

Features

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Leadless Surface Mount Package
- PN Junction Guard Ring for Transient And ESD Protection
- **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 refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

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

X1-DFN1006-2



Top View



Bottom View

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
BAS40LP-7	X1-DFN1006-2	3,000	Tape & Reel
BAS40LP-7B	X1-DFN1006-2	10,000	Tape & Reel

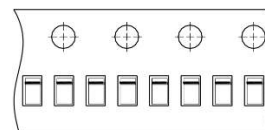
- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- 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



Top View
Bar Denotes Cathode Side

43 & 43-bar = Product Type Marking Code



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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	40	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
Forward Continuous Current	I _{FM}	200	mA
Repetitive Peak Forward Current (Note 6)	I _{FRM}	800	mA
Non-Repetitive Peak Forward Surge Current @ t _p = 1.0s (Note 7)	I _{FSM}	1,000	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	250	mW
Typical Thermal Resistance, Junction to Ambient (Note 8)	R _{θJA}	400	°C/W
Operating Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V _R	40	—	—	V	I _R = 10μA
Forward Voltage (Note 5)	V _F	—	—	380 1,000	mV	t _p < 300μs, I _F = 1.0mA t _p < 300μs, I _F = 40mA
Reverse Leakage Current (Note 5)	I _R	—	20	200	nA	t _p < 300μs, V _R = 30V
Total Capacitance	C _T	—	2.3	5.0	pF	V _R = 0V, f = 1.0MHz
Reverse Recovery Time	t _{RR}	—	—	5.0	ns	I _F = I _R = 10mA to I _R = 1.0mA, R _L = 100Ω

- Notes:
5. Short duration pulse test used to minimize self-heating effect.
 6. Repetitive peak forward current was tested with t_p ≤ 1s and δ ≤ 0.8 square wave.
 7. Non-repetitive peak forward current was tested with t_p = 1s square wave.
 8. 1*MRP FR-4 PC board 2oz. copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.

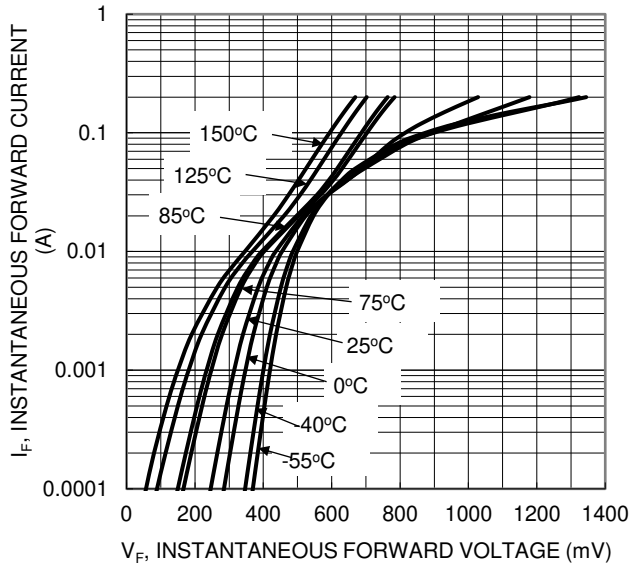


Fig.1 Typical Forward Voltage

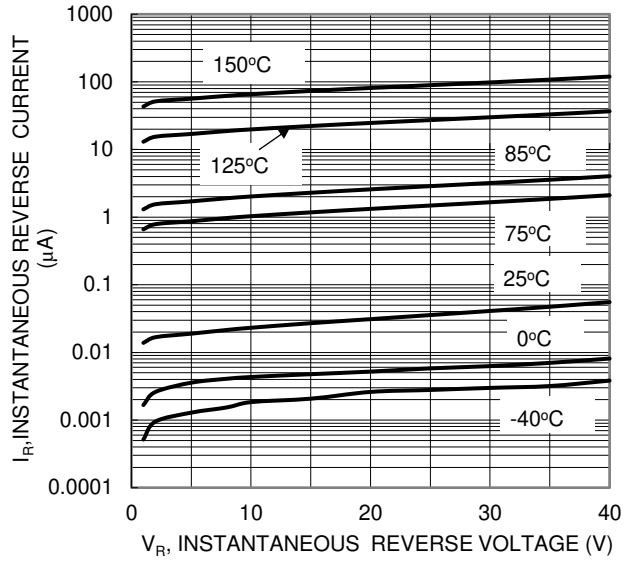


Fig.2 Typical Reverse Characteristics

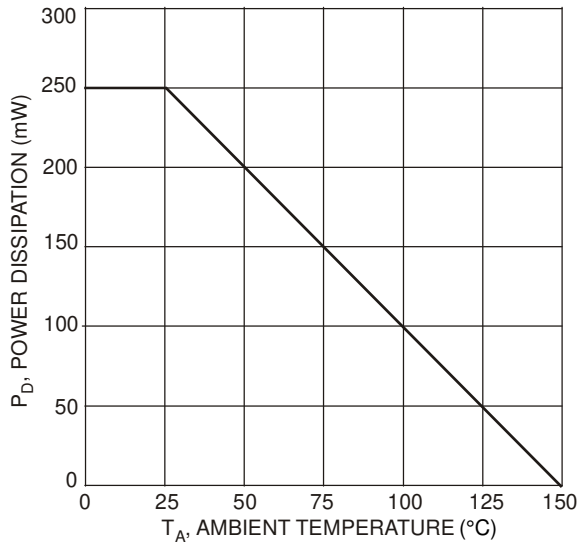


Fig. 3 Power Derating Curve

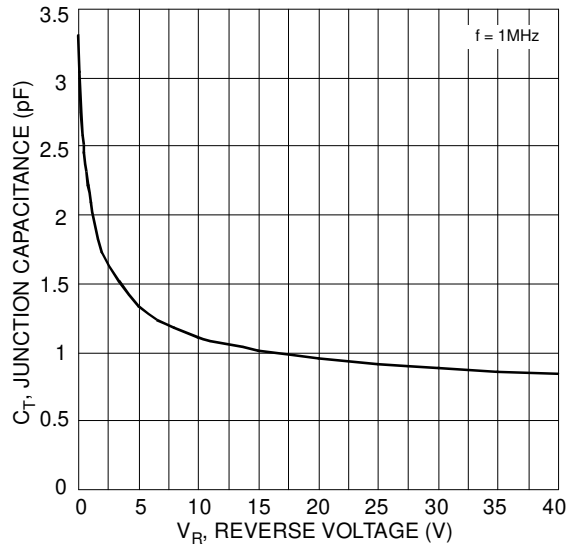


Fig. 4 Typical Junction Capacitance

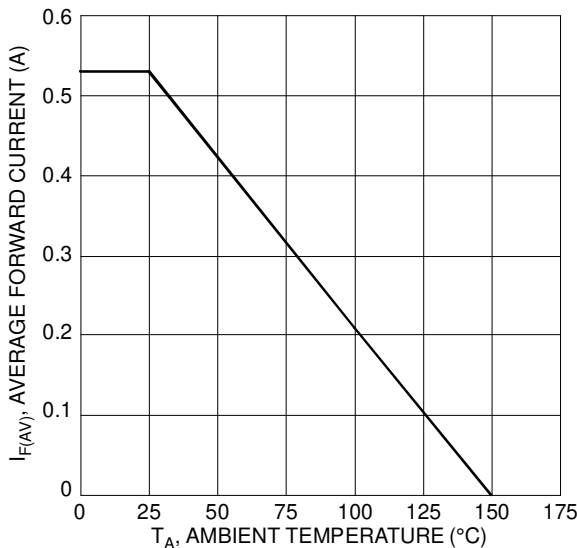


Fig. 5 Forward Current Derating Curve

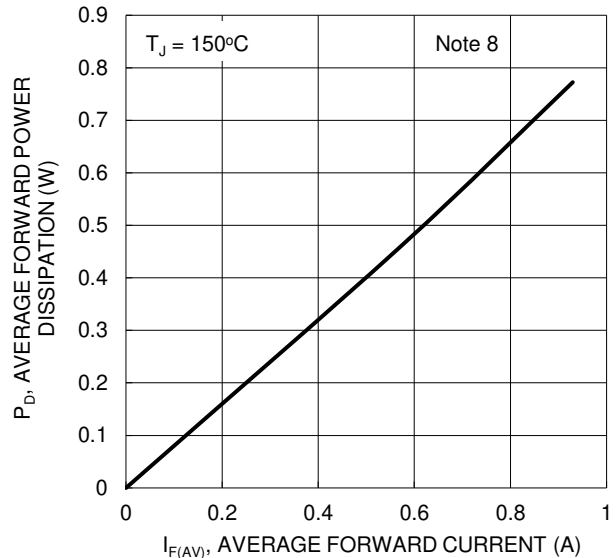


Fig.6 Forward Power Dissipation

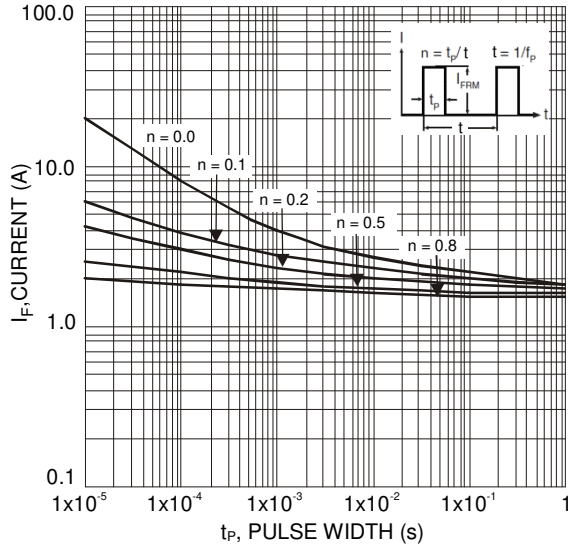
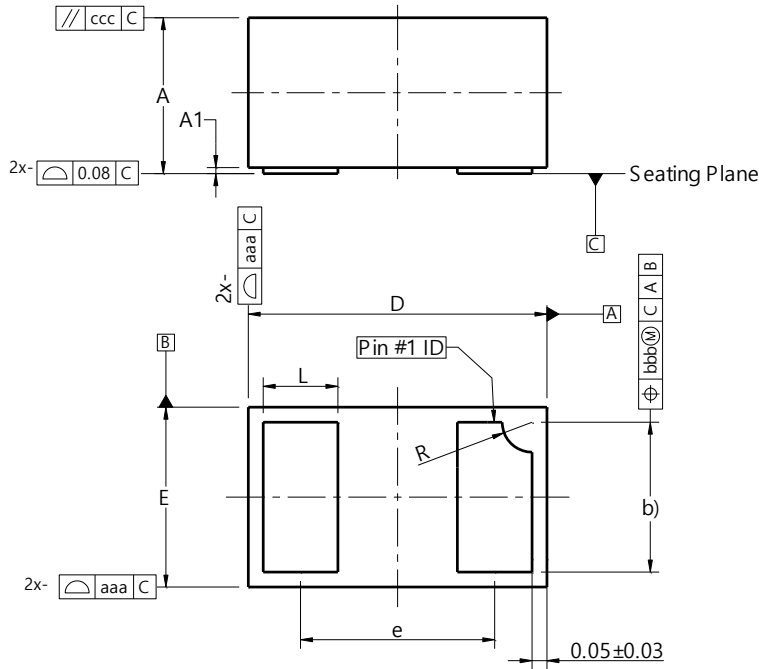


Fig. 7 Repetitive Forward Current with Pulse Duration

Package Outline Dimensions

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

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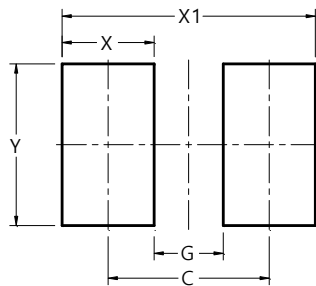


X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	--	--	0.65
L	0.20	0.30	0.25
R	0.05	0.15	0.10
aaa	0.15		
bbb	0.05		
ccc	0.05		
All Dimensions in mm			

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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