



US125

Advance

SCR

SCRS

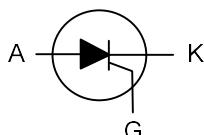
DESCRIPTION

The UTC **US125** is a planar passivated silicon controlled rectifier (SCR) capable of withstanding high-current surge loads. It features a high dV/dt rate and strong electromagnetic interference immunity, making it suitable for applications requiring extremely high surge current capability, high thermal cycling performance, and high junction temperature capability ($T_{J_MAX} = 150\text{ }^{\circ}\text{C}$).

FEATURES

* Green Product

SYMBOL



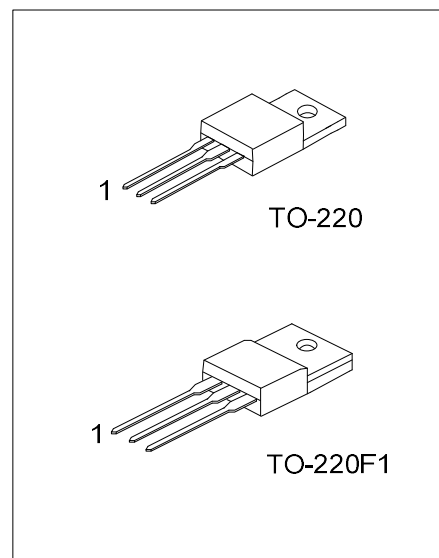
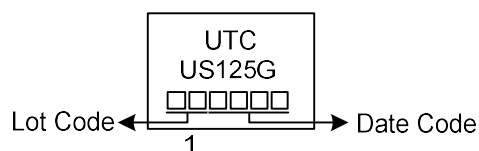
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
US125G-TA3-T	TO-220	K	A	G	Tube
US125G-TF1-T	TO-220F1	K	A	G	Tube

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

US125G-TF1-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TA3: TO-220, TF1: TO-220F1
	(3)Green Package	(3) G: Halogen Free and Lead Free

MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltages (Note 2)		V_{DRM}, V_{RRM}	800	V
Peak Reverse Gate Voltage		V_{RGM}	5	V
Peak Gate Current ($t_p=20\mu s$, $T_J=125^{\circ}C$)		I_{GM}	5	A
RMS On-State Current (180° Conduction Angles) $T_C=95^{\circ}C$		$I_{T(RMS)}$	25	A
Average On-State Current (180° Conduction Angles) $T_C=95^{\circ}C$		$I_{T(AV)}$	16	A
Non-Repetitive Peak On-State Current (Half Sine Wave, $T_J=25^{\circ}C$ Prior to Surge)	$t_p=10ms$	I_{TSM}	260	A
	$t_p=8.3ms$		290	A
Repetitive Rate of Rise of On-State Current After Triggering ($F=60Hz$, $T_J=125^{\circ}C$)		dI_T/dt	200	A/ μs
Average Gate Power Dissipation ($T_J=125^{\circ}C$)		$P_{G(AV)}$	0.5	W
Junction Temperature		T_J	-40 ~ +125	$^{\circ}C$
Storage Temperature		T_{STG}	-40 ~ +150	$^{\circ}C$

Notes: 1. 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.

2. Although not recommended, off-state voltages up to 800V may be applied without damage, but the thyristor may switch to the on-state. The rate of rise of current should not exceed 15 A/ μs .

■ THERMAL DATA

PARAMETER		SYMBOL	RATING	UNIT
Junction to Ambient		θ_{JA}	60	°C/W
Junction to Case	TO-220	θ_{JC}	1	°C/W
	TO-220F1	θ_{JC}	5.5	°C/W

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

PARAMETER	SYMBOL	TSET CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate Trigger Current	I_{GT}	$V_D=12V$, $I_T=0.1A$			10	mA
Latching Current	I_L	$V_D=1.2 \times I_{GT}$			80	mA
Holding Current	I_H	$I_T=500mA$			60	mA
Gate Trigger Voltage	V_{GT}	$V_D=12V$, $I_T=0.1A$			1	V
Off-State Leakage Current	I_{DRM}, I_{RRM}	$V_D=Rated V_{DRM} \text{ and } V_{RRM}$	$T_J=25^\circ C$		10	μA
			$T_J=125^\circ C$		2	mA
On-State Voltage	V_{TM}	$I_{TM}=50A$	$T_J=25^\circ C$		1.5	V
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of Off-State Voltage	dv_d/dt	$V_{DM}=67\% V_{DRM(MAX)}$, $T_J=125^\circ C$, exponential waveform, $R_{GK}=1k\Omega$	500			V/ μs

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