

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)**
- Qualified to AEC-Q101 Standards for High Reliability

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: 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

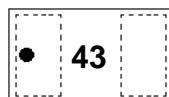
Ordering Information (Note 4)

Part Number	Case	Packaging
BAS40LP-7	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 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 <http://www.diodes.com/products/packages.html>.

Marking Information

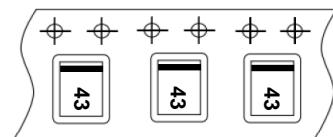
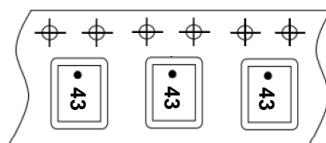


Top View
Dot Denotes Cathode Side

From date code 1527 (YYWW),
this changes to:



Top View
Bar Denotes Cathode Side



43 = Part Marking Code

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}		
Working Peak Reverse Voltage	V_{RWM}	40	V
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 @ $t_p = 1.0\text{s}$ (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)	$R_{\theta JA}$	400	°C/W
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V_R	40	—	—	V	$I_R = 10\mu\text{A}$
Forward Voltage (Note 5)	V_F	—	—	380 1,000	mV	$t_p < 300\mu\text{s}$, $I_F = 1.0\text{mA}$ $t_p < 300\mu\text{s}$, $I_F = 40\text{mA}$
Reverse Leakage Current (Note 5)	I_R	—	20	200	nA	$t_p < 300\mu\text{s}$, $V_R = 30\text{V}$
Total Capacitance	C_T	—	2.3	5.0	pF	$V_R = 0\text{V}$, $f = 1.0\text{MHz}$
Reverse Recovery Time	t_{RR}	—	—	5.0	ns	$I_F = I_R = 10\text{mA}$ to $I_R = 1.0\text{mA}$, $R_L = 100\Omega$

Notes:

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

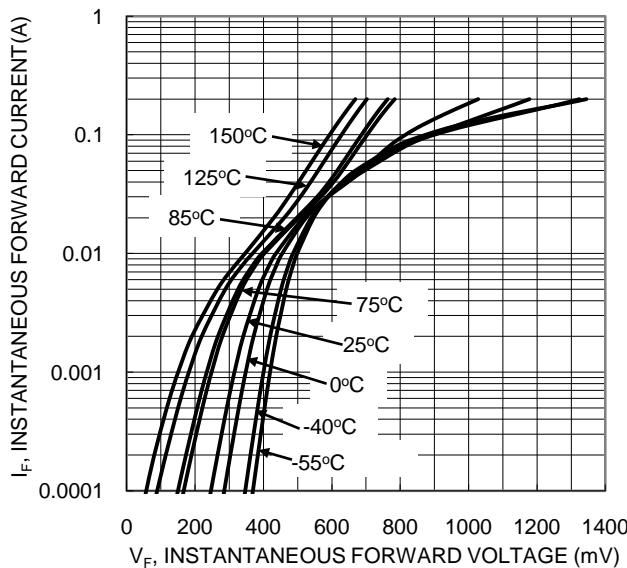


Fig.1 Typical Forward Voltage

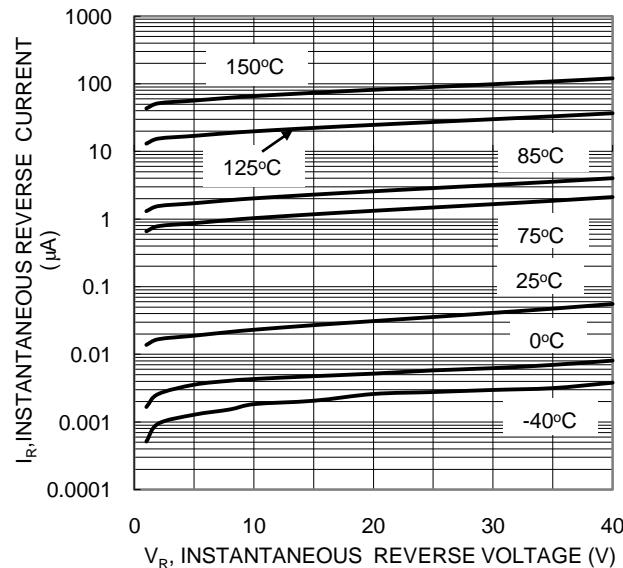


Fig.2 Typical Reverse Characteristics

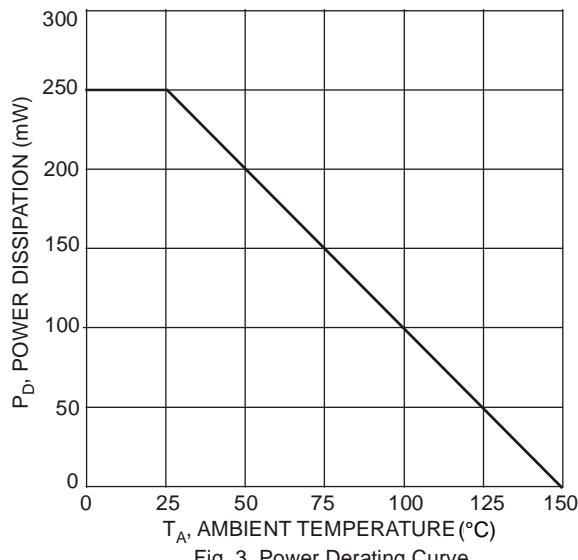


Fig. 3 Power Derating Curve

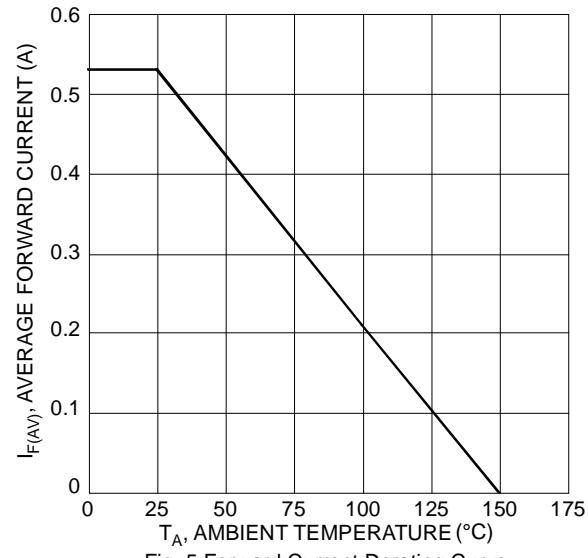


Fig. 5 Forward Current Derating Curve

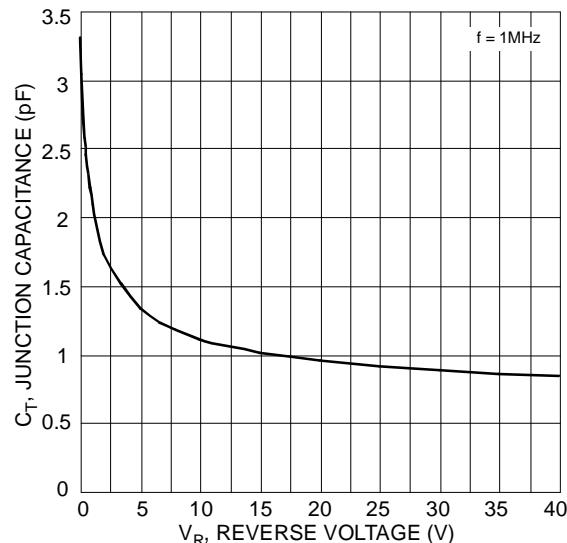


Fig. 4 Typical Junction Capacitance

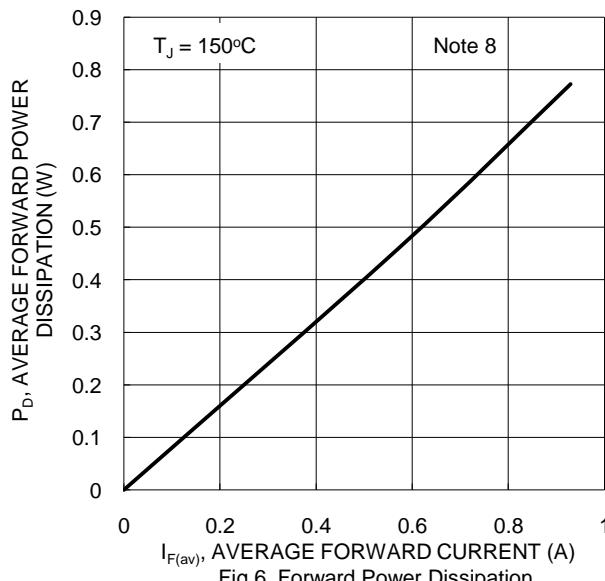


Fig. 6 Forward Power Dissipation

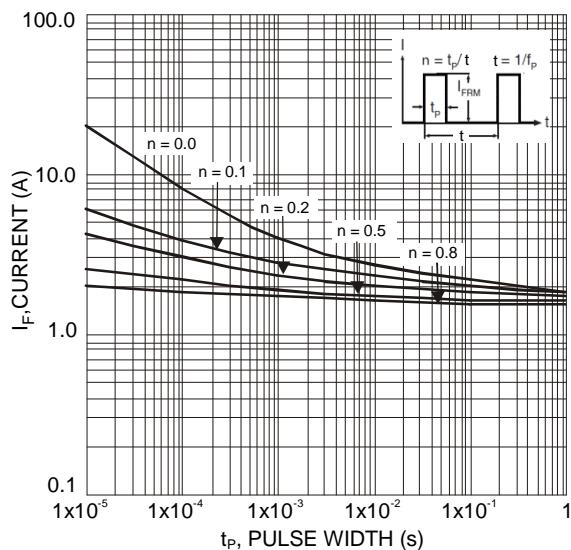
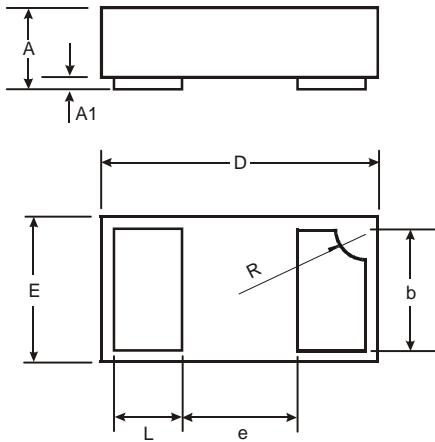


Fig. 7 Repetitive Forward Current with Pulse Duration

Package Outline Dimensions

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

X1-DFN1006-2



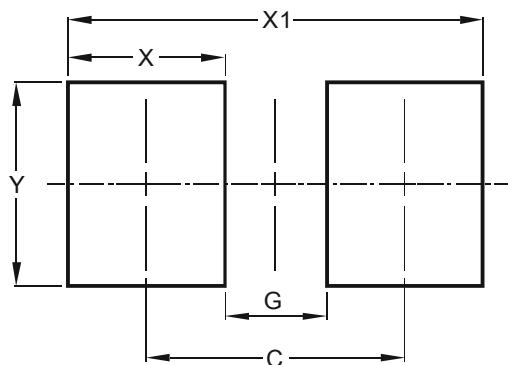
X1-DFN1006-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	-	-	0.40
L	0.20	0.30	0.25
R	0.05	0.15	0.10

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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