



## X0405

Preliminary

SCR

### 4A SCR

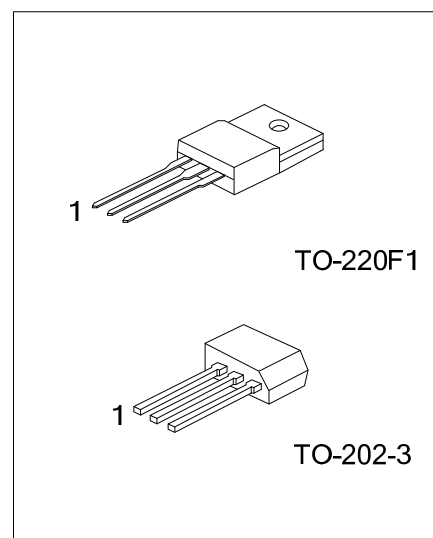
#### DESCRIPTION

The UTC **X0405** is a 4A SCR, it uses UTC's advanced technology to provide customers with highly sensitive triggering levels, etc.

The UTC **X0405** is suitable for all applications, such as motor control in kitchen aids, capacitive discharge ignitions, and overvoltage crowbar protection in low power supplies, etc.

#### FEATURES

\* Highly sensitive triggering levels



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
X0405L-x-TF1-T	X0405G-x-TF1-T	TO-220F1	K	A	G	Tube
X0405L-x-TD3-T	X0405G-x-TD3-T	TO-202-3	K	A	G	Tube

<p>X0405L-x-TF1-T</p> <p>(1)Packing Type (2)Package Type (3)Drain-Source Voltage (4)Lead Plating</p>	<p>(1) T: Tube (2) TF1: TO-220F1, TD3: TO-202-3 (3) 6: 600V, 8: 800V (4) L: Lead Free, G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (limiting values)

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltages	$V_{DRM}/V_{RRM}$	600	V
		800	V
RMS On-State Current (180° Conduction Angle)	$I_{T(RMS)}$	4	A
		1.35	A
Average On-State Current (180° Conduction Angle)	$I_{T(AV)}$	2.5	A
		0.9	A
Non Repetitive Surge Peak On-State Current	$I_{TSM}$	33	A
		30	A
$I^2t$ Value for Fusing	$I^2t$	4.5	A <sup>2</sup> s
Critical Rate of Rise of On-State Current $I_G=2I_{GT}, t_r \leq 100ns$	$di/dt$	50	A/ $\mu$ s
Peak Gate Current	$I_{GM}$	1.2	A
Average Gate Power Dissipation	$P_{G(AV)}$	0.2	W
Storage Junction Temperature	$T_{STG}$	-40~+150	°C
Operating Junction Temperature	$T_J$	-40~+125	°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 RESISTANCES

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (DC)	$\theta_{JA}$	100	°C/W
Junction to Case (DC)	$\theta_{JC}$	15	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	$I_{GT}$	$V_D=12V, R_L=140\Omega$	20		50	$\mu$ A
Gate Trigger Voltage	$V_{GT}$				0.8	V
Gate Non-Trigger Voltage	$V_{GD}$	$V_D=V_{DRM}, R_L=3.3k\Omega, R_{GK}=1k\Omega, T_J=125^\circ\text{C}$	0.1			V
Repetitive Gate Voltage	$V_{RG}$	$I_{RG}=10\mu\text{A}$	8			V
Holding Current	$I_H$	$I_T=50\text{mA}, R_{GK}=1k\Omega$			5	mA
Latching Current	$I_L$	$I_G=1\text{mA}, R_{GK}=1k\Omega$	6			mA
Critical Rate of Rise of Off-State Voltage	$dV/dt$	$V_D=67\%V_{DRM}, R_{GK}=1k\Omega, T_J=110^\circ\text{C}$	15			V/ $\mu$ s
Peak On-State Voltage	$V_{TM}$	$I_{TM}=8A, t_p=380\mu\text{s}, T_J=25^\circ\text{C}$			1.8	V
Threshold Voltage	$V_{TO}$	$T_J=125^\circ\text{C}$			0.95	V
Dynamic Resistance	$R_D$	$T_J=125^\circ\text{C}$			100	m $\Omega$
Repetitive Peak Off-State Current	$I_{DRM}$	$V_{DRM}=V_{RRM}, R_{GK}=1k\Omega, T_J=25^\circ\text{C}$			5	$\mu$ A
	$I_{RRM}$	$V_{DRM}=V_{RRM}, R_{GK}=1k\Omega, T_J=125^\circ\text{C}$			1	mA

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