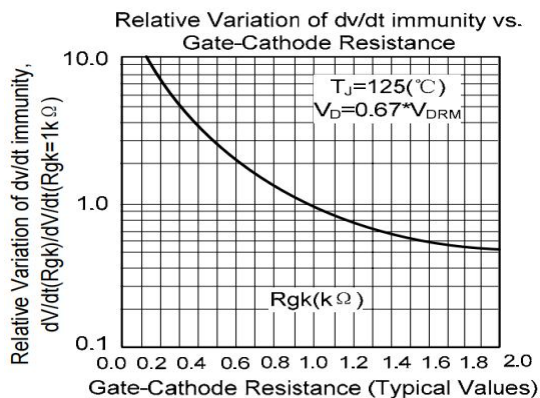




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TYPICAL CHARACTERISTICS(2)

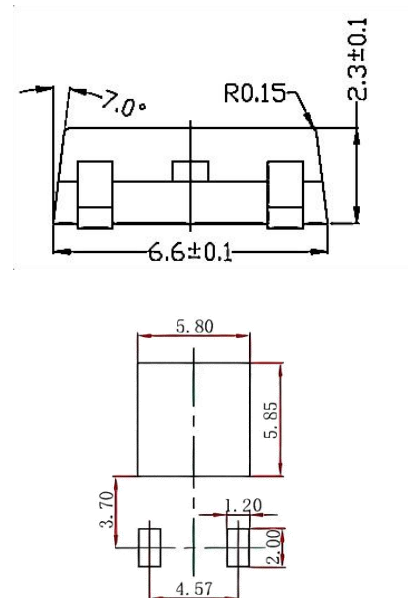
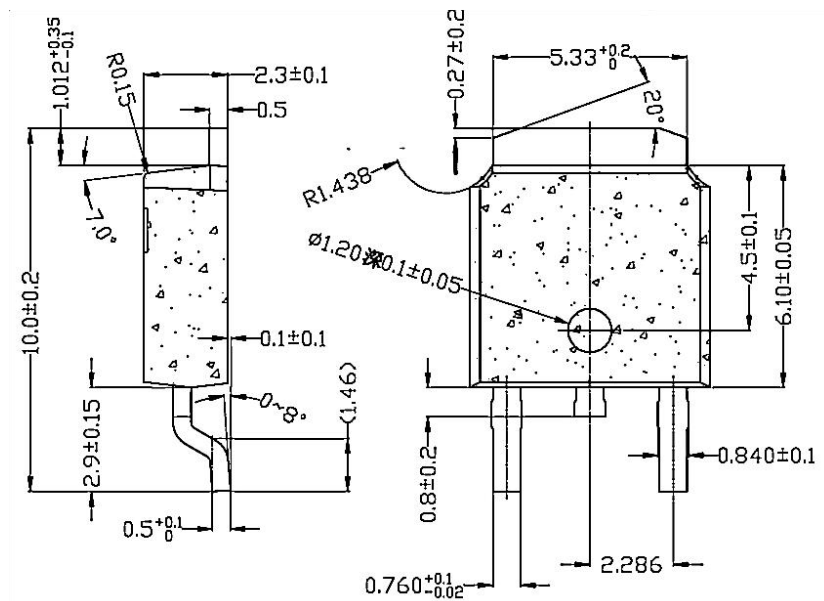




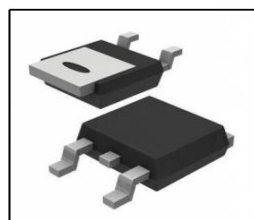
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SCRS

TO - 252 PACKAGE OUTLINE DIMENSIONS



TO - 252 PACKING INFORMATION



2500PC
5/reel



2 Reel/BOX



Outer box

5 Inner
Box



Inner box

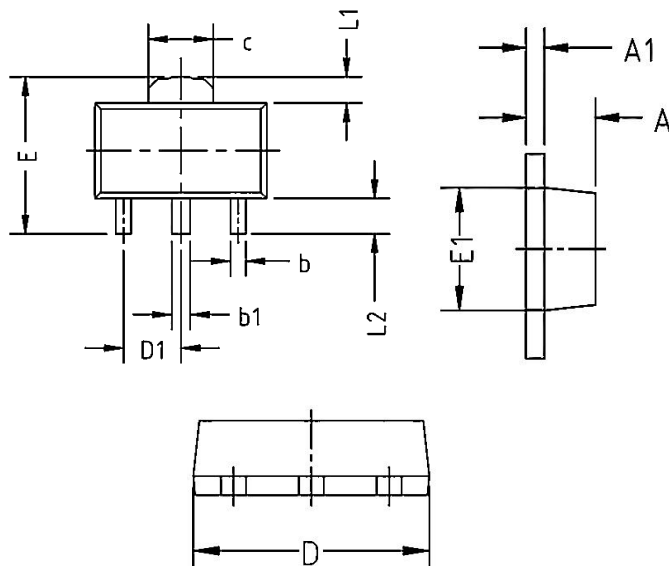
Package version	Reel dimensions $\phi \times H$ (mm)	Per Reel (pcs)	Reels per box	Inner box dimensions $L \times W \times H$ (mm)	Outer box (pcs)	Outer box dimensions $L \times W \times H$ (mm)
T0-252	$\phi 330 \times 20$	2500	2	360*340*50	25000	375*375*280



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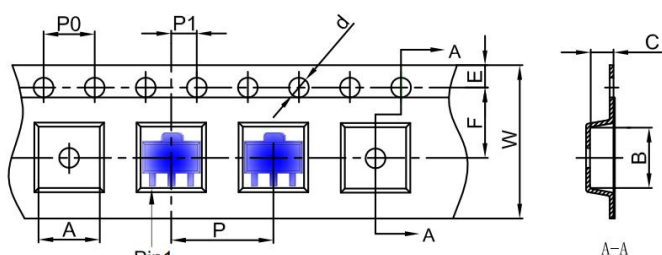
SOT - 89 PACKAGE OUTLINE DIMENSIONS



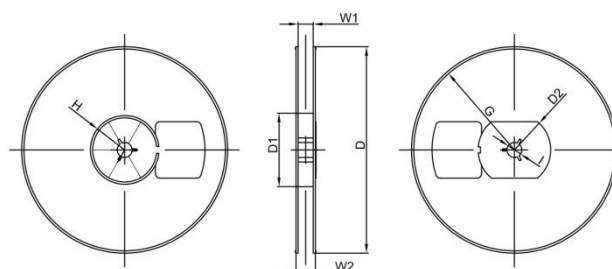
COMMON DIMENSION(MM)			
PKG	SOT-89		
Symbol	MIN	MON	MAX
A	1.450	1.500	1.550
A1	0.350	0.400	0.450
b	0.350	0.400	0.48
b1	0.430	0.480	0.550
C	1.500	1.550	1.650
D	4.450	4.550	4.700
D1	1.470	1.500	1.550
E	4.100	4.200	4.300
E1	2.500	2.550	2.650
L1	0.650	0.700	0.750
L2	0.900	0.950	1.000

SOT89 PACKAGING INFORMATION

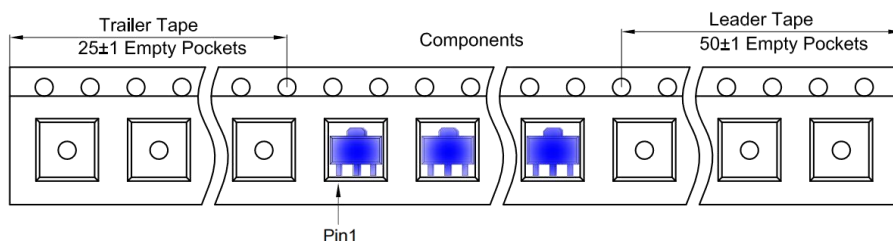
SOT-89 Embossed Carrier Tape



SOT-89 Reel



SOT-89 Tape Leader and Trailer



REEL	Reel Size
1000 pcs	7 inch

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50