Product Summary (@T_A = +25°C)

V_{RRM} (V)	I_O (mA)	$V_{F(MAX)}$ (V)	$I_{R(MAX)}$ (µA)
30	200	1	2.0

Features and Benefits

- 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)**
- **The BAT54LPQ is suitable for automotive applications requiring specific change control; it is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

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 Bar
- 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

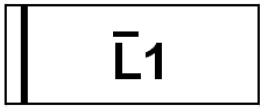
Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAT54LPQ-7	Automotive	X1-DFN1006-2	3000/Tape & Reel
BAT54LPQ-7B	Automotive	X1-DFN1006-2	10,000/Tape & Reel

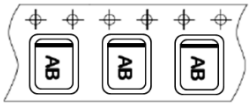
Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen-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



Top View



Bar Denotes Cathode Side

L1 or $\bar{L}1$ = 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	V_{RRM}	30	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
Average Rectified Output Current	I_O	200	mA
Repetitive Peak Forward Current	I_{FRM}	300	mA
Forward Surge Current @ t < 1.0s	I_{FSM}	600	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	250	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	400	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +125	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	30	—	—	V	I_R = 100µA
Forward Voltage	V_F	—	—	240	mV	I_F = 0.1mA
				320		I_F = 1mA
				400		I_F = 10mA
				500		I_F = 30mA
				1,000		I_F = 100mA
Reverse Leakage Current (Note 6)	I_R	—	—	2.0	µA	V_R = 25V
Total Capacitance	C_T	—	—	10	pF	V_R = 1.0V, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	—	5.0	ns	I_F = 10mA through I_R = 10mA to I_R = 1.0mA, R_L = 100Ω

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.

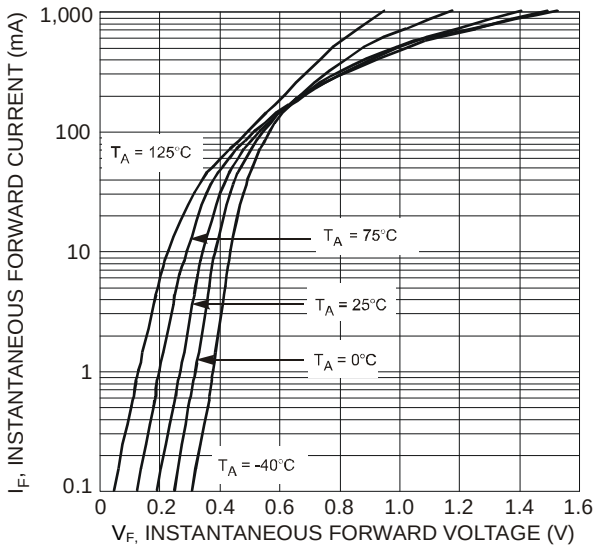


Fig. 1 Typical Forward Characteristics

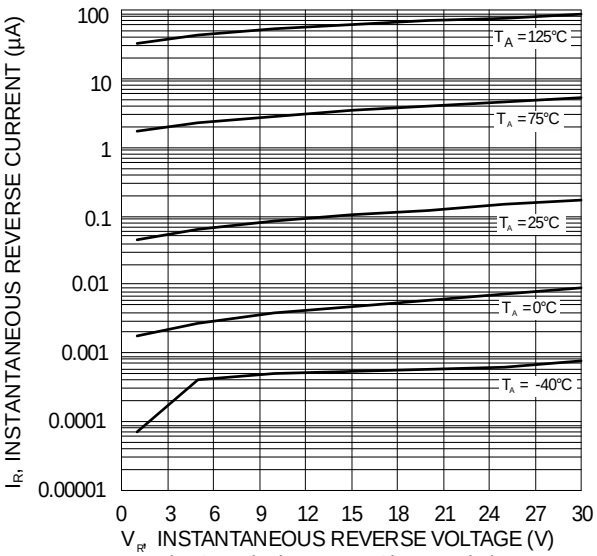


Fig. 2 Typical Reverse Characteristics

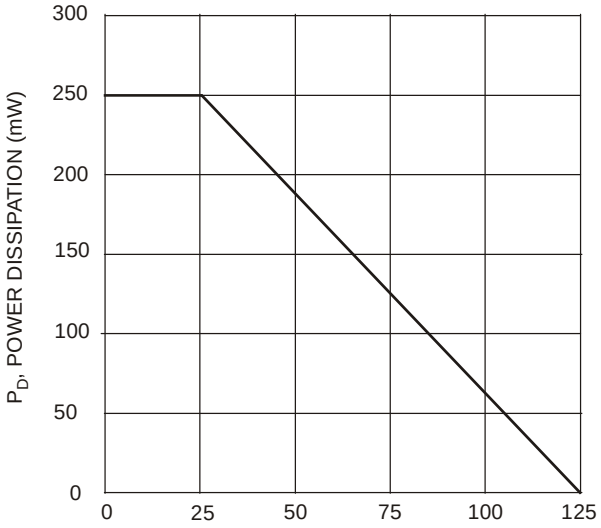


Fig. 3 Power Derating Curve

Package Outline Dimensions

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

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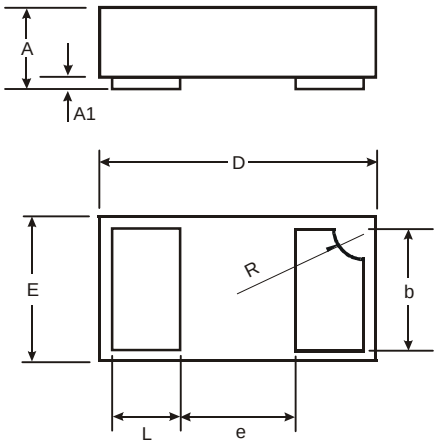
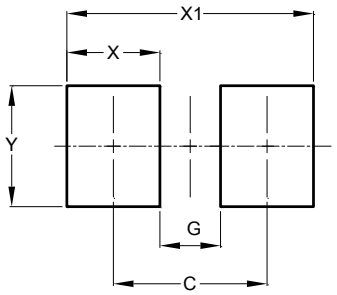


X1-DFN1006-2			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0	0.05	0.03
b	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	-	-	0.40
L	0.20	0.30	0.25
R	0.05	0.15	0.10
All Dimensions in mm			

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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