

## Features

- Ultra Fast Switching for High Efficiency
- Glass Passivated Junction
- Low Profile Package
- Low Thermal Resistance
- Lead Free Finish/RoHS Compliant (Note 1) ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 2)
- Moisture Sensitivity Level 1

# 1.0 Amp Ultra Fast Rectifier 200 to 1000 Volts



## Maximum Ratings @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Value			Unit
		US1DHL	US1GHL	US1MHL	
Peak Repetitive Reverse Voltage	$V_{RRM}$	200	400	1000	V
Working Peak Reverse Voltage	$V_{RWM}$				
DC Blocking Voltage	$V_R$				
RMS Reverse Voltage	$V_{RMS}$	140	280	700	V
Average Rectified Forward Current @ $T_L=115^\circ\text{C}$	$I_{F(AV)}$	1			A
Non-Repetitive Peak Surge Current @ 8.3ms Half Sine Wave	$I_{FSM}$	30			A
Current Squared Time @ $1\text{ms} \leq t \leq 8.3\text{ms}$	$I^2t$	3.735			$\text{A}^2\text{s}$

## Marking code

Part Number	Marking code
US1DHL	US1D
US1GHL	US1G
US1MHL	US1M

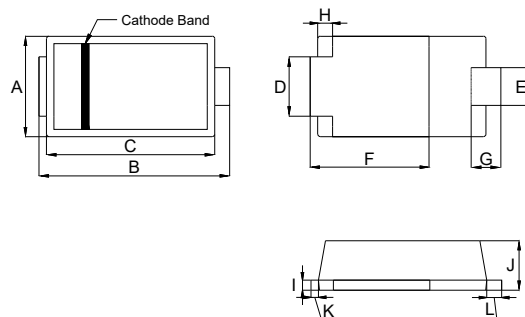
## Internal Structure

Pin	Description	Simplified outline	Graphic symbol
1	Cathode	 XXXX = Marking code	
2	Anode		

Note:

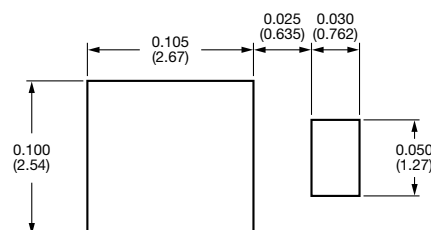
1. High temperature solder exemption applied, see EU directive annex 7a.
2. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## SOD-123HL



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.074	0.086	1.88	2.18	
B	0.146	0.157	3.70	4.00	
C	0.041	0.053	3.19	3.61	
D	0.024	0.036	1.05	1.35	
E	0.087	0.102	0.61	0.91	
F	0.016	0.031	2.20	2.60	
G	0.012	0.000	0.40	0.80	
H	0.012		0.30		REF
I	0.004	0.012	0.10	0.30	
J	0.033	0.045	0.85	1.15	
K	0.000	0.012	0.00	0.30	
L	0.006	0.018	0.15	0.45	

## Suggested Solder Pad Layout



## Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$T_J$	Operating Junction Temperature Range		-55		150	°C
$T_{stg}$	Storage Temperature Range		-55		150	°C
$R_{th(J-L)}$	Thermal Resistance from Junction to Lead	Note 1		20		°C/W
$R_{th(J-A)}$	Thermal Resistance from Junction to Ambient	Note 1		80		°C/W

Note:

1. Mounted on P.C.B. with 5mm\*5mm copper pad areas,  $R_{th(J-L)}$  is measured at the terminal of cathode band.

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage US1DHL US1GHL US1MHL	$V_F$	$I_F=1A; T_J=25^{\circ}C$			1.0 1.3 1.7	V
Reverse Current	$I_R$	at Rated $V_R; T_J=25^{\circ}C$ at Rated $V_R; T_J=125^{\circ}C$			5 100	$\mu A$
Reverse Recovery Time US1DHL~US1GHL US1MHL	$t_{rr}$	$I_F=0.5A; I_R=1.0A;$ $I_{rr}=0.25A; T_J=25^{\circ}C$			50 75	nS
Junction Capacitance US1DHL US1GHL US1MHL	$C_J$	$V_R=4V; f=1MHz; T_J=25^{\circ}C$		18 12 7.5		pF

## Curve Characteristics

Fig. 1 - Forward Current Derating Curve

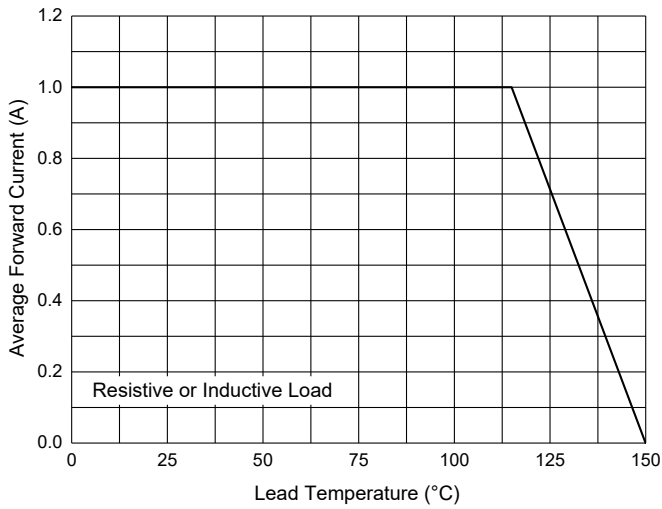


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

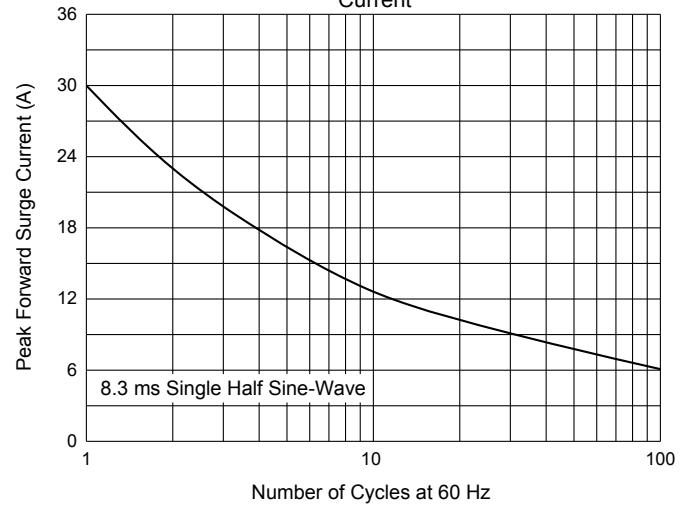


Fig. 3 - Typical Forward Characteristics

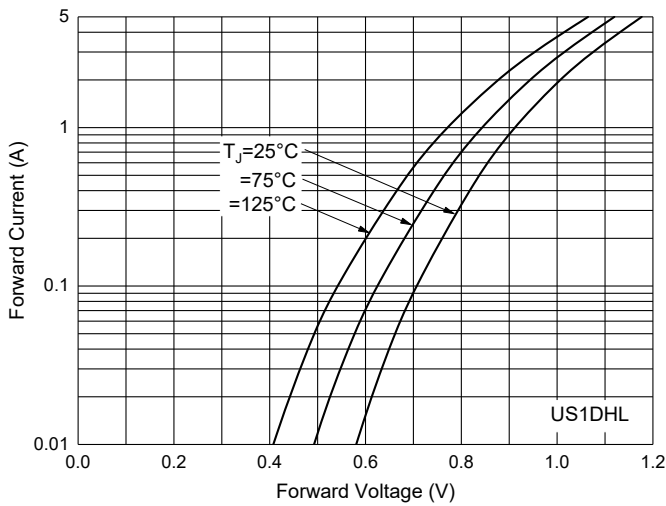


Fig. 4 - Typical Forward Characteristics

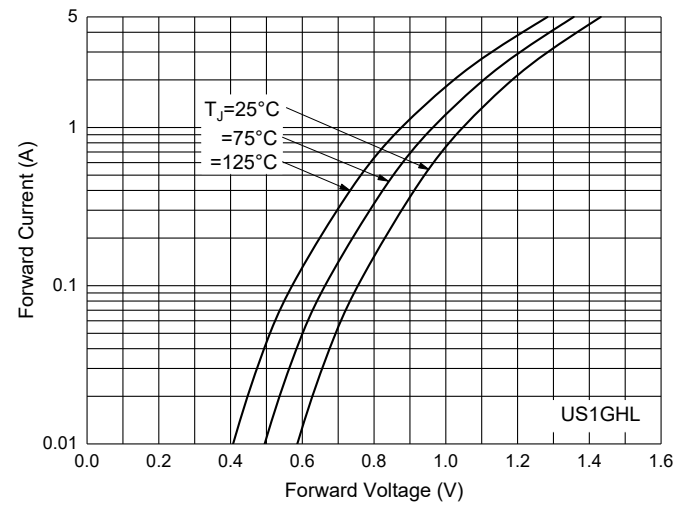


Fig. 5 - Typical Forward Characteristics

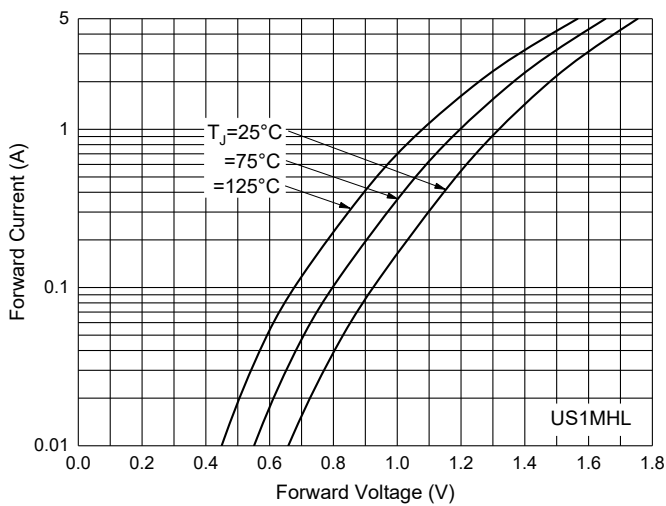
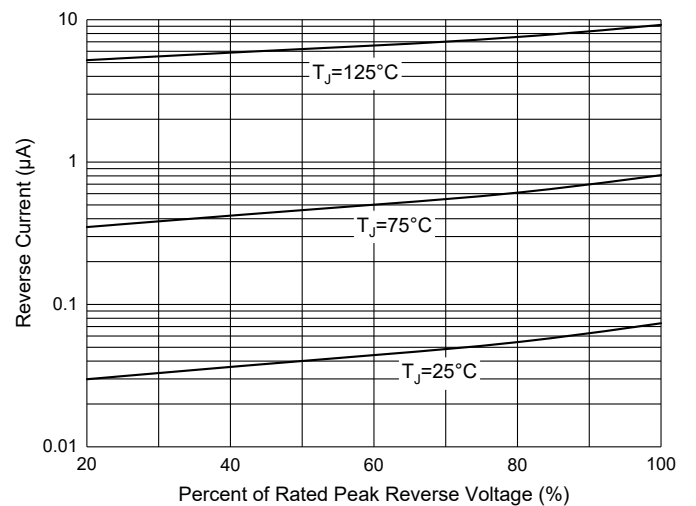
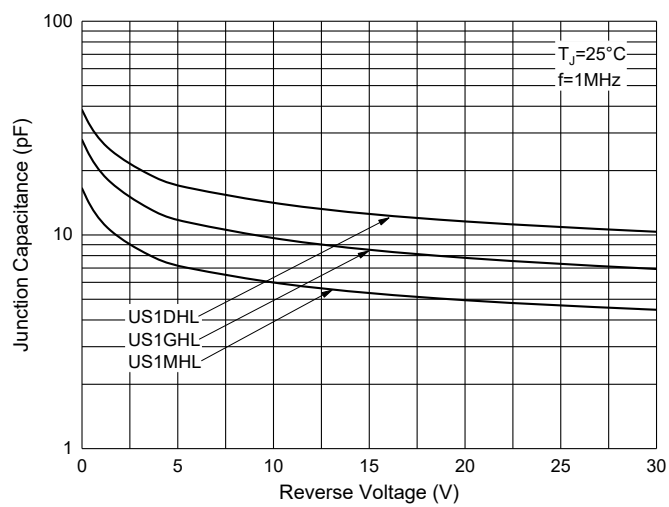


Fig. 6 - Typical Reverse Leakage Characteristics



## Curve Characteristics

Fig. 7 - Typical Capacitance Characteristics



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:2.5Kpcs/Reel

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