



**X0202/A**

**SCR**

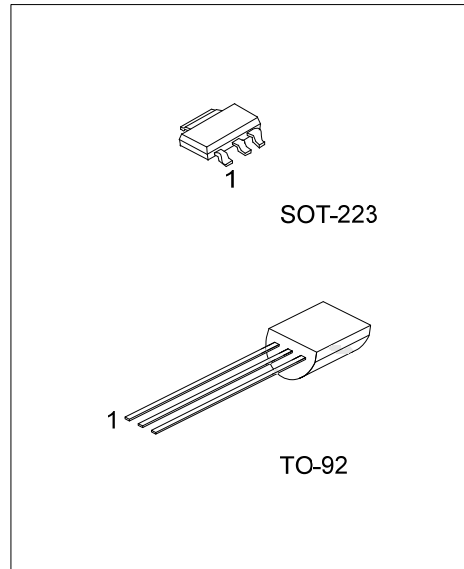
**SENSITIVE SCRS**

■ **DESCRIPTION**

The UTC **X0202/A** 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



■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
X0202L-AA3-R	X0202G-AA3-R	SOT-223	K	A	G	Tape Reel
X0202L-T92-B	X0202G-T92-B	TO-92	K	G	A	Tape Box
X0202L-T92-K	X0202G-T92-K	TO-92	K	G	A	Bulk
X0202L-T92-R	X0202G-T92-R	TO-92	K	G	A	Tape Reel
X0202AL-AA3-R	X0202AG-AA3-R	SOT-223	K	A	G	Tape Reel
X0202AL-T92-B	X0202AG-T92-B	TO-92	K	G	A	Tape Box
X0202AL-T92-K	X0202AG-T92-K	TO-92	K	G	A	Bulk
X0202AL-T92-R	X0202AG-T92-R	TO-92	K	G	A	Tape Reel

Note: Pin Assignment: G: Gate A: Anode K: Cathode

<p>X0202L-AA3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel</p> <p>(2) AA3: SOT-223, T92: TO-92</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (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
RMS On-State Current 180°C Conduction Angle	( $T_{tab}=95^\circ\text{C}$ )	$I_{T(RMS)}$	1.25	A
Average On-State Current 180°C Conduction Angle	( $T_{tab}=95^\circ\text{C}$ )	$I_{T(AV)}$	0.8	A
Non Repetitive Surge Peak on-State Current ( $t_p=8.3\text{ms}$ $T_J=25^\circ\text{C}$ )		$I_{TSM}$	25	A
Non Repetitive Surge Peak on-State Current ( $t_p=10\text{ms}$ $T_J=25^\circ\text{C}$ )		$I_{TSM}$	22.5	A
$I^2t$ Value for Fusing ( $t_p=10\text{ms}$ $T_J=25^\circ\text{C}$ )		$I^2t$	2.5	$\text{A}^2\text{S}$
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	$\text{A}/\mu\text{s}$
Peak Gate Current ( $p=20\mu\text{s}$ $T_J=125^\circ\text{C}$ )		$I_{GM}$	1.2	A
Average Gate Power Dissipation ( $T_J=125^\circ\text{C}$ )		$P_{G(AV)}$	0.2	W
Operating Junction Temperature Range		$T_J$	-40 ~ +125	$^\circ\text{C}$
Storage Junction Temperature Range		$T_{STG}$	-40 ~ +150	$^\circ\text{C}$

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.

■ THERMAL DATA

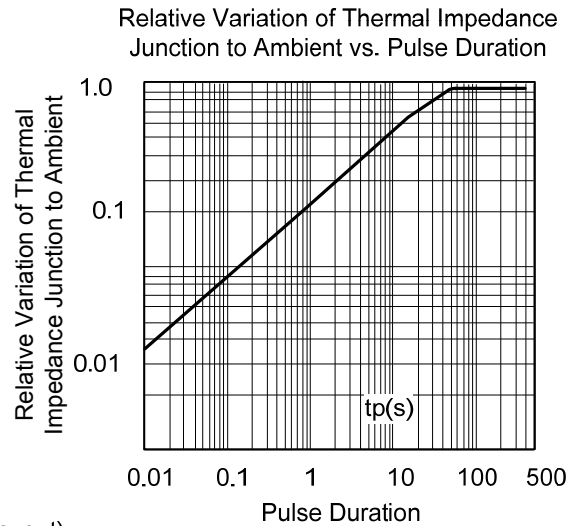
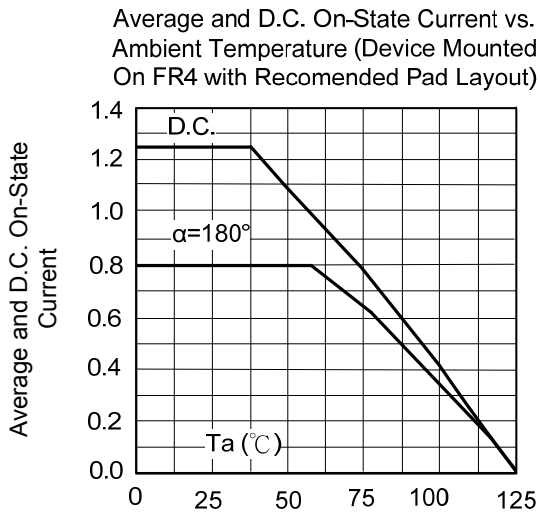
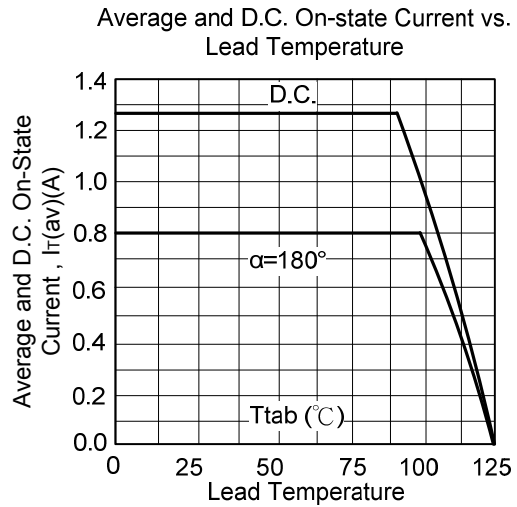
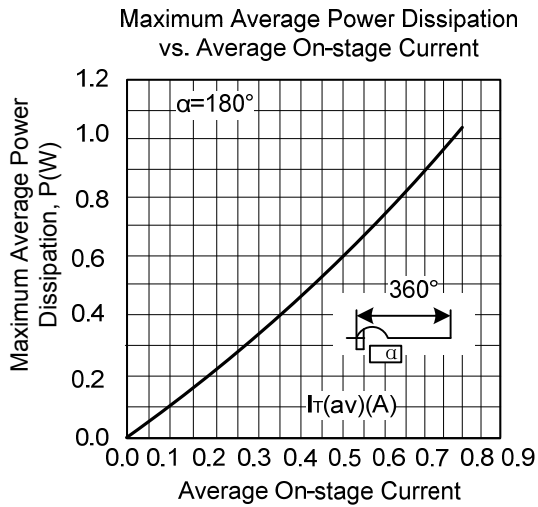
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Tab	SOT-223	$\theta_{JT}$	25	$^\circ\text{C}/\text{W}$
	TO-92		60	$^\circ\text{C}/\text{W}$
Junction to Ambient (S=5cm)	SOT-223	$\theta_{JA}$	60	$^\circ\text{C}/\text{W}$
	TO-92		150	$^\circ\text{C}/\text{W}$

S=Copper surface under tab

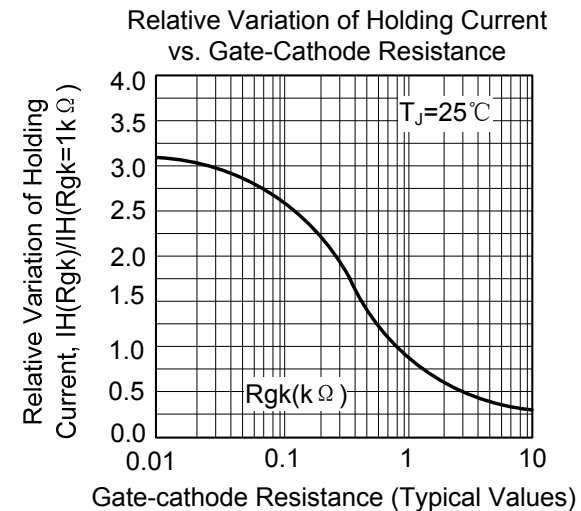
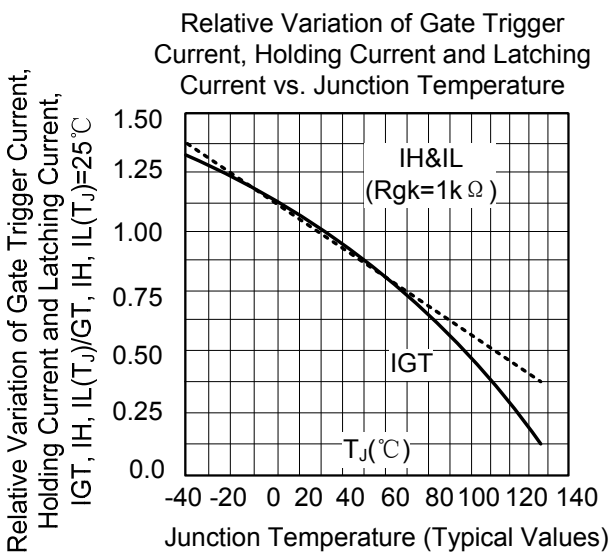
■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak Forward or Reverse Blocking Current	$I_{DRM}$ , $I_{RRM}$	$V_{DRM}=V_{RRM}$ , $R_{GK}=1\text{k}\Omega$			5	$\mu\text{A}$
					500	$\mu\text{A}$
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	$\mu\text{A}$
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	m $\Omega$

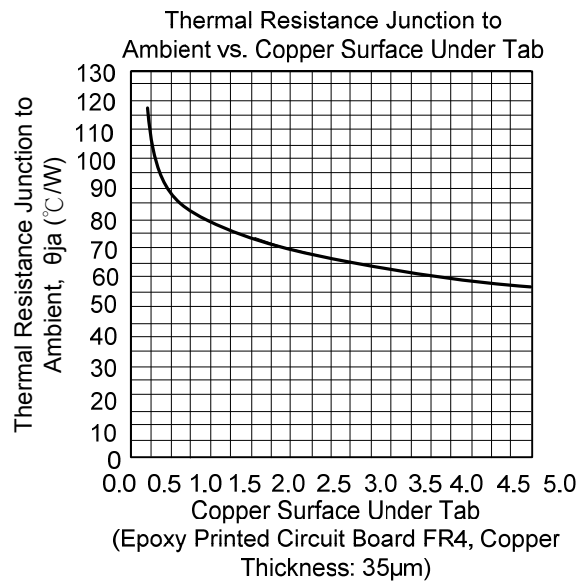
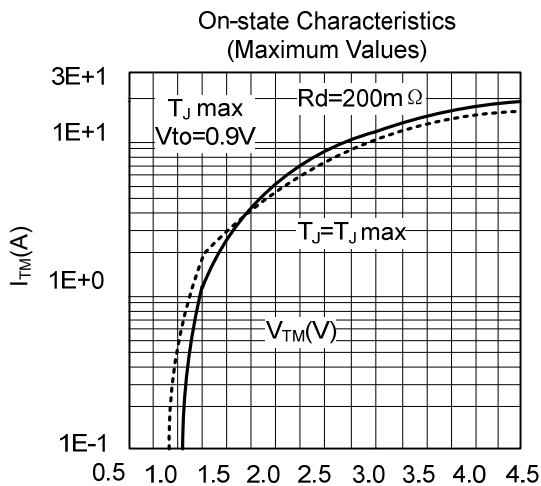
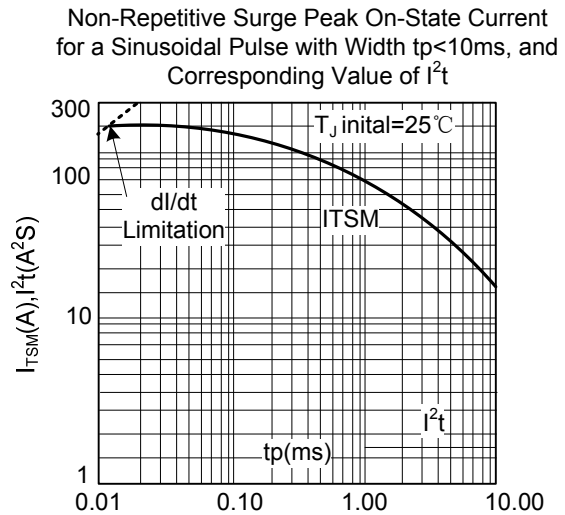
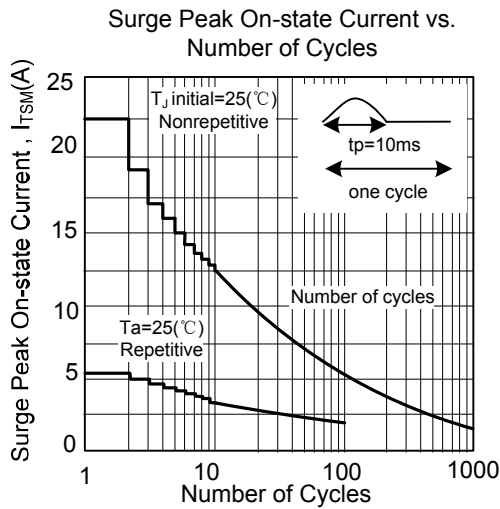
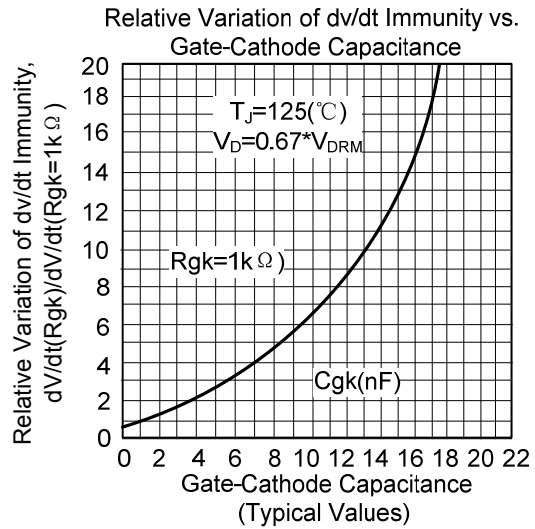
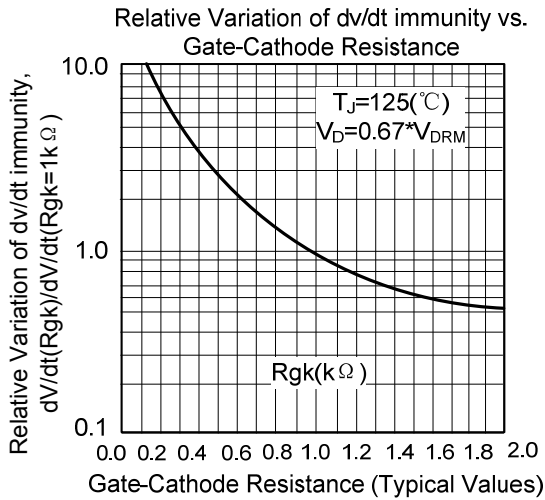
■ TYPICAL CHARACTERISTICS



(Device Mounted On FR4 with Recommended Pad Layout)



■ TYPICAL CHARACTERISTICS(Cont.)



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