

US1D–US1G(LS)

SURFACE MOUNT ULTRA FAST RECTIFIER

REVERSE VOLTAGE – 200 to 400 Volts
FORWARD CURRENT – 1.0 Amperes

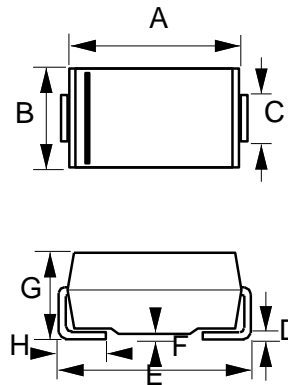
FEATURES

- Glass passivated chip
- Ultra fast switching for high efficiency
- Low forward voltage drop and high current capability
- Low reverse leakage current
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

MECHANICAL DATA

- Package: Molded plastic
- Package Material: "Green" Molding compound, UL flammability classification 94V- 0, "Halogen-free"
- Polarity: Indicated by cathode band
- Weight: 0.002 ounces, 0.069 grams (Approximate)

SMA



SMA		
DIM	MIN	MAX
A	4.06	4.57
B	2.29	2.92
C	1.27	1.63
D	0.15	0.31
E	4.83	5.59
F	0.05	0.20
G	2.01	2.40
H	0.76	1.52

All Dimensions in millimeter

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER		SYMBOL	US1D	US1G	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	200	400	V
Maximum RMS voltage		V_{RMS}	140	280	V
Maximum DC blocking voltage		V_{DC}	200	400	V
Maximum average rectified forward current	@ $T_L=110^\circ\text{C}$	I_F	1.0		A
Peak forward surge current single half sine-wave	@ $t_p=8.3\text{ms}$	I_{FSM}	30		A
Operating and storage temperature range		T_J, T_{STG}	-55 to +150		°C

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	MAX		UNIT
Forward voltage (Note 4)	$I_F=1\text{A}$ $T_J=25^\circ\text{C}$	V_F	1.0	1.3	V
Reverse leakage current at rated DC blocking voltage	$T_J=25^\circ\text{C}$	I_R	5.0		uA
	$T_J=100^\circ\text{C}$		100		
PARAMETER	SYMBOL	VALUE		UNIT	
Typical junction capacitance (Note 5)	C_T	20		pF	

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Typical thermal resistance (Note 6)	R_{thJA}	60	°C/W
	R_{thJL}	22	
	R_{thJC}	18	

DYNAMIC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX	UNIT
Reverse recovery time	$I_F=0.5\text{A}, I_{rr}=0.25\text{A}$ $I_R=1.0\text{A}$	t_{rr}	50 ns

Notes:

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. 300us pulse with, 2% duty cycle.
5. Measured at 1.0MHz and reverse voltage of 4.0V DC.
6. Thermal resistance junction to Ambient, Lead and Case.

RATING AND CHARACTERISTIC CURVES
US1D-US1G

FIG.1- FORWARD CURRENT DERATING CURVE

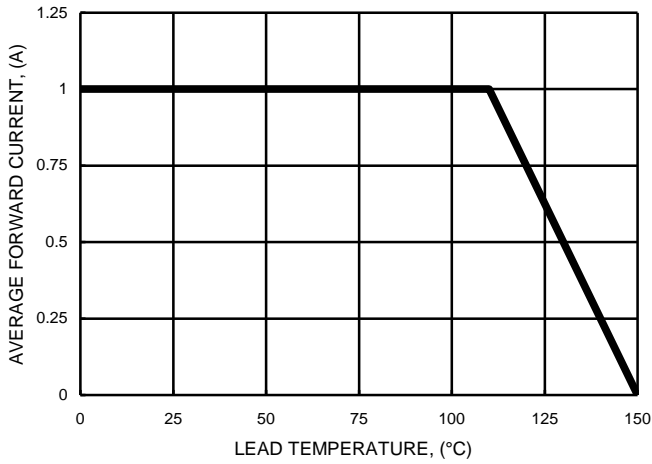


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

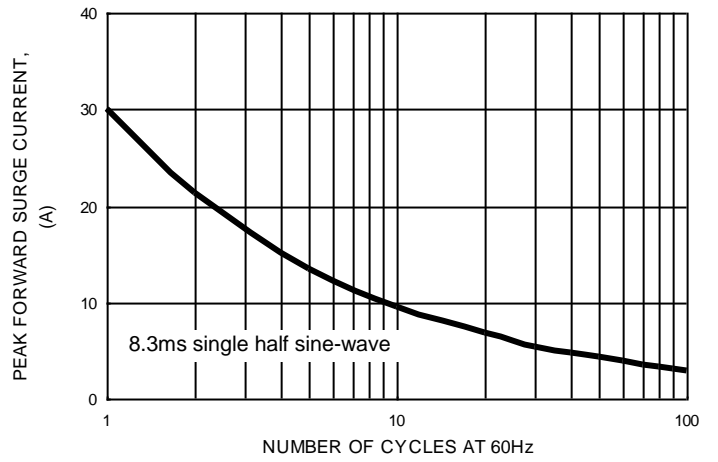


FIG.3- TYPICAL FORWARD CHARACTERISTICS

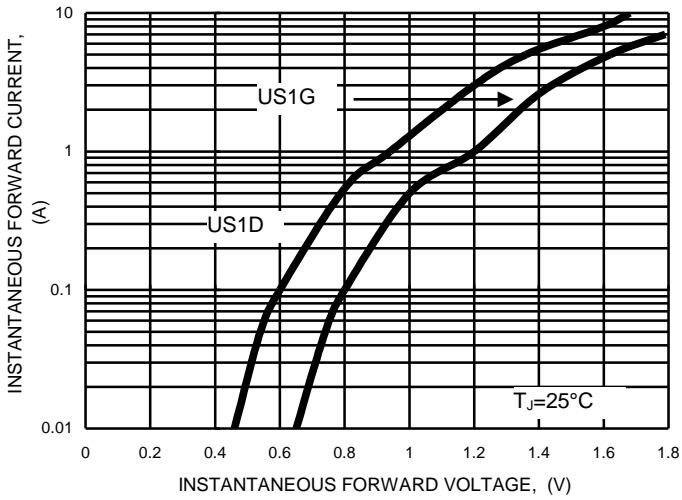


FIG.4- TYPICAL JUNCTION CAPACITANCE

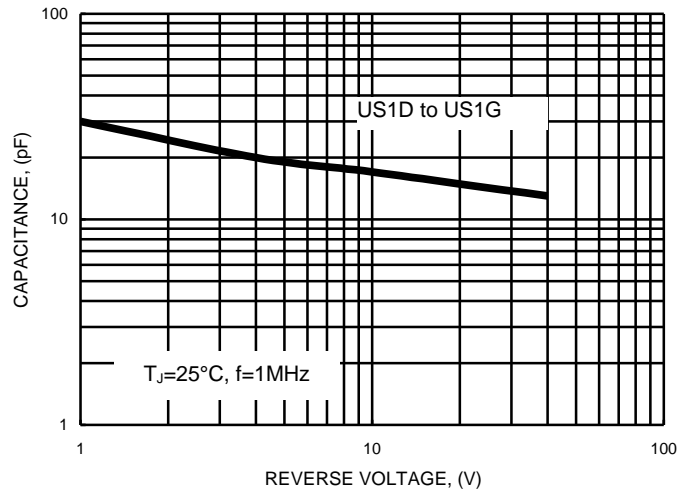
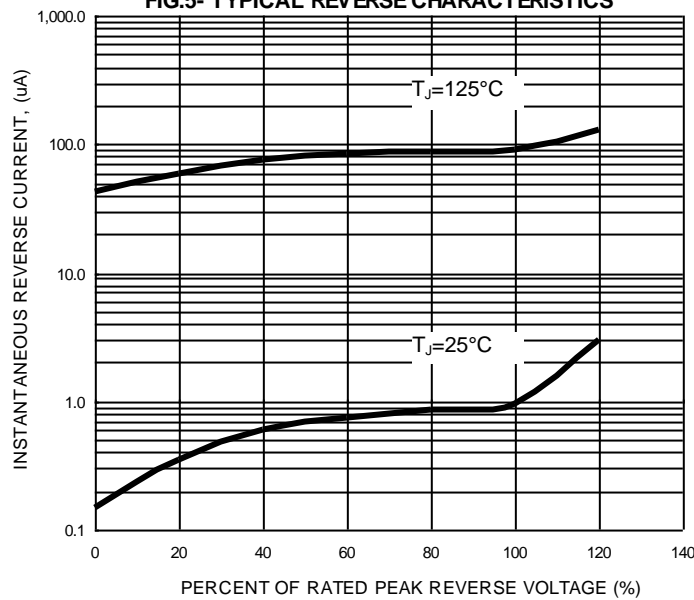


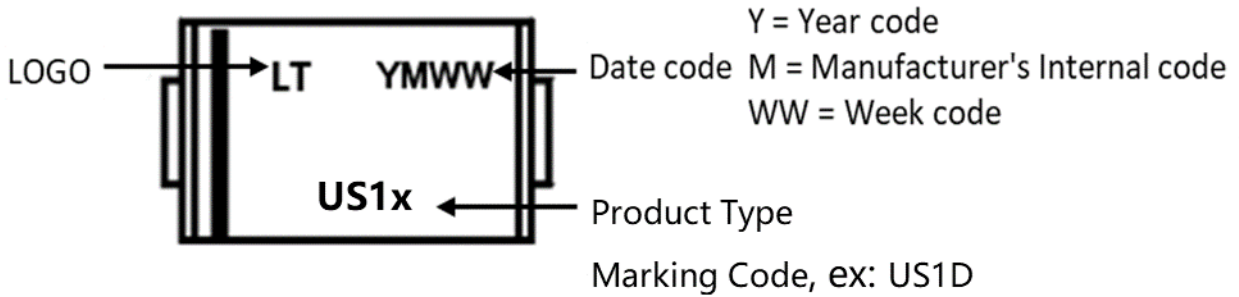
FIG.5- TYPICAL REVERSE CHARACTERISTICS



Ordering Information:

Part Number	Package	Packing	
		Qty.	Carrier
US1D_HF	SMA	5000pcs	Tape & Reel
US1D_HF-07	SMA	1500pcs	Tape & Reel
US1G_HF	SMA	5000pcs	Tape & Reel

Marking Information:



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