ULTRA-SMALL SURFACE MOUNT SCHOTTKY DIODE

Product Summary (@T_A = +25°C)

V_{RRM} (V) @1mA	I_O (mA)	V_{FMAX} (mV) @10mA	I_{RMAX} (µA) @1V
3	100	470	20

Description

The RF Schottky diode DIODES™ SDR10C03LP3 is equipped with an integrated guard ring on-chip for over-voltage protection. The low barrier height, low forward voltage and low junction capacitance make SDR10C03LP3 a suitable choice for mixer and detector functions in applications. Encapsulated in the ultra-small X3-DFN0603-2 with footprint of 0.18mm^2 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

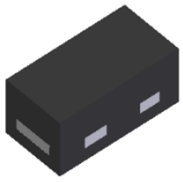
Features and Benefits

- 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/**

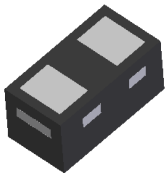
Mechanical Data

- 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 e3
- Weight: 0.2mg (Approximate)

X3-DFN0603-2



Top View



Bottom View

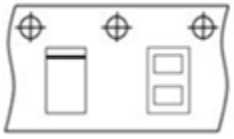
Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
SDR10C03LP3-7B	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

C3 = Product Type Marking Code
Bar Denotes Cathode Side



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	3	V
Forward Current	I_O	100	mA
Repetitive Forward Current (Pulse Wave=1ms, Duty Cycle = 25%)	I_{FRM}	300	mA
Non-Repetitive Peak Forward Surge Current (8.33ms Half-Sine Waveform)	I_{FSM}	600	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	300	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	400	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Forward Voltage	V_F	— — —	225 — —	— 350 470	mV	I_F = 100μA I_F = 1mA I_F = 10mA
Leakage Current (Note 6)	I_R	—	2	20	μA	V_R = 1V
Reverse Recovery Time	t_{RR}	—	1.2	—	ns	I_F = 10mA, I_R = 10mA, I_{RR} = 1mA
Differential Forward Resistance (Note 7)	R_F	—	6.2	—	Ω	I_F = 10mA / 50mA
Total Capacitance	C_T	—	0.4	—	pF	V_R = 0.2V_{DC}, f = 1MHz

Notes: 5. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.
7. $R_F = (V_F (50mA) - V_F (10mA)) / (50mA - 10mA)$

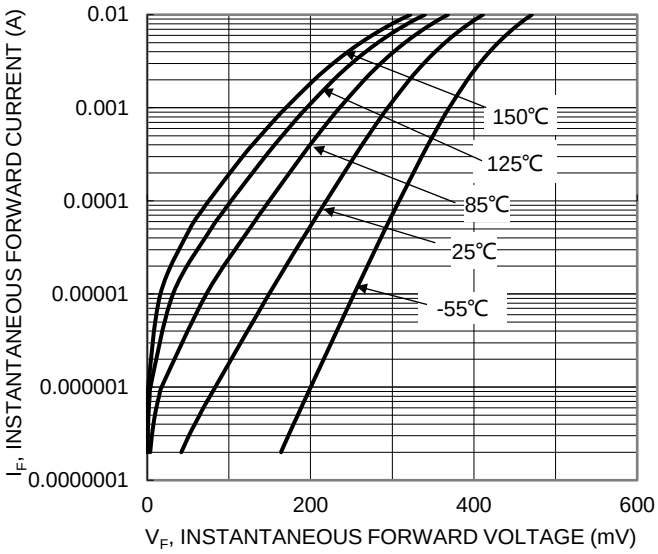


Figure 1. Typical Forward Characteristics

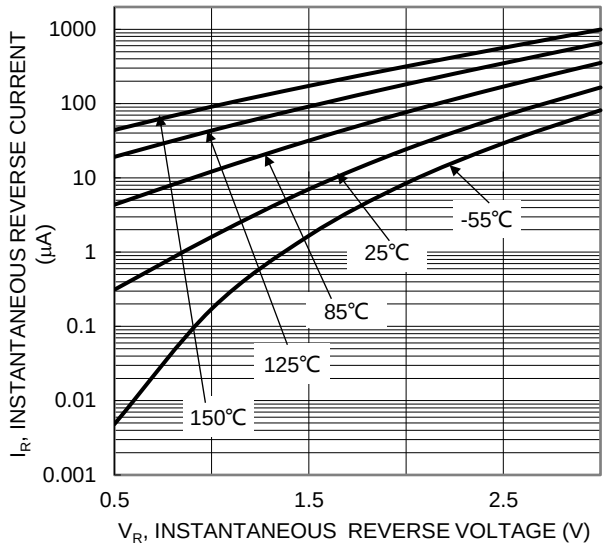


Figure 2. Typical Reverse Characteristics

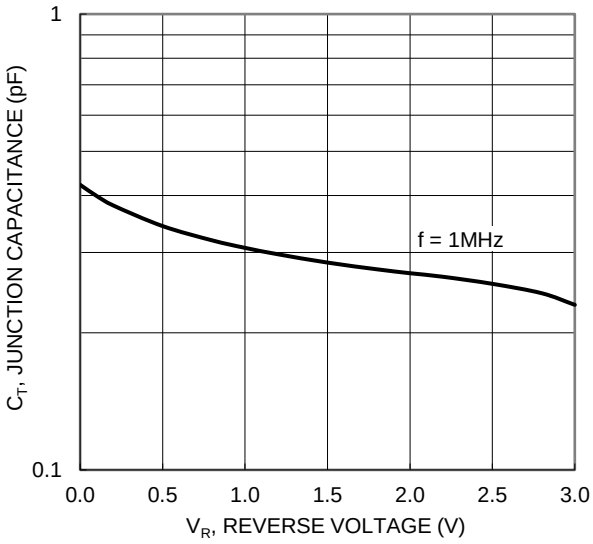


Figure 3. Typical Junction Capacitance vs. Reverse Voltage

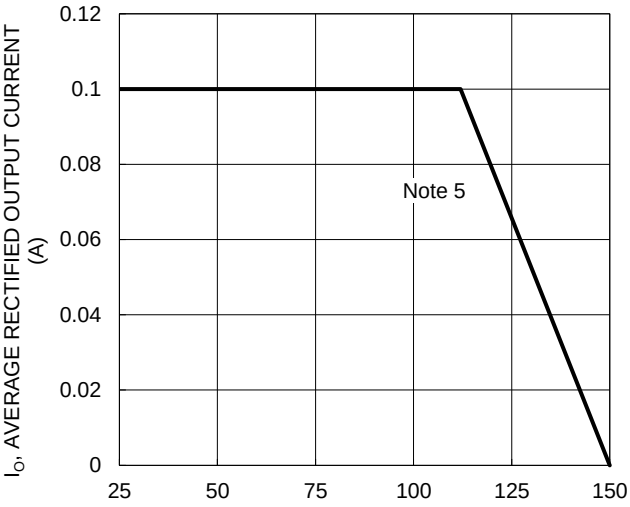
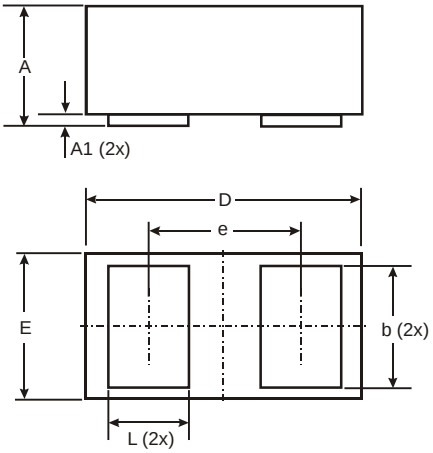


Figure 4. DC Forward Current Derating

Package Outline Dimensions

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

X3-DFN0603-2

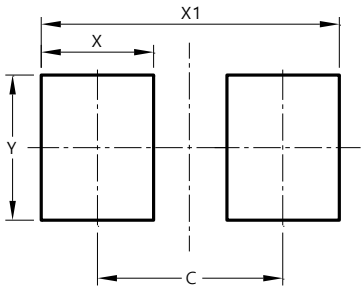


X3-DFN0603-2			
Dim	**Min**	**Max**	**Typ**
A	0.27	0.35	0.30
A1	0.00	0.03	0.02
b	0.19	0.29	0.24
D	0.595	0.645	0.62
E	0.295	0.345	0.32
e	-	-	0.355
L	0.14	0.24	0.19
All Dimensions in mm			

Suggested Pad Layout

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

X3-DFN0603-2



Dimensions	Value (in mm)
C	0.380
X	0.230
X1	0.610
Y	0.300

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