



US108S/N

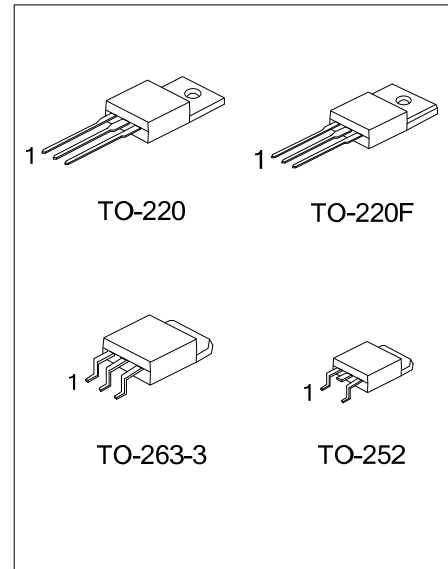
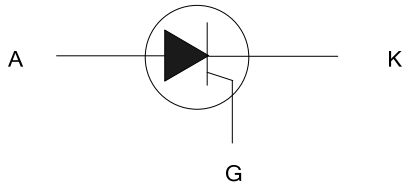
SCR

SCRS

■ **DESCRIPTION**

The UTC **US108S/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, inrush current limiting circuits, capacitive discharge ignition and voltage regulation circuits.

■ **SYMBOL**



■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
US108SL-x-TA3-T	US108SG-x-TA3-T	TO-220	K	A	G	Tube
US108SL-x-TF3-T	US108SG-x-TF3-T	TO-220F	K	A	G	Tube
US108SL-x-TN3-R	US108SG-x-TN3-R	TO-252	K	A	G	Tape Reel
US108SL-x-TQ3-T	US108SG-x-TQ3-T	TO-263-3	K	A	G	Tube
US108SL-x-TQ3-R	US108SG-x-TQ3-R	TO-263-3	K	A	G	Tape Reel
US108NL-x-TA3-T	US108NG-x-TA3-T	TO-220	K	A	G	Tube
US108NL-x-TF3-T	US108NG-x-TF3-T	TO-220F	K	A	G	Tube
US108NL-x-TN3-R	US108NG-x-TN3-R	TO-252	K	A	G	Tape Reel
US108NL-x-TQ3-T	US108NG-x-TQ3-T	TO-263-3	K	A	G	Tube
US108NL-x-TQ3-R	US108NG-x-TQ3-R	TO-263-3	K	A	G	Tape Reel

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

<p>US108SG-x-TA3-T</p>	<p>(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF3: TO-220F, TN3: TO-252, TQ3: TO-263-3 (3) 4: 400V, 6: 600V, 8: 800V (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ **MARKING INFORMATION**

US108S	US108N

■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltages	US108S/N-4	V_{DRM}	400	V
	US108S/N-6		600	
	US108S/N-8	V_{RRM}	800	
RMS On-State Current (180° Conduction Angle) ($T_C = 110^\circ\text{C}$)		$I_{T(RMS)}$	8	A
Average On-State Current (180° Conduction Angle) ($T_C = 110^\circ\text{C}$)		$I_{T(AV)}$	5	A
Non Repetitive Surge Peak On-State Current ($T_J = 25^\circ\text{C}$)	$t_p = 8.3\text{ms}$	US108S	73	A
		US108N	73	
	$t_p = 10\text{ms}$	US108S	70	
		US108N	70	
I ² t Value For Fusing ($t_p = 10\text{ms}$, $T_J = 25^\circ\text{C}$)		I ² t	24.5	A ² S
			US108N	
Critical Rate Of Rise Of On-State Current ($I_G = 2 \times I_{GT}$, $t_R \leq 100\text{ns}$, $T_J = 125^\circ\text{C}$, $F = 60\text{Hz}$)		di/dt	50	A/ μs
Peak Gate Current ($t_p = 20\mu\text{s}$, $T_J = 125^\circ\text{C}$)		I_{GM}	4	A
Peak Reverse Gate Voltage		US108N V_{RGM}	5	V
Average Gate Power Dissipation ($T_J = 125^\circ\text{C}$)		$P_{G(AV)}$	1	W
Junction Temperature		T_J	-40 ~ +125	$^\circ\text{C}$
Storage Temperature		T_{STG}	-40 ~ +150	$^\circ\text{C}$

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 DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-220F	θ_{JA}	60	K/W
	TO-263-3			
	TO-252		110	
Junction to Case	TO-220/TO-263-3	θ_{JC}	2.0	K/W
	TO-252		4.0	

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

US108S(SENSITIVE)

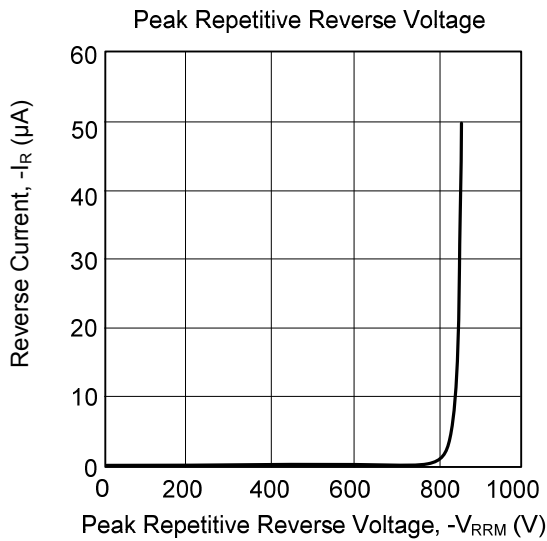
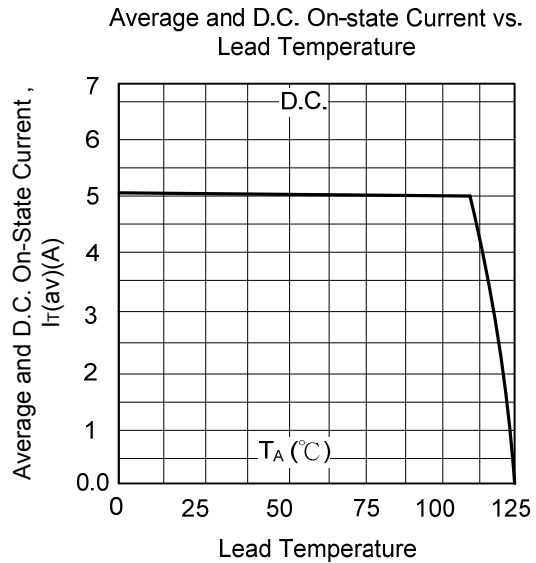
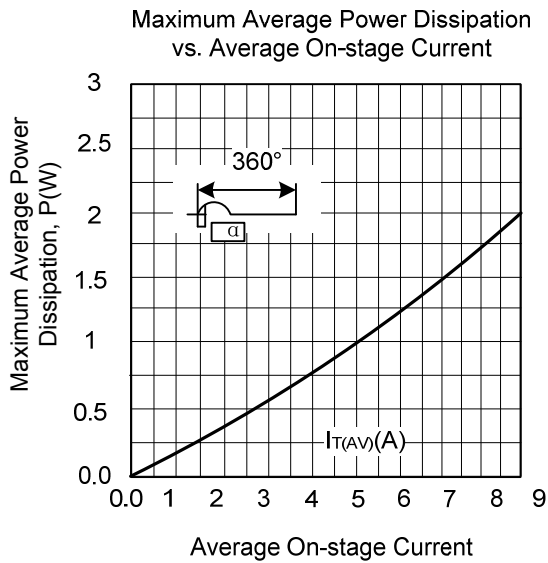
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	$V_D = 12\text{V}$, $R_L = 140\Omega$			200	μA
Gate Trigger Voltage	V_{GT}	$V_D = 12\text{V}$, $R_L = 140\Omega$			0.8	V
Gate Non-Trigger Voltage	V_{GD}	$V_D = V_{DRM}$, $R_L = 3.3\text{k}\Omega$ $R_{GK} = 220\Omega$, $T_J = 125^\circ\text{C}$	0.1			V
Reverse 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
Circuit Rate Of Change Of off-State Voltage	dV/dt	$V_D = 65\% V_{DRM}$, $R_{GK} = 220\Omega$	5			V/ μs
On-State Voltage	V_{TM}	$I_{TM} = 16\text{A}$, $t_p = 380\mu\text{s}$			1.6	V
Threshold Voltage	V_{T0}	$T_J = 125^\circ\text{C}$			0.85	V
Dynamic Resistance	R_D	$T_J = 125^\circ\text{C}$			46	m Ω
Off-State Leakage Current	I_{DRM}	$V_{DRM} = V_{RRM}$, $R_{GK} = 220\Omega$			5	μA
	I_{RRM}	$V_{DRM} = V_{RRM}$, $R_{GK} = 220\Omega$			1	mA

■ ELECTRICAL CHARACTERISTICS(Cont.)

US108N(SENSITIVE)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	$V_D = 12V, R_L = 33\Omega$	2		15	mA
Gate Trigger Voltage	V_{GT}	$V_D = 12V, R_L = 33\Omega$			1.3	V
Gate Non-Trigger Voltage	V_{GD}	$V_D = V_{DRM}, R_L = 3.3 k\Omega$	0.2			V
Holding Current	I_H	$I_T = 100mA$ Gate open			30	mA
Latching Current	I_L	$I_G = 1.2 I_{GT}$			70	mA
Circuit Rate Of Change Of off-State Voltage	dV/dt	$V_D = 67 \% V_{DRM}$ Gate open	150			V/ μ s
On-State Voltage	V_{TM}	$I_{TM} = 16 A, t_p = 380 \mu s$			1.6	V
Threshold Voltage	V_{t0}	$T_J = 125^\circ C$			0.85	V
Dynamic Resistance	R_D	$T_J = 125^\circ C$			16	m Ω
Off-State Leakage Current	I_{DRM}	$V_{DRM} = V_{RRM}$			5	μ A
	I_{RRM}	$V_{DRM} = V_{RRM}$			2	mA

■ TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.