

## 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

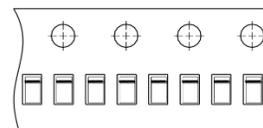
- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. 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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>R</sub> RM	40	V
Working Peak Reverse Voltage	V <sub>R</sub> WM		
DC Blocking Voltage	V <sub>R</sub>		
Forward Continuous Current	I <sub>F</sub> M	200	mA
Repetitive Peak Forward Current (Note 6)	I <sub>F</sub> RM	800	mA
Non-Repetitive Peak Forward Surge Current @ t <sub>p</sub> = 1.0s (Note 7)	I <sub>F</sub> SM	1,000	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	250	mW
Typical Thermal Resistance, Junction to Ambient (Note 8)	R <sub>θJA</sub>	400	°C/W
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V <sub>R</sub>	40	—	—	V	I <sub>R</sub> = 10μA
Forward Voltage (Note 5)	V <sub>F</sub>	—	—	380 1,000	mV	t <sub>p</sub> < 300μs, I <sub>F</sub> = 1.0mA t <sub>p</sub> < 300μs, I <sub>F</sub> = 40mA
Reverse Leakage Current (Note 5)	I <sub>R</sub>	—	20	200	nA	t <sub>p</sub> < 300μs, V <sub>R</sub> = 30V
Total Capacitance	C <sub>T</sub>	—	2.3	5.0	pF	V <sub>R</sub> = 0V, f = 1.0MHz
Reverse Recovery Time	t <sub>RR</sub>	—	—	5.0	ns	I <sub>F</sub> = I <sub>R</sub> = 10mA to I <sub>R</sub> = 1.0mA, R <sub>L</sub> = 100Ω

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

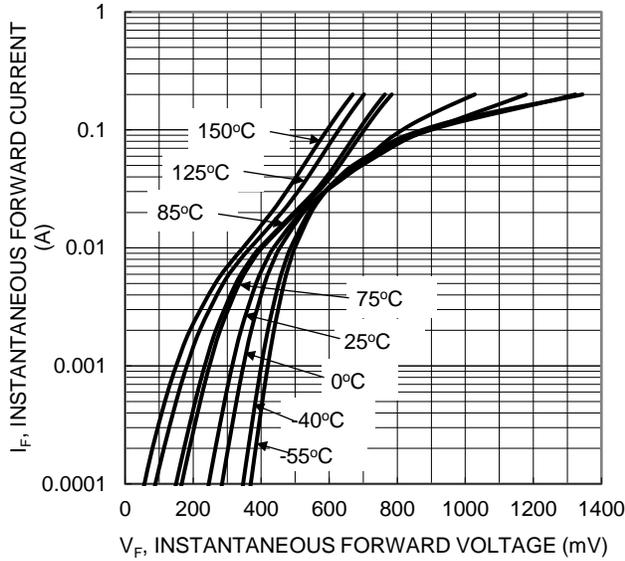


Fig.1 Typical Forward Voltage

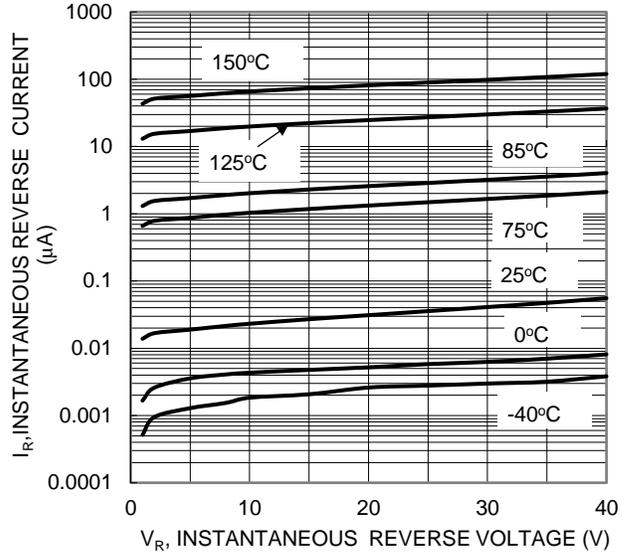


Fig.2 Typical Reverse Characteristics

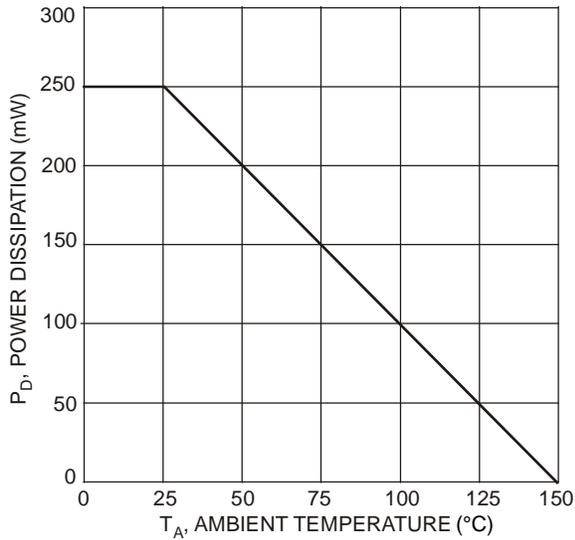


Fig. 3 Power Derating Curve

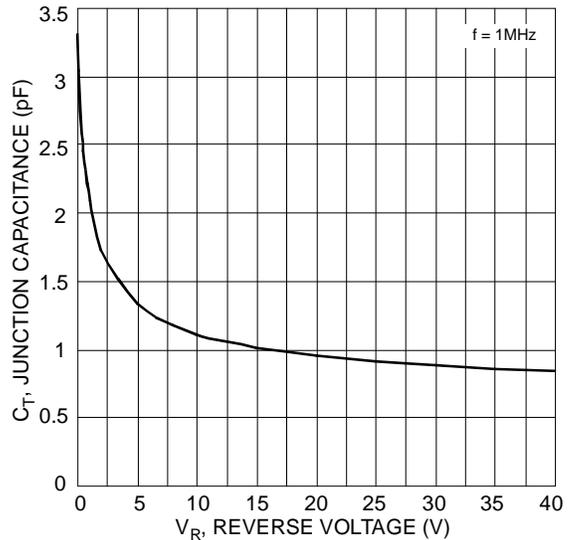


Fig. 4 Typical Junction Capacitance

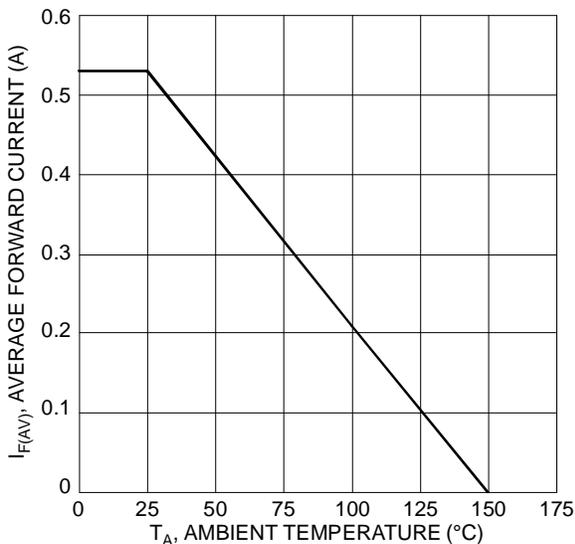


Fig. 5 Forward Current Derating Curve

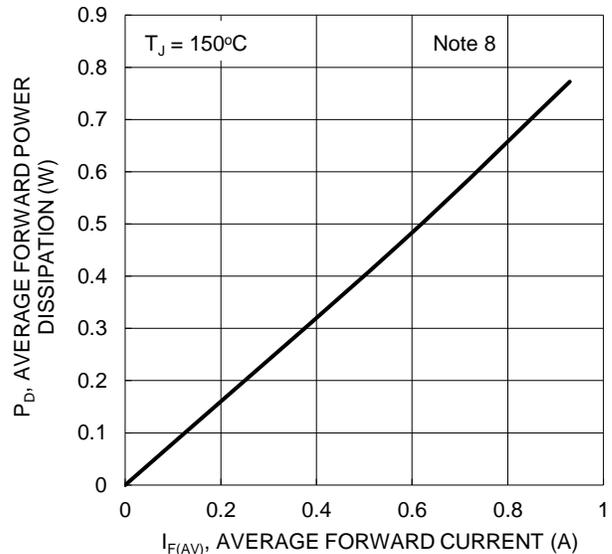


Fig.6 Forward Power Dissipation

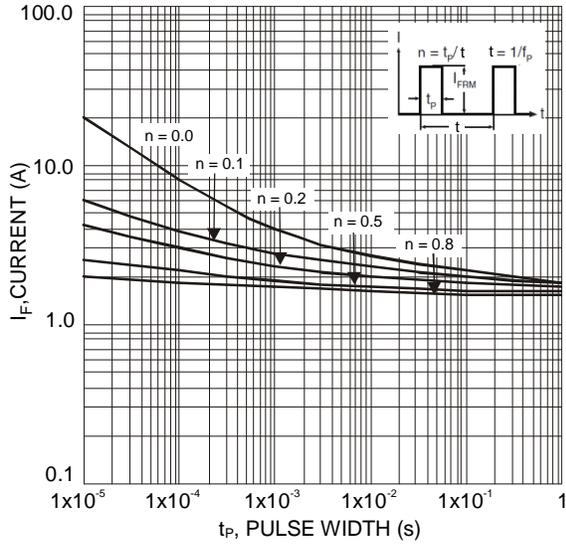


Fig. 7 Repetitive Forward Current with Pulse Duration



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