



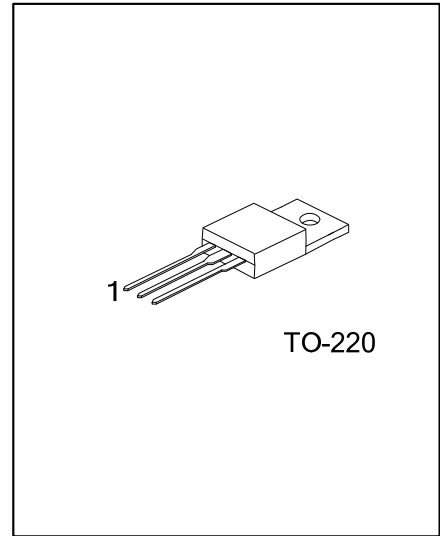
US104S/N

SCR

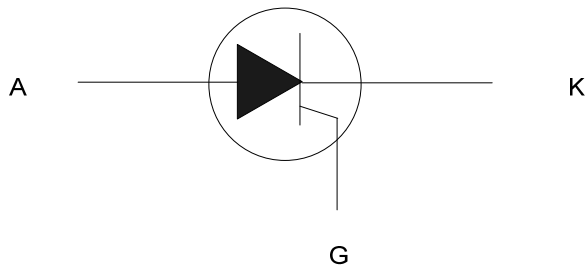
SCRS

DESCRIPTION

Thanks to highly sensitive triggering levels, the UTC **US104S** is suitable for all applications where the available gate current is limited, such as motor control for hand tools, kitchen aids, overvoltage crowbar protection for low power supplies, Available in through-hole or surface-mount packages, they provide an optimized performance in a limited space area.



SYMBOL



ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
US104SL-4-TA3-T	US104SG-4-TA3-T	TO-220	K	A	G	Tube
US104SL-6-TA3-T	US104SG-6-TA3-T	TO-220	K	A	G	Tube
US104SL-8-TA3-T	US104SG-8-TA3-T	TO-220	K	A	G	Tube
US104NL-4-TA3-T	US104NG-4-TA3-T	TO-220	K	A	G	Tube
US104NL-6-TA3-T	US104NG-6-TA3-T	TO-220	K	A	G	Tube
US104NL-8-TA3-T	US104NG-8-TA3-T	TO-220	K	A	G	Tube

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

<p>US104SL-4-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT	
Repetitive Peak Off-State Voltages And Repetitive Peak Reverse Voltage	US104S/N-4 US104S/N-6 US104S/N-8	V _{DRM} , V _{RRM}	400	V
			600	
			800	
RMS On-State Current (180° Conduction Angle) (T _C = 115°C)	I _{T(RMS)}	4	A	
Average On-State Current (180° Conduction Angle) (T _C = 115°C)	I _{T(AV)}	2.5	A	
Non Repetitive Surge Peak On-State Current (T _J = 25°C)	I _{TSM}	t _p =8.3ms	33	A
		t _p =10ms	30	
I ² t Value For Fusing (t _p = 10 ms, T _J = 25°C)	I ² t	4.5	A ² S	
Critical Rate Of Rise Of On-State Current (I _G = 2 x I _{GT} , tr ≤ 100 ns, F = 60 Hz, T _J = 125°C)	di/dt	50	A/μs	
Peak Gate Current (t _p =20μs, T _J = 125°C)	I _{GM}	1.2	A	
Average Gate Power Dissipation (T _J = 125°C)	PG _(AV)	0.2	W	
Storage Temperature	T _{STG}	-40 ~ +150	°C	
Junction Temperature	T _J	-40 ~ +125	°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. The device is guaranteed to meet performance specification within 0°C~70°C operating temperature range and assured by design from -20°C~85°C.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ _{JA}	60	K/W
Junction to Ambient	θ _{JC}	3.0	K/W

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I _{GT}	V _D = 12 V, R _L = 33Ω			200	μA
Gate Trigger Voltage	V _{GT}	V _D = 12 V, R _L = 33Ω			0.8	V
Gate Non-Trigger Voltage	V _{GD}	V _D = V _{DRM} , R _L = 3.3kΩ R _{GK} = 220 Ω, T _J = 125°C	0.1			V
Reverse Gate Voltage	V _{RG}	I _{RG} = 10 μA	8			V
Holding Current	I _H	I _T = 50mA, R _{GK} = 1kΩ			5	mA
Latching Current	I _L	I _G = 1mA, R _{GK} = 1kΩ			6	mA
Circuit Rate Of Change Of off-State Voltage	dV/dt	V _D = 67% V _{DRM} , R _{GK} = 220Ω, T _J = 125°C	5			V/μs
On-State Voltage	V _{TM}	I _{TM} = 8 A, t _p = 380 μs, T _J = 25°C			1.6	V
Threshold Voltage	V _{th}	T _J = 125°C			0.85	V
Dynamic Resistance	R _d	T _J = 125°C			90	mΩ
Off-State Leakage Current	I _{DRM}	V _{DRM} = V _{RRM} , R _{GK} = 220Ω, T _J = 25°C			5	μA
	I _{RRM}	V _{DRM} = V _{RRM} , R _{GK} = 220Ω, T _J = 125°C			1	mA

■ ELECTRICAL CHARACTERISTICS(Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	$V_D = 12\text{ V}, R_L = 33\Omega$	2		15	mA
Gate Trigger Voltage	V_{GT}	$V_D = 12\text{ V}, R_L = 33\Omega$			1.3	V
Gate Non-Trigger Voltage	V_{GD}	$V_D = V_{DRM}, R_L = 3.3\text{ k}\Omega, T_J = 125^\circ\text{C}$	0.2			V
Holding Current	I_H	$I_T = 100\text{ mA}$ Gate open			30	mA
Latching Current	I_L	$I_G = 1.2 I_{GT}$			60	mA
Circuit Rate Of Change Of off-State Voltage	dV/dt	$V_D = 67\% V_{DRM}$ Gate open, $T_J = 125^\circ\text{C}$	100			V/ μs
On-State Voltage	V_{TM}	$I_{TM} = 8\text{ A}, t_P = 380\ \mu\text{s}, T_J = 25^\circ\text{C}$			1.6	V
Threshold Voltage	V_{t0}	$T_J = 125^\circ\text{C}$			0.85	V
Dynamic Resistance	R_d	$T_J = 125^\circ\text{C}$			62	m Ω
Off-State Leakage Current	I_{DRM}	$V_{DRM} = V_{RRM}, T_J = 25^\circ\text{C}$			5	μA
	I_{RRM}	$V_{DRM} = V_{RRM}, T_J = 125^\circ\text{C}$			2	mA

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