

**ULTRA-SMALL SURFACE-MOUNT SCHOTTKY DIODE**

**Product Summary** (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V) @1mA	I <sub>o</sub> (mA)	V <sub>F</sub> MAX (mV) @1mA	I <sub>R</sub> MAX (μA) @1V
4	80	310	10

**Description**

The RF Schottky diode SDR08C04LP3 is with an integrated guard ring on-chip for overvoltage protection. The low barrier height, low-forward voltage and low junction capacitance make SDR08C04LP3 a suitable choice for mixer and detector functions in applications. Encapsulated in the ultra-small X3-DFN0603-2 with footprint of 0.18mm<sup>2</sup> and ultra-low package profile, this device is designed for saving PCB space in portable electronic devices.

**Applications**

For mixers and detectors in:

- Low barrier diodes for detectors up to GHz
- Radar systems and modules
- For high-speed applications
- Almost zero bias detector diodes

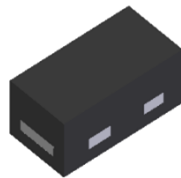
**Features and Benefits**

- Ultra-Small Leadless Surface-Mount Package (0.6mm x 0.3mm)
- Very Low Capacity
- Low-Forward Voltage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

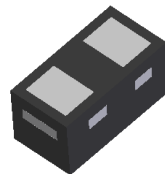
**Mechanical Data**

- Package: X3-DFN0603-2
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Bar
- Terminals: Finish – Matte Tin Finish over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.2mg (Approximate)

X3-DFN0603-2



Top View



Bottom View

**Ordering Information** (Note 4)

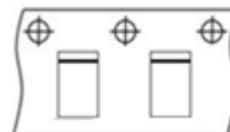
Part Number	Package	Packing	
		Qty.	Carrier
SDR08C04LP3-7B	X3-DFN0603-2	10,000	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**



C4 = Product Type Marking Code  
Bar Denotes Cathode Side



**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	4	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
Forward Current	I <sub>O</sub>	80	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Power Dissipation (Note 5)	P <sub>D</sub>	100 (T <sub>C</sub> ≤ +80°C)	mW
Typical Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	700 (T <sub>C</sub> = +80°C)	°C/W
Operating and Storage Temperature Range (Note 6)	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Breakdown Voltage	V <sub>BR</sub>	4	—	—	V	I <sub>R</sub> = 1mA
Forward Voltage	V <sub>F</sub>	—	230 340	310 410	mV	I <sub>F</sub> = 1mA I <sub>F</sub> = 10mA
Leakage Current (Note 7)	I <sub>R</sub>	—	—	10	μA	V <sub>R</sub> = 1V
Reverse Recovery Time	t <sub>RR</sub>	—	1.1	—	ns	I <sub>F</sub> = 10mA, I <sub>R</sub> = 10mA, I <sub>RR</sub> = 1mA
Differential Forward Resistance (Note 8)	R <sub>F</sub>	—	6.5	—	Ω	I <sub>F</sub> = 10mA/50mA
Total Capacitance	C <sub>T</sub>	—	0.31	—	pF	V <sub>R</sub> = 0 V <sub>DC</sub> , f = 1MHz

- Notes:
5. Part mounted on FR-4 PC board with Diodes Incorporated's recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
  6. The heat generated must be less than the thermal conductivity from junction to case:  $dP_D / dT_J < 1/R_{\theta JC}$ .
  7. Short duration pulse test used to minimize self-heating effect.
  8.  $R_F = (V_F(50mA) - V_F(10mA)) / (50mA - 10mA)$ .

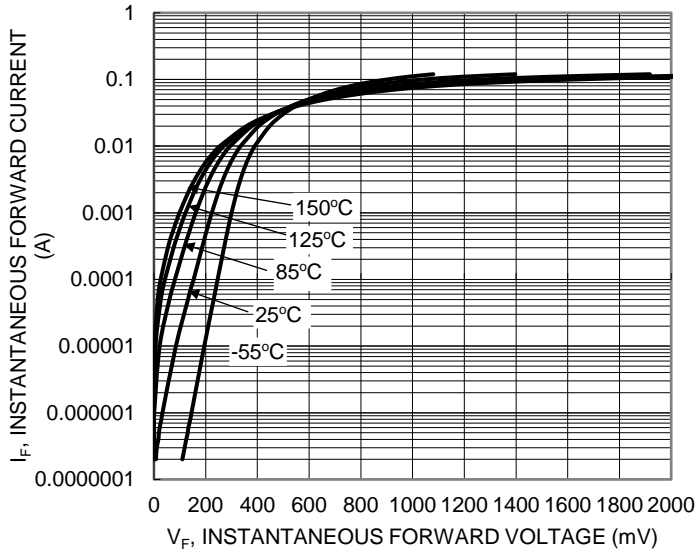


Figure 1. Typical Forward Characteristics

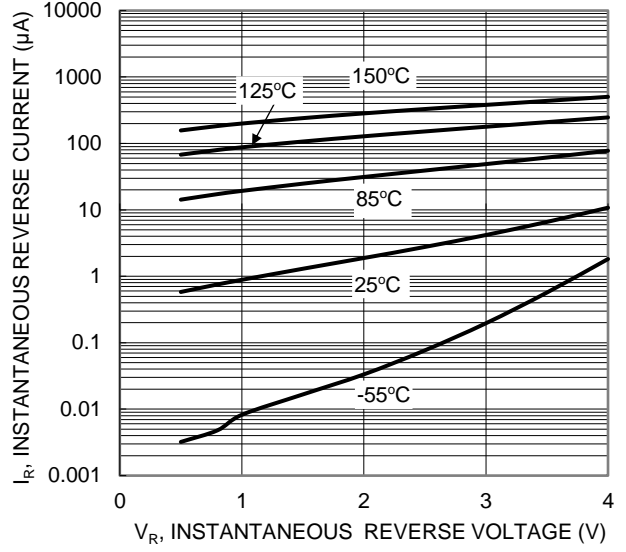


Figure 2. Typical Reverse Characteristics

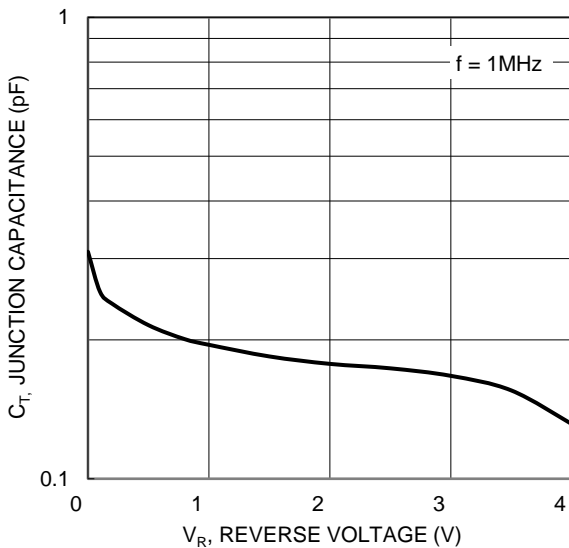


Figure 3. Typical Junction Capacitance

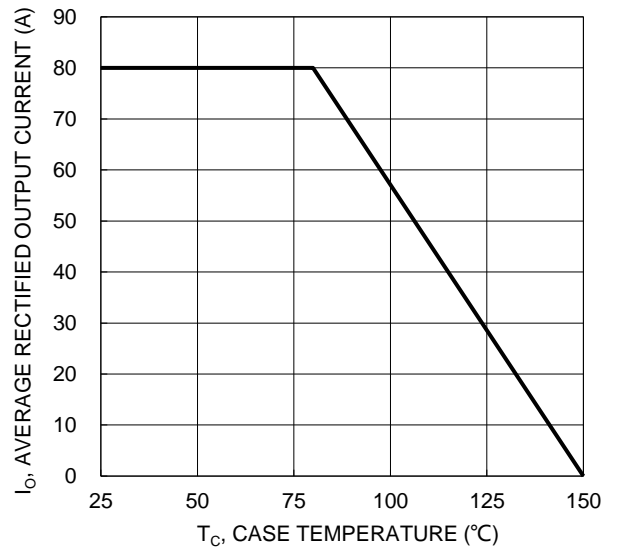
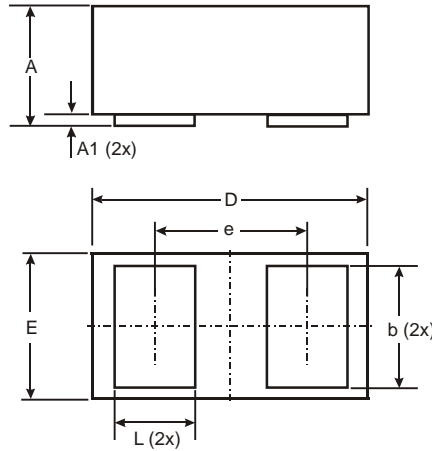


Figure 4. DC Forward Current Derating

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**X3-DFN0603-2**

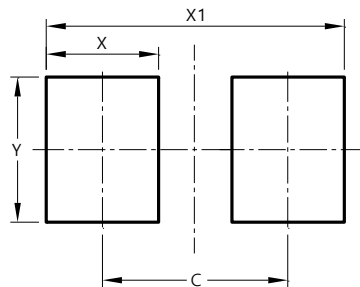


<b>X3-DFN0603-2</b>			
<b>Dim</b>	<b>Min</b>	<b>Max</b>	<b>Typ</b>
<b>A</b>	0.27	0.35	0.30
<b>A1</b>	0.00	0.03	0.02
<b>b</b>	0.19	0.29	0.24
<b>D</b>	0.595	0.645	0.62
<b>E</b>	0.295	0.345	0.32
<b>e</b>	-	-	0.355
<b>L</b>	0.14	0.24	0.19
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**X3-DFN0603-2**



<b>Dimensions</b>	<b>Value (in mm)</b>
<b>C</b>	0.380
<b>X</b>	0.230
<b>X1</b>	0.610
<b>Y</b>	0.300

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