



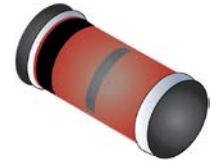
## Schottky Barrier Diode MELF Surface Mount

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).




### DO-213AA (MELF) Package


**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).

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](#)

### 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.

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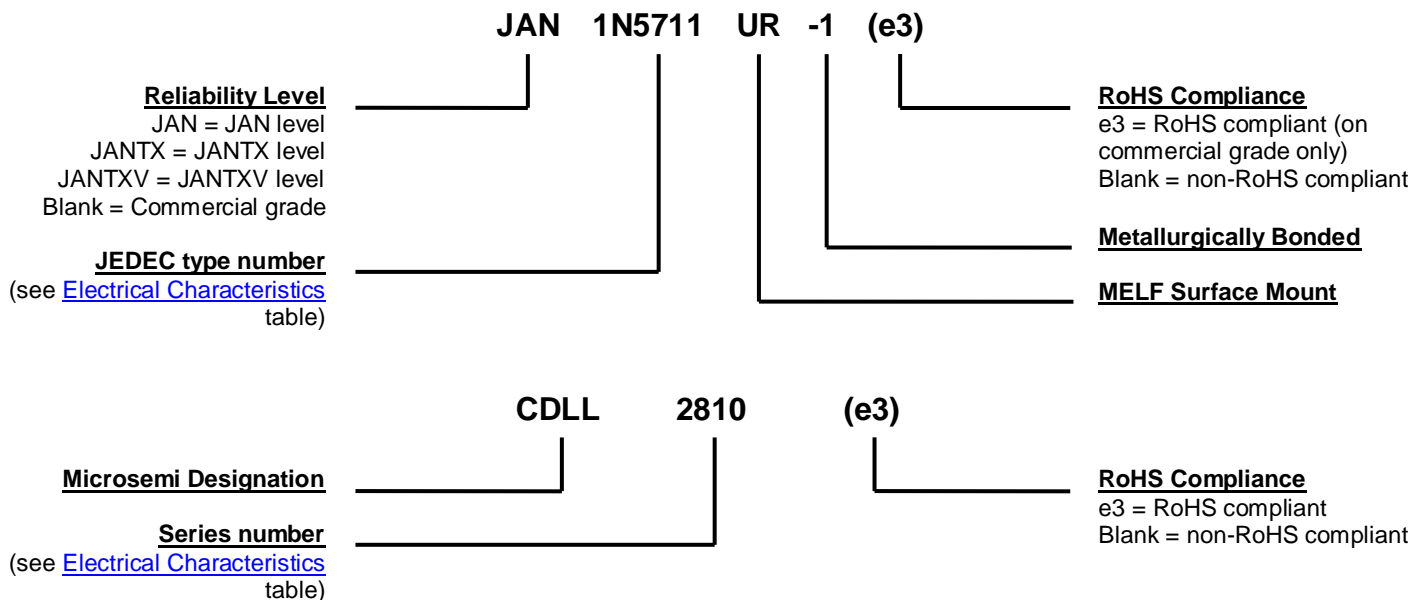
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**MECHANICAL and PACKAGING**

- 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**

**SYMBOLS & DEFINITIONS**

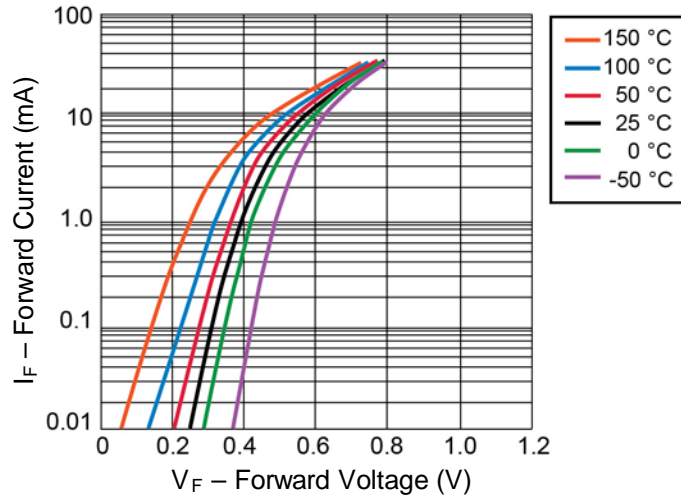
| Symbol            | Definition  |
|-------------------|---|
| C                 | Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage.   |
| f                 | frequency   |
| I <sub>R</sub>    | Reverse Current: The dc current flowing from the external circuit into the 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**

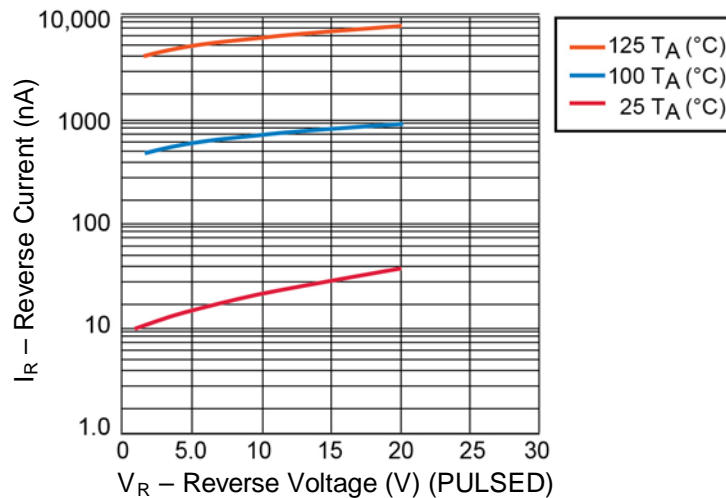
| TYPE NUMBER | MINIMUM BREAKDOWN VOLTAGE          | MAXIMUM FORWARD VOLTAGE | MAXIMUM FORWARD VOLTAGE | WORKING PEAK REVERSE VOLTAGE | MAXIMUM REVERSE LEAKAGE CURRENT |       | MAXIMUM CAPACITANCE @ $V_R = 0$ VOLTS<br>$f = 1.0\text{ MHz}$ |
|-------------|------------------------------------|-------------------------|-------------------------|------------------------------|---------------------------------|-------|---|
|             | $V_{(BR)} @ 10\text{ }\mu\text{A}$ | $V_F @ 1\text{ mA}$     | $V_F @ I_F$             | $V_{RWM}$                    | $I_R @ V_R$                     |       | $C_T$   |
|             | 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:**

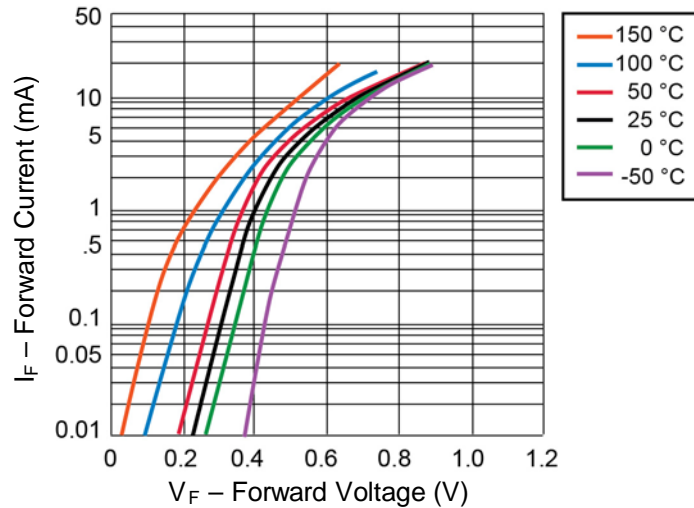
1. Effective minority carrier lifetime ( $\tau$ ) is 100 pico seconds.

**GRAPHS**

**FIGURE 1**

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


**FIGURE 2**

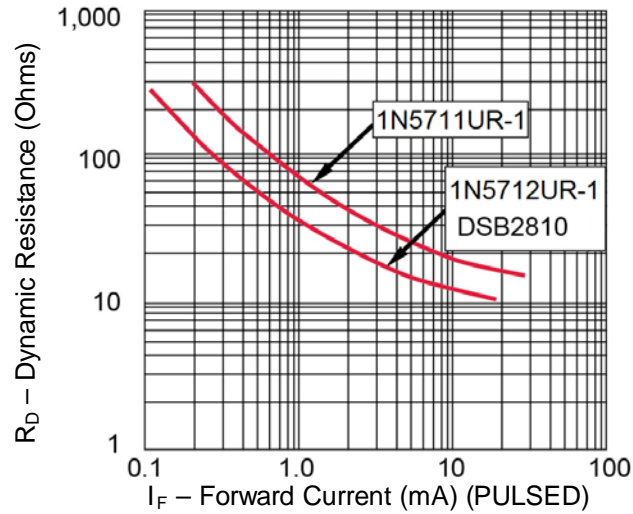
1N5712UR-1, CDLL5712 and CDLL2810 Typical variation of Reverse  
Current ( $I_R$ ) vs Reverse Voltage ( $V_R$ ) at Various Temperatures

**GRAPHS**


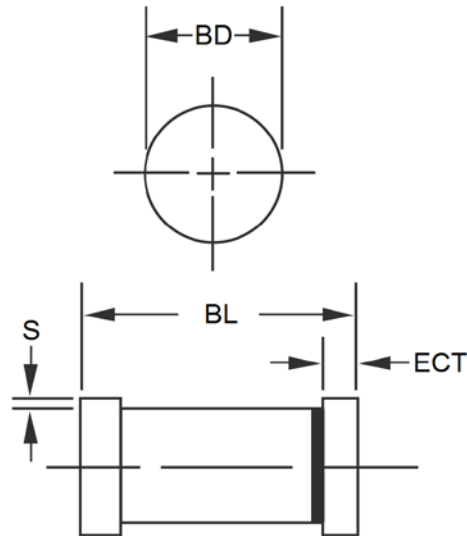
**FIGURE 3**  
I – V curve showing typical Forward Voltage Variation  
With Temperature Schottky Diode 1N5711UR-1



**FIGURE 4**  
1N5711UR-1 Typical Variation of Reverse Current ( $I_R$ ) vs Reverse Voltage ( $V_R$ )  
at Various Temperatures

**GRAPHS****FIGURE 5**

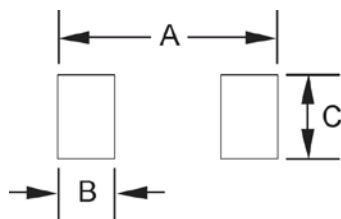
Typical Dynamic Resistance ( $R_D$ ) vs Forward Current ( $I_F$ )

**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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