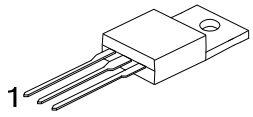
US112S/N

SCRS



TO-220

■ DESCRIPTION

The UTC **US112S/N** is suitable to fit all modes of control found in applications such as overvoltage crowbar protection, motor control circuits in power tools and kitchen aids, in-rush current limiting circuits, capacitive discharge ignition, voltage regulation circuits

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
US112SL-4-TA3-T	US112SG-4-TA3-T	TO-220	K	A	G	Tube
US112SL-6-TA3-T	US112SG-6-TA3-T	TO-220	K	A	G	Tube
US112SL-8-TA3-T	US112SG-8-TA3-T	TO-220	K	A	G	Tube
US112NL-4-TA3-T	US112NG-4-TA3-T	TO-220	K	A	G	Tube
US112NL-6-TA3-T	US112NG-6-TA3-T	TO-220	K	A	G	Tube
US112NL-8-TA3-T	US112NG-8-TA3-T	TO-220	K	A	G	Tube

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

US112SL-4-TA3-T

(1)Packing Type	(1) T: Tube
(2)Package Type	(2) TA3: TO-220
(3)Lead Free	(3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltages	US112S/N-4	V_{DRM} V_{RRM}	400	V
	US112S/N-6		600	
	US112S/N-8		800	
RMS On-State Current (180°Conduction Angle) (T_C = 110℃)		$I_{T(RMS)}$	12	A
Average On-State Current (180°Conduction Angle) (T_C = 110℃)		$I_{T(AV)}$	8	A
Non Repetitive Surge Peak On-State Current (T_J = 25℃)	t_P=8.3ms	I_{TSM}	146	A
	t_P=10ms		140	
I²t Value For Fusing (t_P = 10 ms ,T_J = 25℃)		I²t	98	A²S
Critical Rate Of Rise Of On-State Current (I_G = 2 x I_{GT} , t_R ≤ 100 ns, T_J = 125℃)		dI/dt	50	A/μs
Peak Gate Current (t_P=20μs, F = 60 Hz, T_J =125℃)		I_{GM}	4	A
Peak Reverse Gate Voltage	US112N	V_{RGM}	5	V
Average Gate Power Dissipation (T_J= 125℃)		$P_{G(AV)}$	1	W
Storage Temperature		T_{STG}	-40 ~ +150	℃
Junction Temperature		T_J	+125	℃

Note 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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	60	K/W
Junction to Case	θ_{JC}	1.3	K/W

■ ELECTRICAL CHARACTERISTICS (T_J=25℃unless otherwise specified)

US112S(SENSITIVE)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	V_D = 12V, R_L =140Ω			200	μA
Gate Trigger Voltage	V_{GT}	V_D = 12V, R_L=140Ω			0.8	V
Gate Non-Trigger Voltage	V_{GD}	V_D = V_{DRM}, R_L = 3.3kΩ, R_{GK} = 1KΩ, T_J = 125℃	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	5			V/μs
On-State Voltage	V_{TM}	I_{TM} =24A, t_P = 380 μs			1.6	V
Threshold Voltage	V_{T0}	T_J = 125℃			0.85	V
Dynamic Resistance	R_D	T_J = 125℃			30	mΩ
Off-State Leakage Current	I_{DRM}	V_{DRM} = V_{RRM}, R_{GK}=220Ω			5	μA
	I_{RRM}	V_{DRM} = V_{RRM}, R_{GK}=220Ω, T_J= 125℃			2	mA

■ ELECTRICAL CHARACTERISTICS(Cont.)

US112N(SENSITIVE)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	V_D = 12 V, R_L =33Ω	2		15	mA
Gate Trigger Voltage	V_{GT}	V_D = 12 V, R_L=33Ω			1.3	V
Gate Non-Trigger Voltage	V_{GD}	V_D =V_{DRM}, R_L = 3.3kΩ, T_J=125℃	0.2			V
Holding Current	I_H	I_T = 500mA 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℃	200			V/μs
On-State Voltage	V_{TM}	I_{TM} =24 A, t_P = 380 μs			1.6	V
Threshold Voltage	V_{T0}	T_J = 125℃			0.85	V
Dynamic Resistance	R_D	T_J = 125℃			30	mΩ
Off-State Leakage Current	I_{DRM}	V_{DRM} = V_{RRM}			5	μA
	I_{RRM}	V_{DRM} = V_{RRM}, T_J = 125℃			2	mA