

## Product Summary

$V_R$ (V)	$I_F$ (mA)	$V_{F\ MAX}$ (V) @ +25°C	$I_{R\ MAX}$ (μA) @ +25°C
30V	200	0.575	150

## Features and Benefits

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Low Capacitance
- Ultra-Small Surface Mount Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

## Applications

- SMPS
- Free Wheeling Diodes
- Reverse Polarity Protection
- DC-DC Converters
- General Switching Applications

## Mechanical Data

- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Dot
- Terminals: Finish — NiPdAu Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 <sup>(e4)</sup>
- Weight: 0.001 grams (Approximate)

**X1-DFN1006-2**


Top View



Bottom View

## Ordering Information (Note 5)

Device	Compliance	Packaging	Shipping
SDM20U30LPQ-7	Automotive	X1-DFN1006-2	3,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information

SDM20U30LPQ-7	<p>Top View Dot Denotes Cathode Side</p>	From date code 1527 (YYWW), this changed to:	<p>Top View Bar Denotes Cathode Side</p>
	<p>LM = Product Type Marking Code</p>		

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	V
Maximum (Peak) Forward Current	I <sub>F</sub>	200	mA
Peak Forward Surge Current	I <sub>FSM</sub>	1.0	A

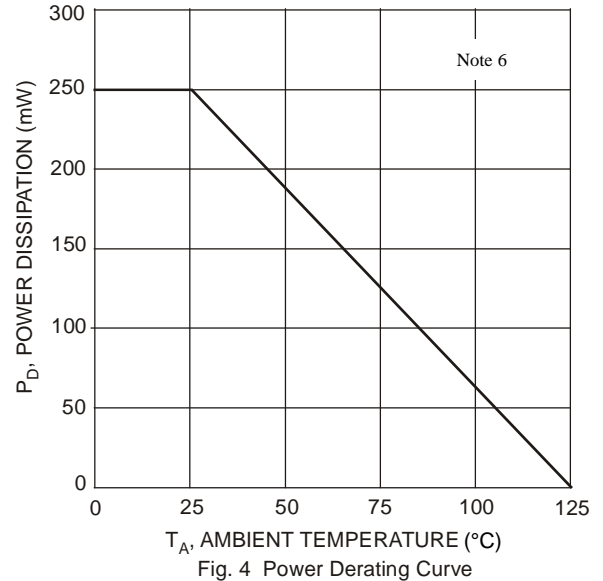
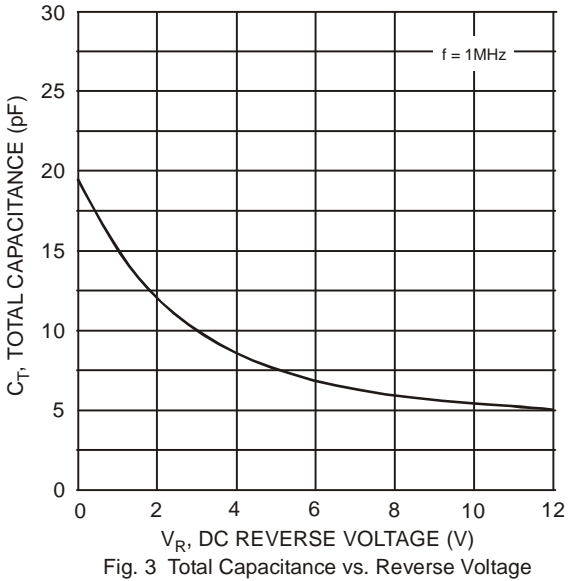
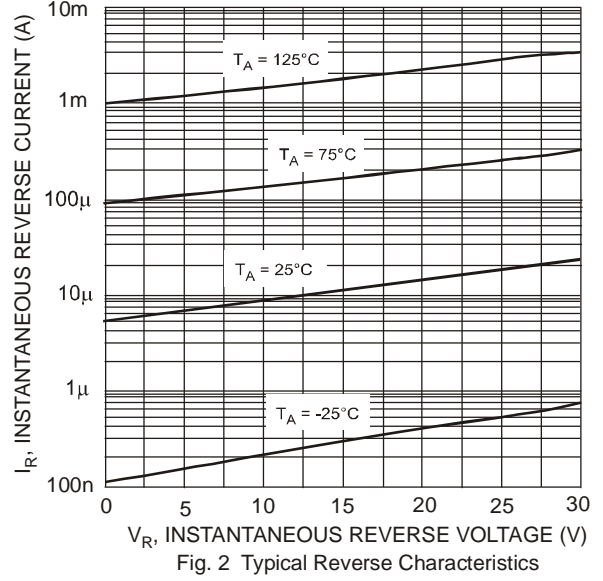
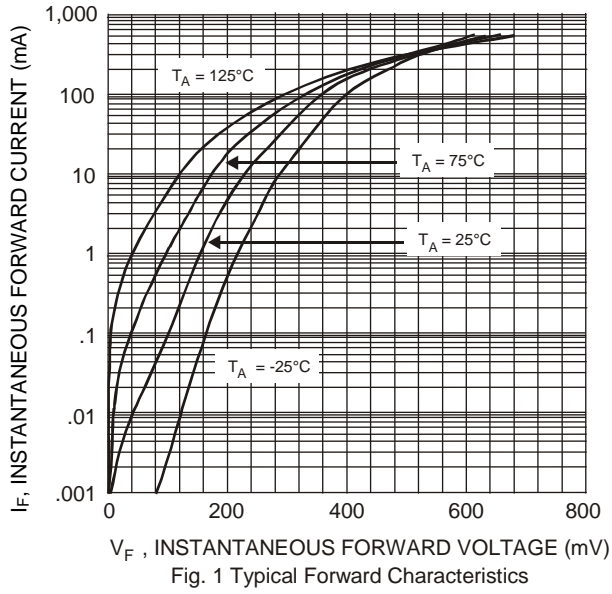
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	400	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +125	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	30	—	—	V	I <sub>R</sub> = 150μA
Forward Voltage Drop	V <sub>F</sub>	—	—	350 575	mV	I <sub>F</sub> = 20mA I <sub>F</sub> = 200mA
Peak Reverse Current (Note 7)	I <sub>R</sub>	—	—	150 30	μA μA	V <sub>R</sub> = 30V V <sub>R</sub> = 10V
Total Capacitance	C <sub>T</sub>	—	20	—	pF	V <sub>R</sub> = 0V, f = 1.0MHz
Reverse Recovery Time	t <sub>RR</sub>	—	3	—	ns	I <sub>F</sub> = I <sub>R</sub> = 10mA, I <sub>R(REC)</sub> = 1mA, R <sub>L</sub> = 100Ω

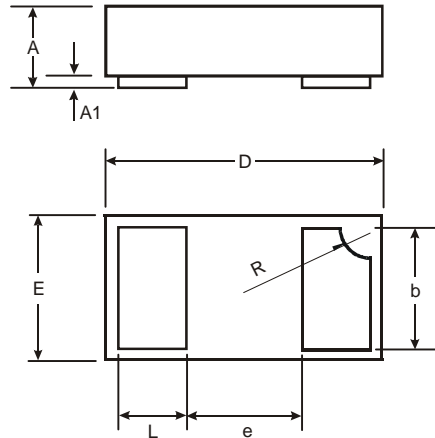
Notes: 6. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.  
7. Short duration pulse test used to minimize self-heating effect.



**Package Outline Dimensions**

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

X1-DFN1006-2

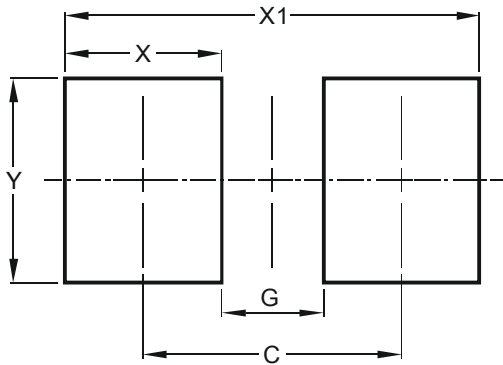


X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	-	-	0.40
L	0.20	0.30	0.25
R	0.05	0.15	0.10
All Dimensions in mm			

**Suggested Pad Layout**

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

X1-DFN1006-2



Dimensions	Value (in mm)
C	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70

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