



X0202/A

SCR

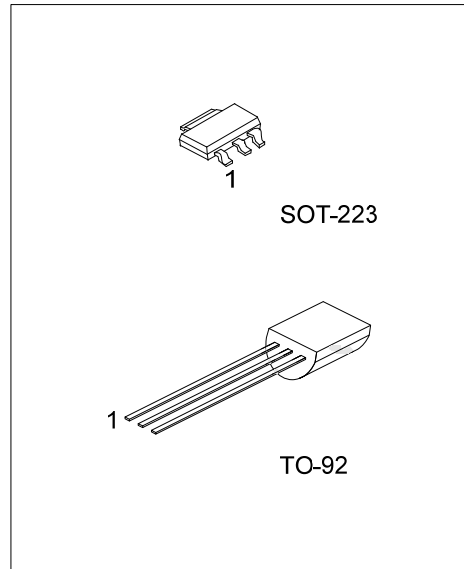
SENSITIVE SCRS

■ **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 (2)Package Type (3)Lead Free</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) AA3: SOT-223, T92: TO-92 (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	A^2S
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

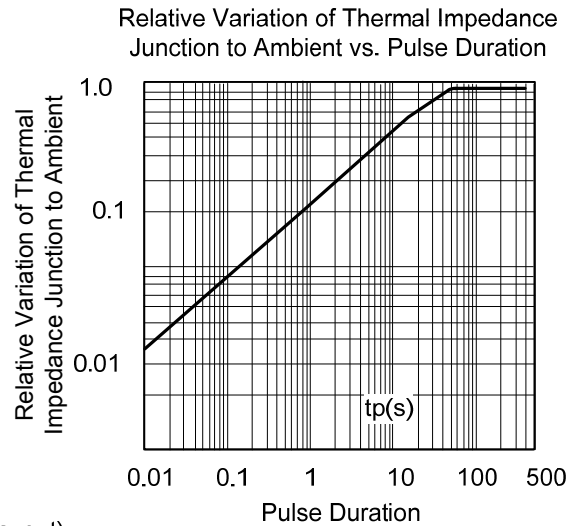
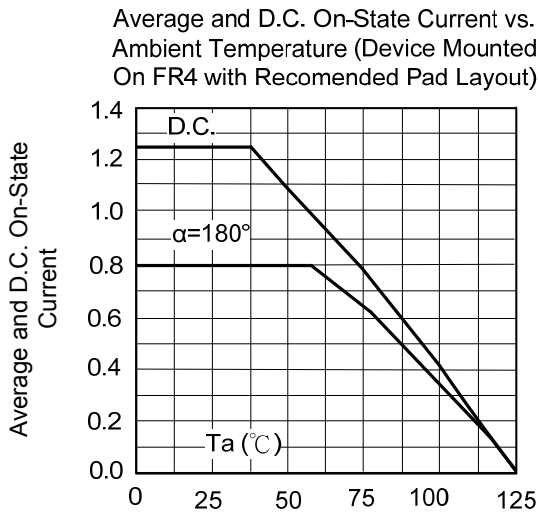
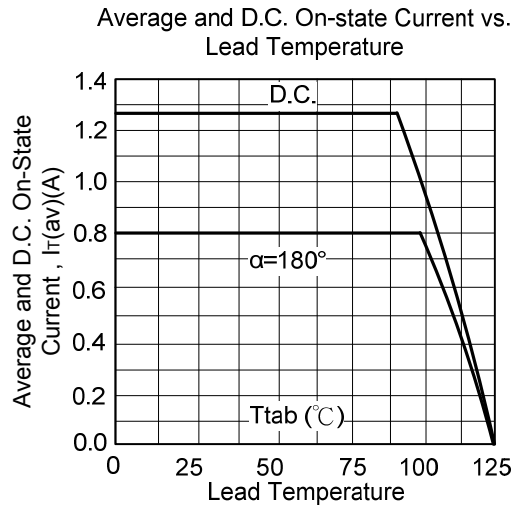
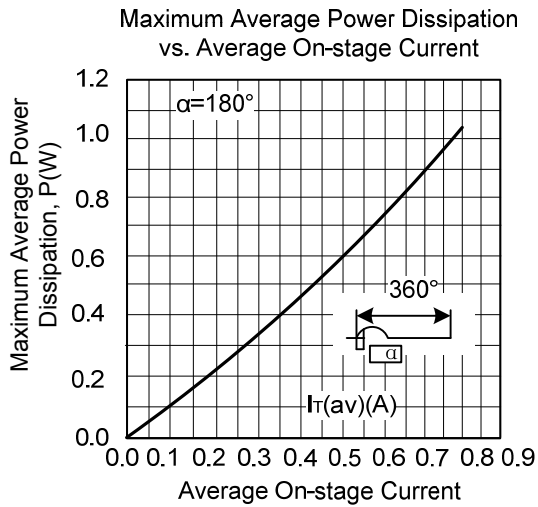
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Tab	SOT-223	θ_{JT}	25	$^\circ\text{C}/\text{W}$
	TO-92		60	$^\circ\text{C}/\text{W}$
Junction to Ambient (S=5cm)	SOT-223	θ_{JA}	60	$^\circ\text{C}/\text{W}$
	TO-92		150	$^\circ\text{C}/\text{W}$

S=Copper surface under tab

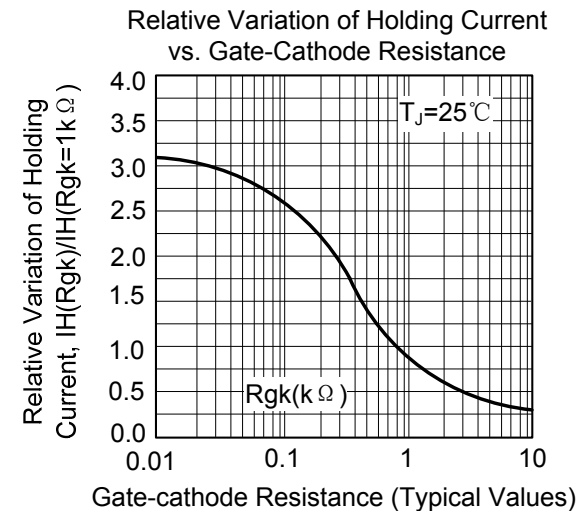
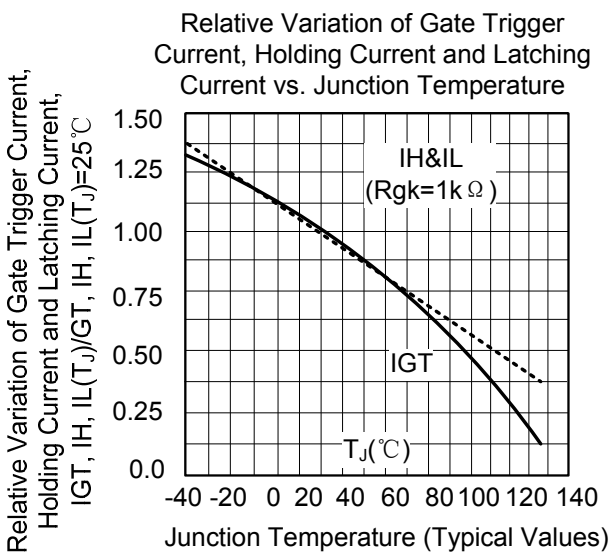
■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, unless otherwise specified)

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	μA
					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	m Ω

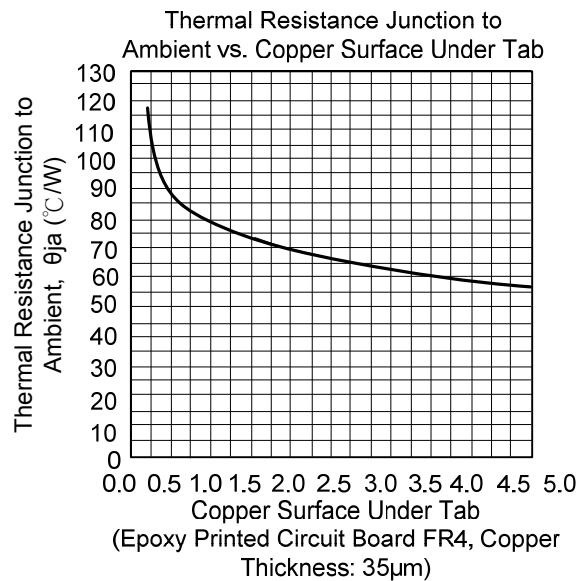
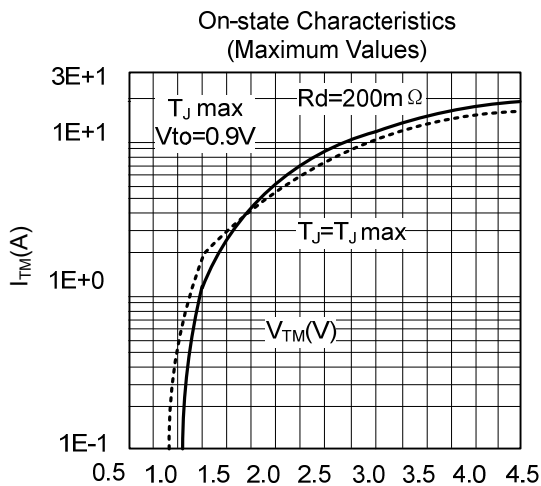
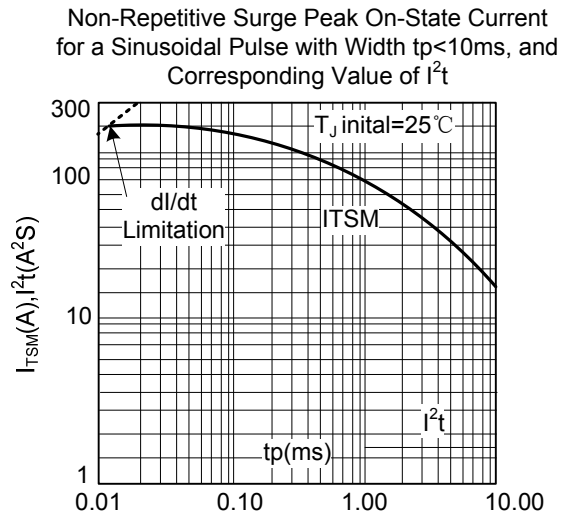
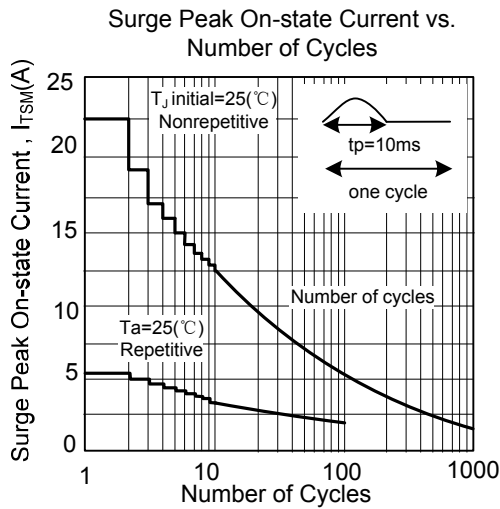
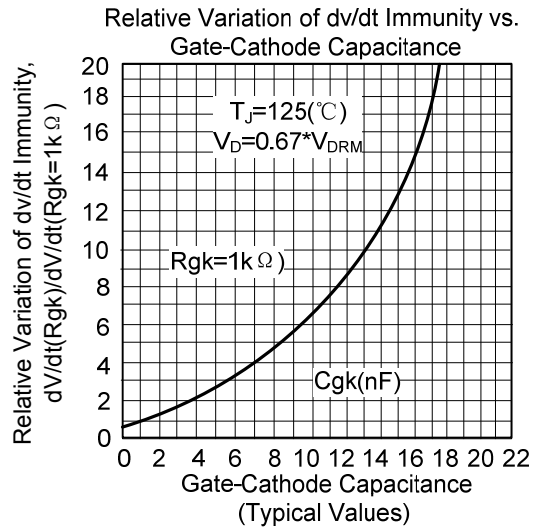
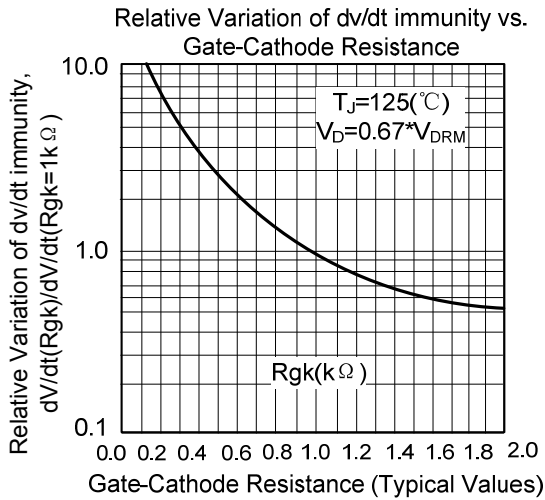
■ TYPICAL CHARACTERISTICS



(Device Mounted On FR4 with Recommended Pad Layout)



■ TYPICAL CHARACTERISTICS(Cont.)



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