



X0405

Preliminary

SCR

4A SCR

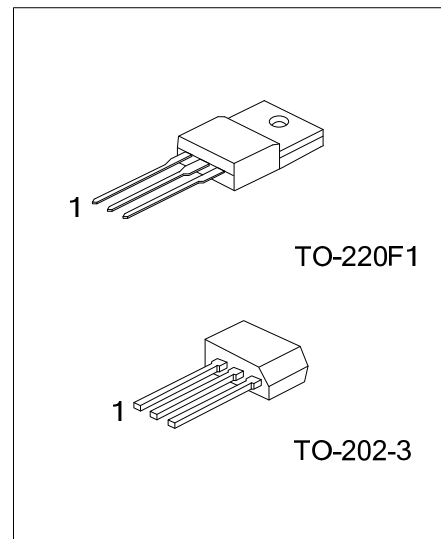
DESCRIPTION

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	X0405-6	600	V
	X0405-8	800	V
RMS On-State Current (180° Conduction Angle)	$T_I=60^{\circ}\text{C}$	4	A
	$T_{AMB}=25^{\circ}\text{C}$	1.35	A
Average On-State Current (180° Conduction Angle)	$T_I=60^{\circ}\text{C}$	2.5	A
	$T_{AMB}=25^{\circ}\text{C}$	0.9	A
Non Repetitive Surge Peak On-State Current	$t_p=8.3\text{ms}, T_J=25^{\circ}\text{C}$	33	A
	$t_p=10\text{ms}, T_J=25^{\circ}\text{C}$	30	A
I^2t Value for Fusing	$t_p=10\text{ms}, T_J=25^{\circ}\text{C}$	4.5	A^2s
Critical Rate of Rise of On-State Current $I_G=2I_{GT}, t_r \leq 100\text{ns}$	$F=60\text{Hz}, T_J=125^{\circ}\text{C}$	50	$\text{A}/\mu\text{s}$
Peak Gate Current	$t_p=20\mu\text{s}, T_J=125^{\circ}\text{C}$	1.2	A
Average Gate Power Dissipation	$T_J=125^{\circ}\text{C}$	0.2	W
Storage Junction Temperature		-40~+150	$^{\circ}\text{C}$
Operating Junction Temperature		-40~+125	$^{\circ}\text{C}$

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 RESISTANCES

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (DC)	θ_{JA}	100	$^{\circ}\text{C}/\text{W}$
Junction to Case (DC)	θ_{JC}	15	$^{\circ}\text{C}/\text{W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	$V_D=12\text{V}, R_L=140\Omega$	20		50	μA
Gate Trigger Voltage	V_{GT}				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
Repetitive Gate Voltage	V_{RG}	$I_{RG}=10\mu\text{A}$	8			V
Holding Current	I_H	$I_T=50\text{mA}, R_{GK}=1\text{k}\Omega$			5	mA
Latching 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	$V_D=67\%V_{DRM}, R_{GK}=1\text{k}\Omega, T_J=110^{\circ}\text{C}$	15			$\text{V}/\mu\text{s}$
Peak On-State Voltage	V_{TM}	$I_{TM}=8\text{A}, t_p=380\mu\text{s}, T_J=25^{\circ}\text{C}$			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	$\text{m}\Omega$
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=V_{RRM}, R_{GK}=1\text{k}\Omega, T_J=25^{\circ}\text{C}$			5	μA
	I_{RRM}	$V_{DRM}=V_{RRM}, R_{GK}=1\text{k}\Omega, T_J=125^{\circ}\text{C}$			1	mA

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