

1A, 200V - 600V Surface Mount Ultra Fast Rectifiers

FEATURES

- Ideal for automated placement
- Ultra fast recovery time for high efficiency
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	1	A
V_{RRM}	200-600	V
I_{FSM}	30	A
T_{JMAX}	150	°C
Package	SOD-123W	
Configuration	Single dice	

APPLICATIONS

- For use in high voltage, high frequency power factor corrections, switching mode power supplies, freewheeling diodes and secondary dc to dc rectifications



MECHANICAL DATA

- **Case:** SOD-123W
- Molding compound, UL flammability classification rating 94V-0
- Moisture sensitivity level: level 1, per J-STD-020
- Part No. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- **Terminal:** Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- **Polarity:** Indicated by cathode band
- **Weight:** 16 mg (approximately)



SOD-123W

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	UF1DLW	UF1GLW	UF1JLW	UNIT
Marking code on the device		UDLW	UGLW	UJLW	
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Maximum RMS voltage	V_{RMS}	140	280	420	V
Maximum DC blocking voltage	V_{DC}	200	400	600	V
Maximum average forward rectified current	$I_{F(AV)}$	1			A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30			A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150			°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Lead Thermal Resistance	$R_{\theta JL}$	28	°C/W
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	88	°C/W
Junction to Case Thermal Resistance	$R_{\theta JC}$	38	°C/W

Thermal Performance Note: Units mounted on recommended PCB (5mm x 5mm Cu test board)

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Maximum instantaneous forward voltage (Note 1)	UF1DLW	$I_F = 1\text{A}$	V_F	-	0.95	V
	UF1GLW			-	1.25	
	UF1JLW			-	1.5	
Maximum reverse current @ rated V_R (Note 2)		$T_J = 25^\circ\text{C}$	I_R	-	1	μA
		$T_J = 125^\circ\text{C}$		-	50	μA
Junction capacitance	UF1DLW	1 MHz, $V_R=4.0\text{V}$	C_J	40	-	pF
	UF1GLW			25	-	
	UF1JLW			15	-	
Reverse recovery time	UF1DLW	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$ $I_{RR}=0.25\text{A}$	t_{rr}	-	20	ns
	UF1GLW			-	20	
	UF1JLW			-	25	

Notes:

1. Pulse test with $PW=0.3\text{ ms}$
2. Pulse test with $PW=30\text{ ms}$

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
UF1xLW (Note 1, 2)	H	RV	G	SOD-123W	3,000 / 7" Plastic reel
		RQ			10,000 / 13" Paper reel

Note 1: "x" defines voltage from 200V (UF1DLW) to 600V (UF1JLW)

Note 2: Whole series with green compound (halogen-free)

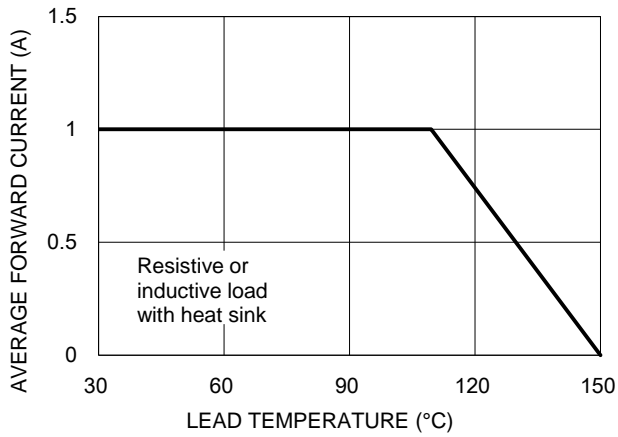
EXAMPLE

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
UF1DLWHRVG	UF1DLW	H	RV	G	AEC-Q101 qualified Green compound

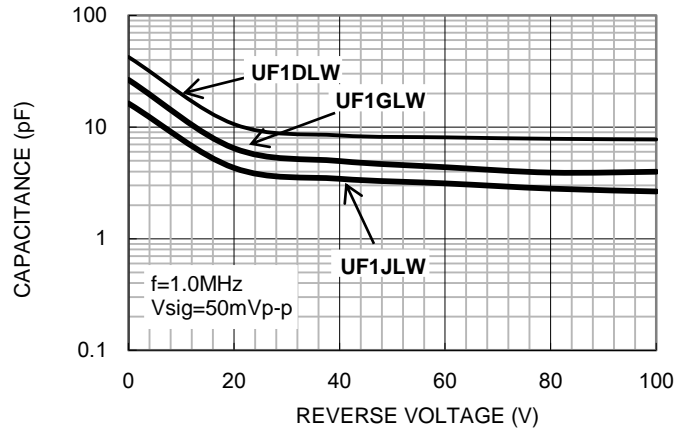
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

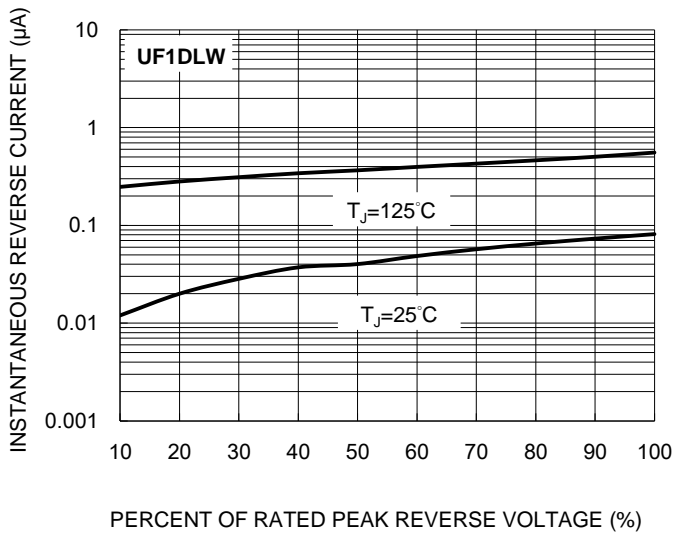
Forward Current Derating Curve



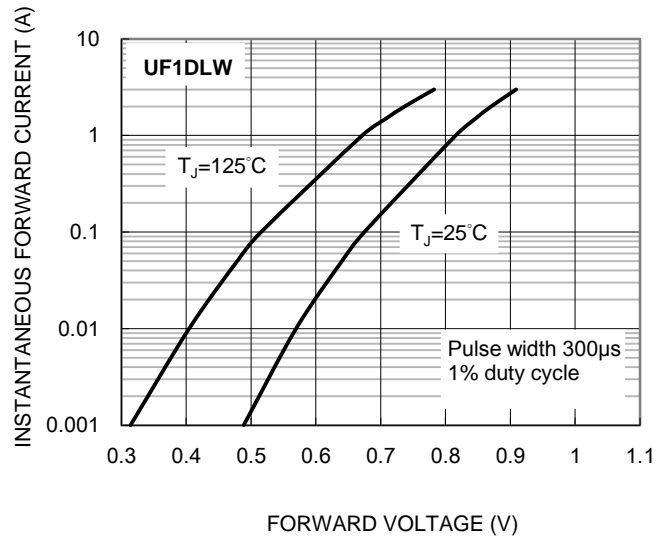
Typical Junction Capacitance



TYPICAL REVERSE CHARACTERISTICS



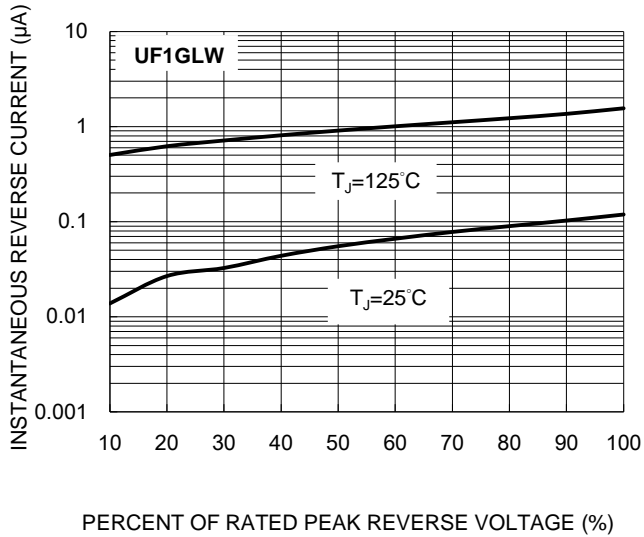
TYPICAL FORWARD CHARACTERISTICS



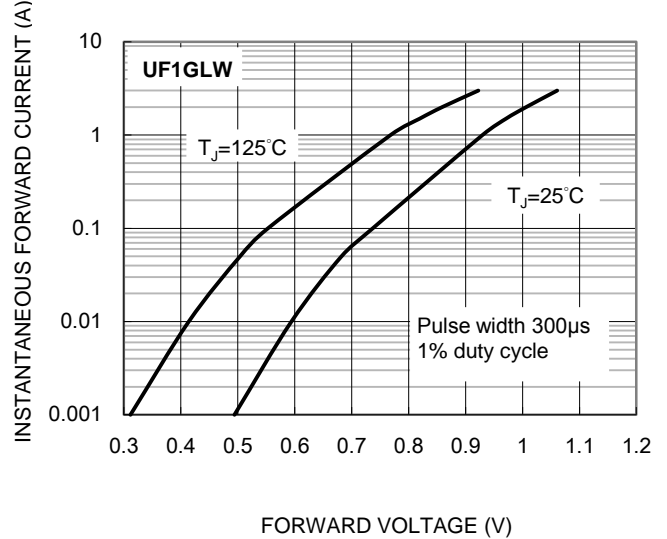
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

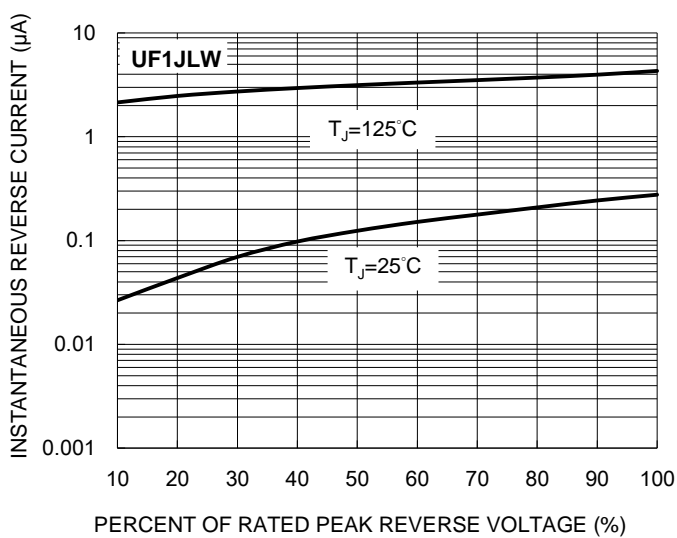
TYPICAL REVERSE CHARACTERISTICS



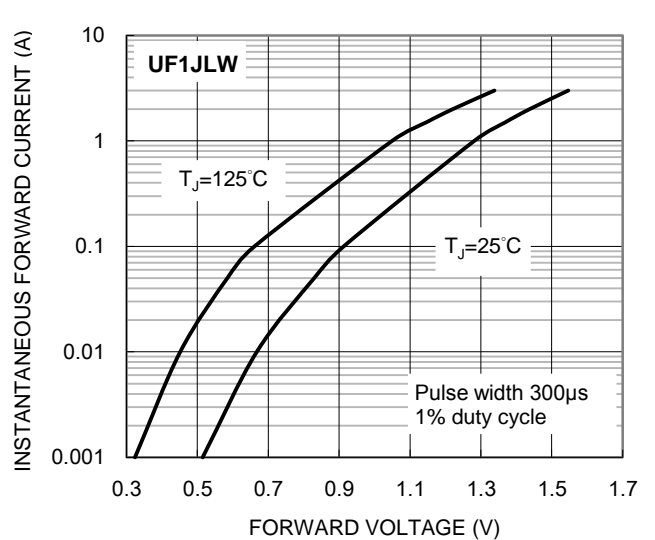
TYPICAL FORWARD CHARACTERISTICS



TYPICAL REVERSE CHARACTERISTICS

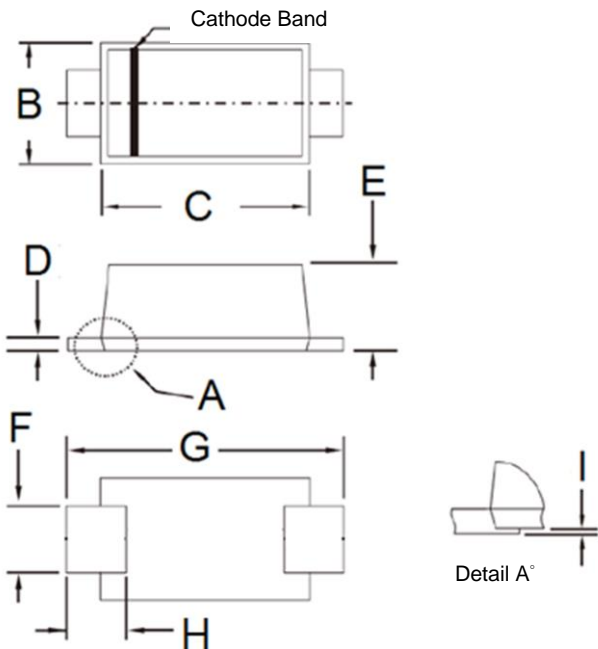


TYPICAL FORWARD CHARACTERISTICS



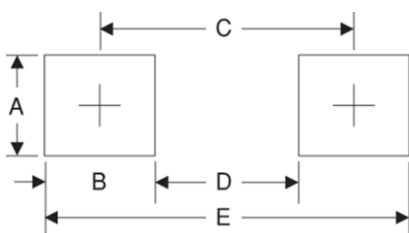
PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

SOD-123W



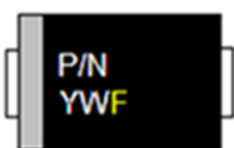
DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
B	1.70	1.90	0.067	0.075
C	2.60	2.90	0.102	0.114
D	0.10	0.22	0.004	0.009
E	0.90	1.02	0.035	0.040
F	0.90	1.05	0.035	0.041
G	3.60	3.80	0.142	0.150
H	0.50	0.85	0.020	0.033
I	0.00	0.10	0.000	0.004

SUGGESTED PAD LAYOUT (Unit: Millimeters)



Symbol	Unit (mm)	Unit (inch)
A	1.4	0.055
B	1.2	0.047
C	3.1	0.122
D	1.9	0.075
E	4.3	0.169

MARKING DIAGRAM



P/N = Marking Code
 YW = Date Code
 F = Factory Code

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.