



SURFACE MOUNT SCHOTTKY BARRIER DIODE

Product Summary (@TA = +25°C)

V _{RRM} (V)	I _O (mA)	V _{Fmax} (V)	I _{Rmax} (μΑ)
30	200	0.8	2

Features and Benefits

- Low Turn-on Voltage
- Fast Switching
- 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
- An Automotive-Compliant Part is Available Under Separate Datasheet (<u>BAT54Q AQ CQ SQ</u>)

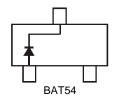
Description

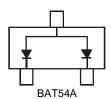
200mA surface mount Schottky Barrier Diode in SOT23 package, offers low turn-on voltage and fast switching capability, designed with PN Junction Guard Ring for Transient and ESD Protection, totally lead-free finish and RoHS compliant, "Green" device.

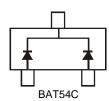
Mechanical Data

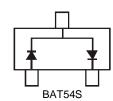
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (3)
- · Polarity: See Diagrams Below
- Weight: 0.008 grams (Approximate)











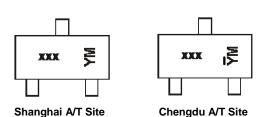
Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAT54-7-F	Standard	SOT23	3000/Tape & Reel
BAT54A-7-F	Standard	SOT23	3000/Tape & Reel
BAT54C-7-F	Standard	SOT23	3000/Tape & Reel
BAT54S-7-F	Standard	SOT23	3000/Tape & Reel
BAT54-13-F	Standard	SOT23	10,000/Tape & Reel
BAT54A-13-F	Standard	SOT23	10,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 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



xxx = Product Type Marking Code

KL1 = BAT54

KL2 = BAT54A

KL3 = BAT54C

KL4 = BAT54S

YM = Date Code Marking for SAT (Shanghai Assembly/ Test site) \overline{Y} M = Date Code Marking for CAT (Chengdu Assembly/ Test site)

Y or \overline{Y} = Year (ex: D = 2016)

M = Month (ex: 9 = September)

Date Code Kev

Date Code														
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Code	Χ	Υ	Z	Α	В	С	D	Е	F	G	Н	-	J	K
Month	Jan	Feb	Ma	ır	Apr	May	Jun	Jul	Aug	Se	p (Oct	Nov	Dec
Code	1	2	3		4	5	6	7	8	9		0	N	D



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

Characteristic		Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}			
Working Peak Reverse Voltage	V_{RWM}	30	V	
DC Blocking Voltage		V_R		
Average Rectified Output Current (Note 5)	lo	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}	200	mW
Typical Thermal Resistance Junction to Ambient Air (Note 5)	$R_{ heta JA}$	500	°C/W
Typical Thermal Resistance Junction to Case (Note 8)	$R_{ heta JC}$	180	°C/W
Operating and Storage Temperature Range (Note 6)	T_J , T_{STG}	-65 to +150	°C

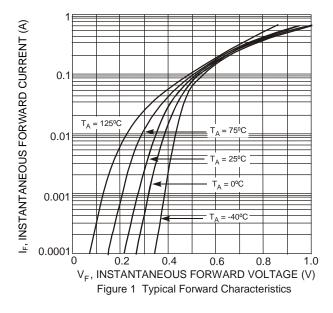
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

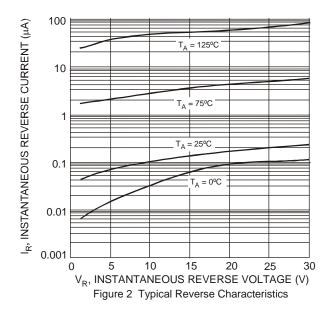
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	30		_	V	I _{RS} = 100μA
Forward Voltage	VF	_	_	240 320 400 500 800	mV	I _F = 0.1mA I _F = 1mA I _F = 10mA I _F = 30mA I _F = 100mA
Reverse Leakage Current (Note 7)	I _R	_	_	2.0	μA	V _R = 25V
Total Capacitance	Ст	_	_	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 = 100 Ω

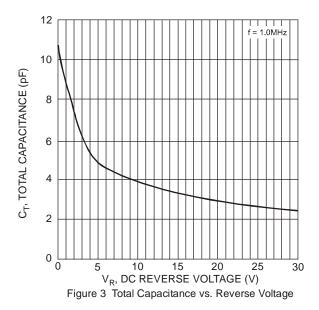
Notes:

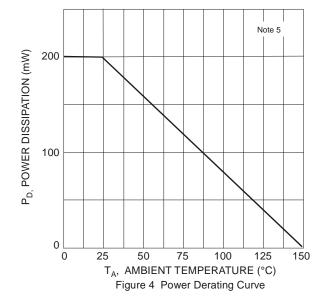
- 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
- 6. The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.
- Short duration test pulse used to minimize self-heating effect.
 Device mounted on Polymide substrate PC board. FR-4 2oz 1*MRP layout.









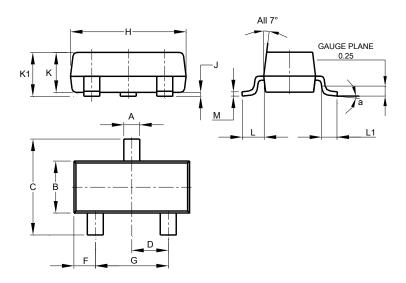




Package Outline Dimensions

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

SOT23

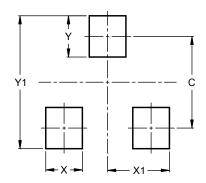


SOT23						
Dim	Min	Max	Тур			
Α	0.37	0.51	0.40			
В	1.20	1.40	1.30			
С	2.30	2.50	2.40			
D	0.89	1.03	0.915			
F	0.45	0.60	0.535			
G	1.78	2.05	1.83			
Н	2.80 3.00		2.90			
J	0.013	0.10	0.05			
K	0.890	1.00	0.975			
K1	0.903	1.10	1.025			
L	0.45	0.61	0.55			
L1	0.25	0.55	0.40			
М	0.085	0.150	0.110			
а	0°	8°				
All Dimensions in mm						

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
С	2.0
Х	0.8
X1	1.35
Y	0.9
Y1	2.9



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