BAT1000

1A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

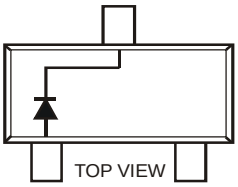
Features

- Very Low Forward Voltage Drop
- High Conductance
- For Use in DC-DC Converter, PCMCIA, and Mobile Telecommunications Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 and 2)**
- **Halogen and Antimony Free. "Green" Device(Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Weight: 0.008 grams (approximate)

Top View



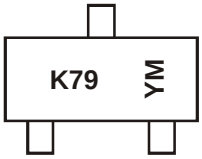
Schematic and Pin Configuration

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
BAT1000-7-F	AEC-Q101	SOT23	3000/Tape & Reel
BAT1000Q-7-F	Automotive	SOT23	3000/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



K79 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: A = 2013)
M = Month (ex: 9 = September)

Date Code Key

Year	2002	2003	2004	….	2010	2011	2012	2013	2014	2015	2016
Code	N	P	R	….	X	Y	Z	A	B	C	D

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Current	I_O	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load	I_{FSM}	5.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	500	mW
Typical Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	200	°C/W
Operating Temperature Range	T_J	-40 to +125	°C
Storage Temperature Range	T_{STG}	-40 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	40	—	—	V	I_R = 300μA
Forward Voltage	V_F	—	225 235 290 340 390 420 475	270 290 340 400 450 500 600	mV	I_F = 50mA I_F = 100mA I_F = 250mA I_F = 500mA I_F = 750mA I_F = 1000mA I_F = 1500mA
Reverse Current (Note 7)	I_R	—	—	100	μA	V_R = 30V
Total Capacitance	C_T	— —	175 25	— —	pF pF	V_R = 0V, f = 1.0MHz V_R = 25V, f = 1.0MHz

Notes: 6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com.
7. Short duration pulse test used to minimize self-heating effect.

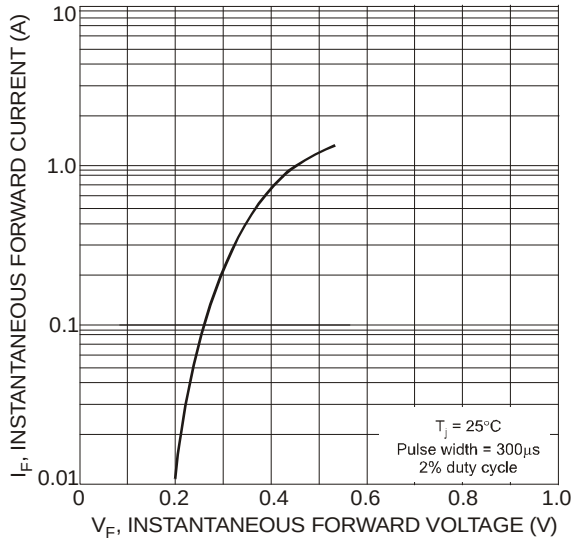


Fig. 1 Typical Forward Characteristics

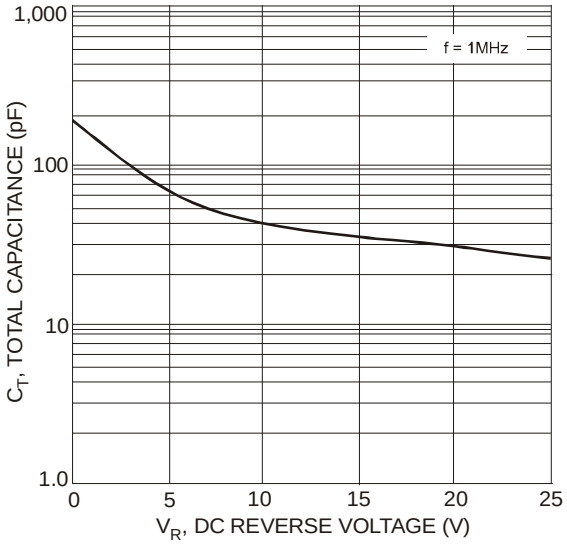


Fig. 2 Total Capacitance vs. Reverse Voltage

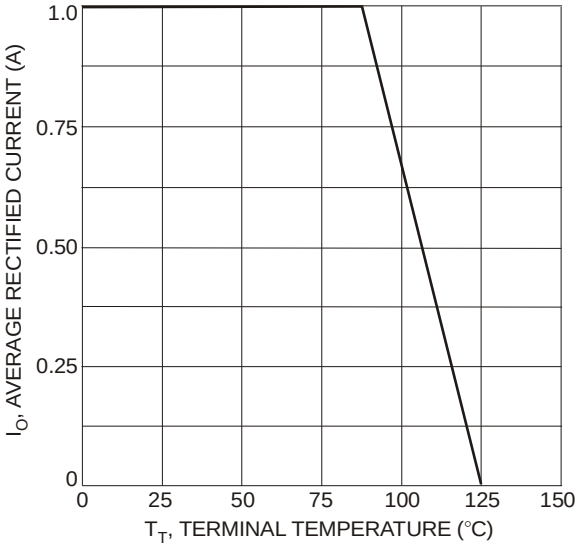


Fig. 3 Forward Current Derating Curve

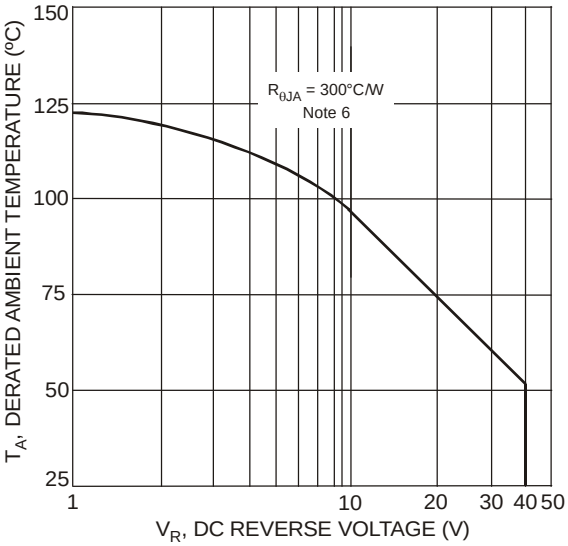
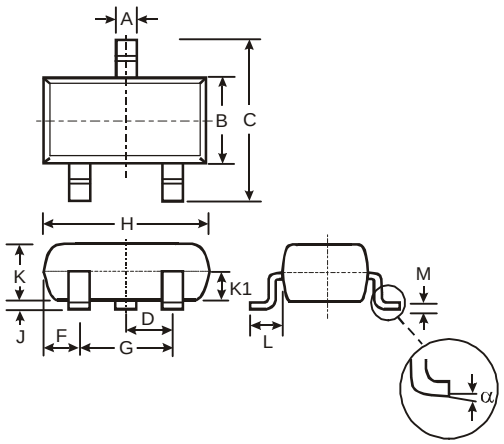


Fig. 4 Operating Temperature Derating

Note: 8. Assumed application thermal conditions. $R_{\theta JA}$ varies depending on application.

Package Outline Dimensions

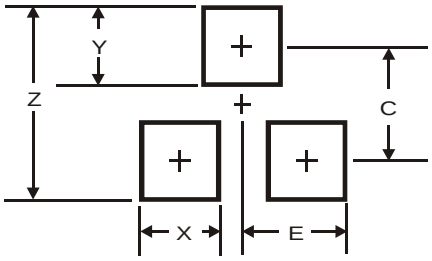
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for latest version.



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35