



## Schottky Barrier Diode MELF Surface Mount

Qualified per MIL-PRF-19500/444

Qualified Levels:  
JAN, JANTX, and  
JANTXV

### DESCRIPTION

This Schottky barrier diode is metallurgically bonded and offers military grade qualifications for high-reliability applications. This small diode is hermetically sealed and bonded into a DO-213AA glass package. Also included in this datasheet are Microsemi's CDLL numbered variants of this series (military qualification grades not available for the CDLL prefix part numbers).

**Important:** For the latest information, visit our website <http://www.microsemi.com>.

### FEATURES

- Surface mount equivalent of JEDEC registered 1N5711, 1N5712, 1N6857, and 1N6858 numbers.
- Hermetically sealed glass construction.
- Metallurgically bonded.
- Double plug construction.
- JAN, JANTX, JANTXV and commercial qualifications also available per MIL-PRF-19500/444 on "1N" numbers only.  
(See [Part Nomenclature](#) for all available options).
- RoHS compliant versions available (commercial grade only).

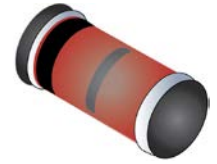
### APPLICATIONS / BENEFITS

- Low reverse leakage characteristics.
- Small size for high density mounting using the surface mount method (see package illustration).
- ESD sensitive to Class 1.

### MAXIMUM RATINGS @ 25 °C unless otherwise stated


Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	$T_J$ and $T_{STG}$	-65 to +150	°C
Thermal Resistance, Junction-to-End Cap	$R_{\theta JEC}$	250	°C/W
Average Rectified Output Current:	$I_O$	5711 & 6263 types <sup>(1)</sup>	mA
		2810, 5712 & 6858 types <sup>(2)</sup>	
		6857 types <sup>(3)</sup>	
Solder Temperature @ 10 s		260	°C


- NOTES:**
1. At  $T_{EC}$  and  $T_{SP} = +140$  °C, derate  $I_O$  to 0 at +150 °C.
  2. At  $T_{EC}$  and  $T_{SP} = +130$  °C, derate  $I_O$  to 0 at +150 °C.
  3. At  $T_{EC}$  and  $T_{SP} = +110$  °C, derate  $I_O$  to 0 at +150 °C.



### DO-213AA (MELF) Package

Also available in:

 **UB package**  
(3-pin surface mount)  
[1N5711UB](#), [1N5712UB](#)  
(B, CC, CA)

 **DO-35 package**  
(axial-leaded)  
[1N5711-1](#), [1N5712-1](#),  
[1N6857-1](#), and [1N6858-1](#)

#### MSC – Lawrence

6 Lake Street,  
Lawrence, MA 01841  
Tel: 1-800-446-1158 or  
(978) 620-2600  
Fax: (978) 689-0803

#### MSC – Ireland

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Website:

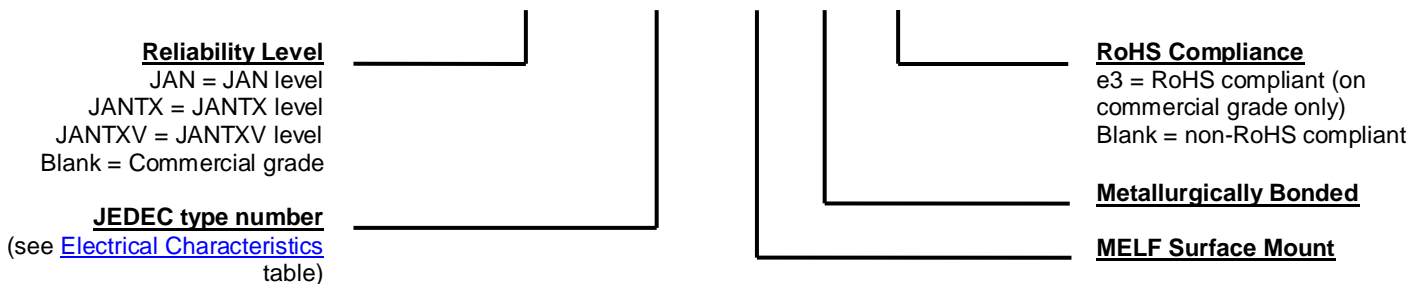
[www.microsemi.com](http://www.microsemi.com)

**MECHANICAL and PACKAGING**

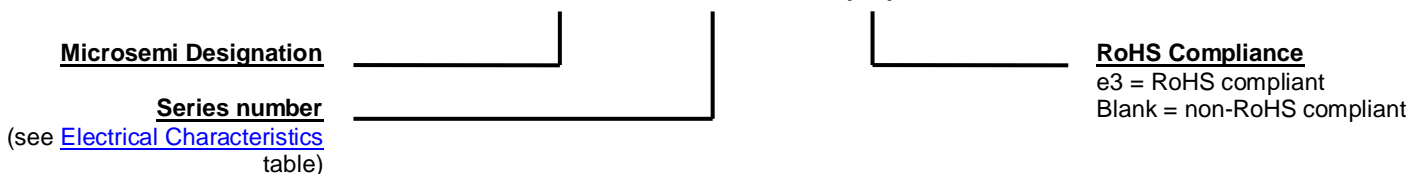
- CASE: Hermetically sealed glass DO-213AA MELF (SOD-80, LL34) case package.
- TERMINALS: Tin/lead plated or RoHS compliant matte-tin (on commercial grade only) over copper clad steel. Solderable per MIL-STD-750, method 2026.
- POLARITY: Cathode end is banded.
- MOUNTING: The axial coefficient of expansion (COE) of this device is approximately +6PPM/°C. The COE of the mounting surface system should be selected to provide a suitable match with this device.
- MARKING: Part number.
- TAPE & REEL option: Standard per EIA-296. Consult factory for quantities.
- WEIGHT: Approximately 0.2 grams.
- See [Package Dimensions](#) on last page.

**PART NOMENCLATURE**

**JAN 1N5711 UR -1 (e3)**



**CDLL 2810 (e3)**


**SYMBOLS & DEFINITIONS**

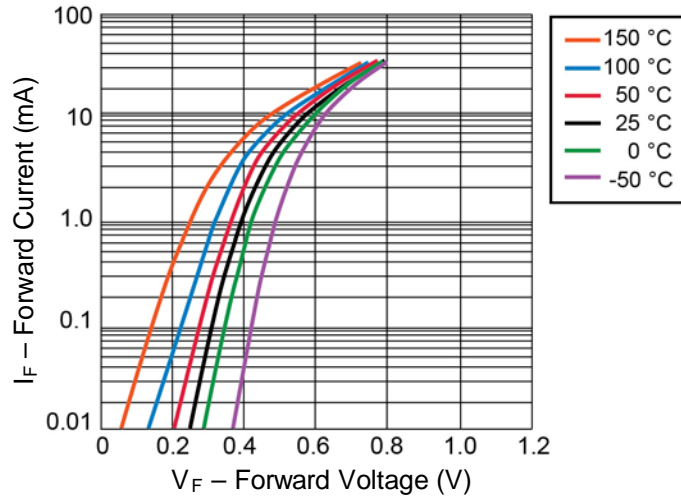
Symbol	Definition
C	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage.
f	frequency
I <sub>R</sub>	Reverse Current: The dc current flowing from the external circuit into the cathode terminal at the specified voltage V <sub>R</sub> .
I <sub>O</sub>	Average Rectified Output Current: The Output Current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.
t <sub>rr</sub>	Reverse Recovery Time: The time interval between the instant the current passes through zero when changing from the forward direction to the reverse direction and a specified decay point after a peak reverse current occurs.
V <sub>(BR)</sub>	Breakdown Voltage: A voltage in the breakdown region.
V <sub>F</sub>	Forward Voltage: A positive dc anode-cathode voltage the device will exhibit at a specified forward current.
V <sub>R</sub>	Reverse Voltage: A positive dc cathode-anode voltage below the breakdown region.
V <sub>RWM</sub>	Working Peak Reverse Voltage: The peak voltage excluding all transient voltages (ref JESD282-B). Also sometimes known historically as PIV.

**ELECTRICAL CHARACTERISTICS @  $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted**

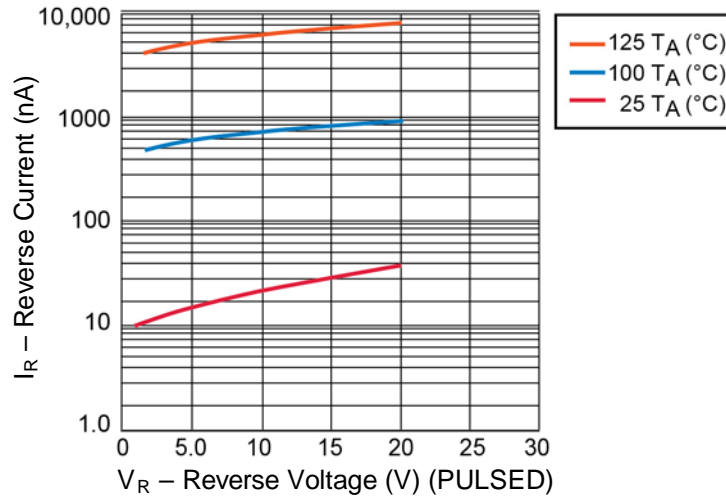
TYPE NUMBER	MINIMUM BREAKDOWN VOLTAGE	MAXIMUM FORWARD VOLTAGE	MAXIMUM FORWARD VOLTAGE	WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE LEAKAGE CURRENT		MAXIMUM CAPACITANCE @ $V_R = 0$ VOLTS $f = 1.0\text{ MHz}$
	$V_{(BR)} @ 10\text{ }\mu\text{A}$	$V_F @ 1\text{ mA}$	$V_F @ I_F$	$V_{RWM}$	$I_R @ V_R$		$C_T$
	Volts	Volts	V @ mA	V (pk)	nA	Volts	pF
1N5711UR-1	70	0.41	1.0 @ 15	50	200	50	2.0
1N5712UR-1	20	0.41	1.0 @ 35	16	150	16	2.0
1N6857UR-1	20	0.35	0.75 @ 35	16	150	16	4.5
1N6858UR-1	70	0.36	0.65 @ 15	50	200	50	4.5
CDLL2810	20	0.41	1.0 @ 35	50	100	15	2.0
CDLL5711	70	0.41	1.0 @ 15	50	200	50	2.0
CDLL5712	20	0.41	1.0 @ 35	16	150	16	2.0
CDLL6263	60	0.41	1.0 @ 15	16	200	50	2.2
CDLL6857	20	0.35	0.75 @ 35	16	150	16	4.5
CDLL6858	70	0.36	0.65 @ 15	50	200	50	4.5

**NOTE:**

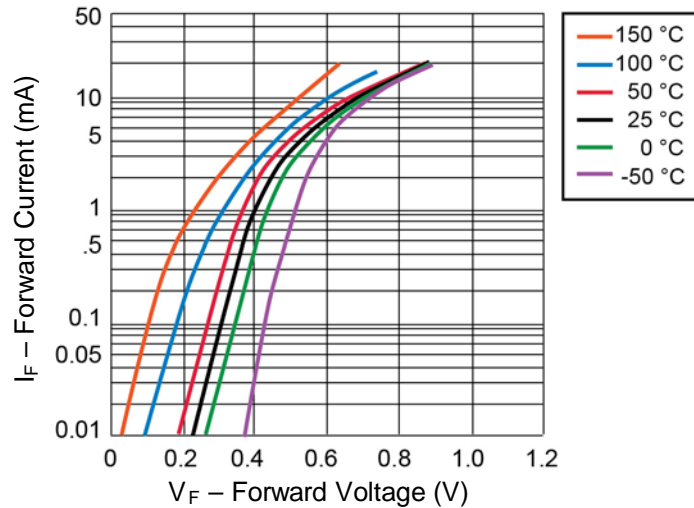
1. Effective minority carrier lifetime ( $\tau$ ) is 100 pico seconds.

**GRAPHS**

**FIGURE 1**

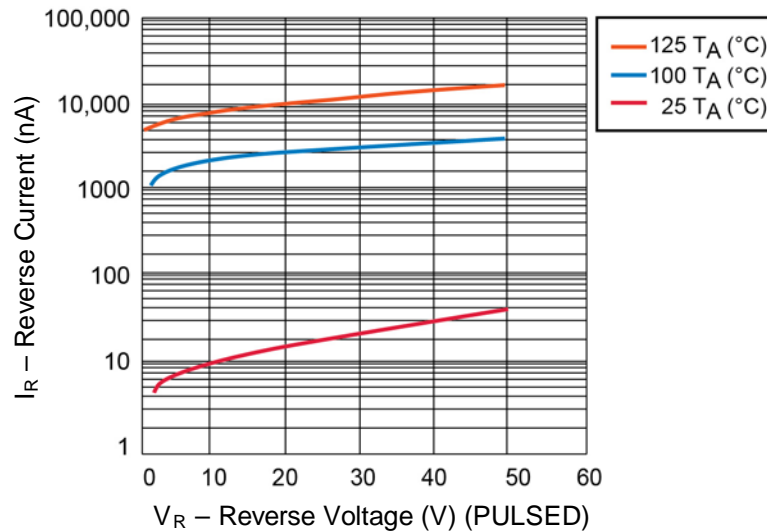
I-V Curve showing typical Forward Voltage Variation  
Temperature for the 1N5712UR-1, CDLL5712 and CDLL2810 Schottky Diodes


**FIGURE 2**

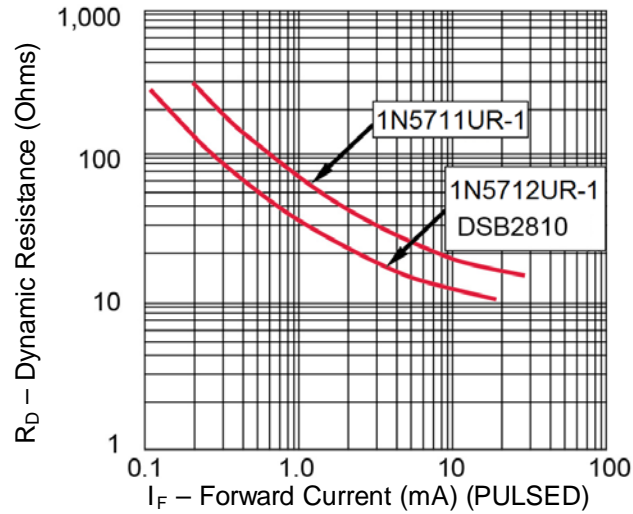
1N5712UR-1, CDLL5712 and CDLL2810 Typical variation of Reverse  
Current ( $I_R$ ) vs Reverse Voltage ( $V_R$ ) at Various Temperatures

**GRAPHS**

**FIGURE 3**

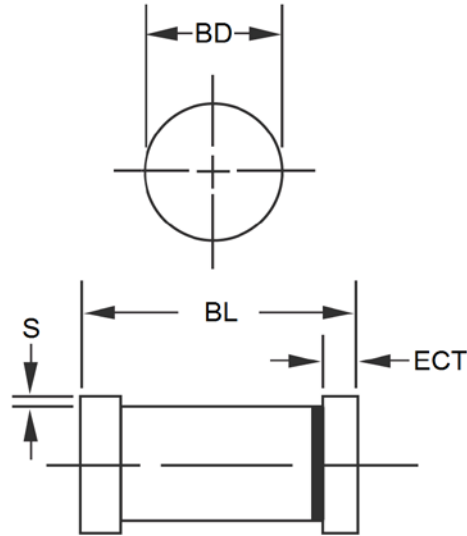
I – V curve showing typical Forward Voltage Variation  
With Temperature Schottky Diode 1N5711UR-1


**FIGURE 4**

1N5711UR-1 Typical Variation of Reverse Current ( $I_R$ ) vs Reverse Voltage ( $V_R$ )  
at Various Temperatures

**GRAPHS****FIGURE 5**

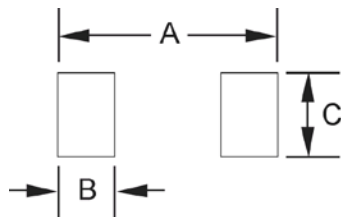
Typical Dynamic Resistance ( $R_D$ ) vs Forward Current ( $I_F$ )

**PACKAGE DIMENSIONS**


DIM	INCH		MILLIMETERS	
	MIN	MAX	MIN	MAX
<b>BD</b>	0.063	0.067	1.60	1.70
<b>BL</b>	0.130	0.146	3.30	3.71
<b>ECT</b>	0.016	0.022	0.41	0.56
<b>S</b>	0.001 min		0.03 min	

**NOTES:**

1. Dimensions are in inches. Millimeters are given for information only.
2. Dimensions are pre-solder dip.
3. Referencing to dimension S, minimum clearance of glass body to mounting surface on all orientations.
4. In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$ x symbology.

**PAD LAYOUT**


	INCH	mm
<b>A</b>	0.200	5.08
<b>B</b>	0.055	1.40
<b>C</b>	0.080	2.03

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