



#### SURFACE MOUNT SCHOTTKY BARRIER DIODE

#### Product Summary (@TA = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (mA)	V <sub>Fmax</sub> (V)	I <sub>Rmax</sub> (μΑ)
30	200	0.8	2

# **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.

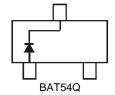
### **Features and Benefits**

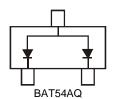
- Low Turn-on Voltage
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

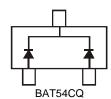
#### **Mechanical Data**

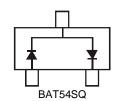
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (3)
- Polarity: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











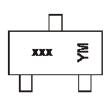
# Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
BAT54Q-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54AQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54CQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54SQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAT54Q-13	Automotive	SOT23	10,000/Tape & Reel
BAT54AQ-13	Automotive	SOT23	10,000/Tape & Reel
BAT54SQ-13	Automotive	SOT23	10,000/Tape & Reel
BAT54CQ-13-F	Automotive	SOT23	10,000/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.</p>
  4. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/product\_compliance\_definitions.html.
- 5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

# **Marking Information**



xxx = Product Type Marking Code

KL1 = BAT54Q

KL2 = BAT54AQ

KL3 = BAT54CQ

KL4 = BAT54SQ

YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)

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

M = Month (ex: 9 = September)

Date Code Kev

	- ,													
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Code	W	Χ	Υ	Z	Α	В	С	D	Е	F	G	Н	ı	J
Month	Jan	Feb	Ma	r /	Apr	May	Jun	Jul	Aug	Sep	) (	Oct	Nov	Dec
Code	1	2	3		4	5	6	7	8	9		0	N	D



# **Maximum Ratings** ( $@T_A = +25^{\circ}C$ , 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 6)	lo	200	mA	
Repetitive Peak Forward Current	I <sub>FRM</sub>	300	mA	
Forward Surge Current	@ t < 1.0s	I <sub>FSM</sub>	600	mA

## **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	$P_{D}$	200	mW
Typical Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	500	°C/W
Typical Thermal Resistance Junction to Case (Note 9)	$R_{ heta JC}$	180	°C/W
Operating and Storage Temperature Range (Note 7)	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

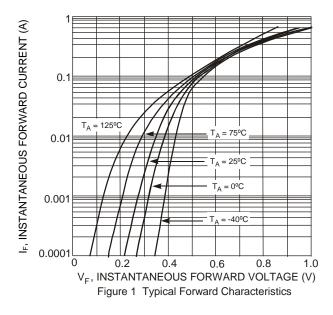
# Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

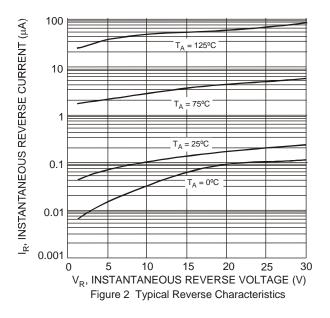
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	30	_	_	V	I <sub>RS</sub> = 100μA
Forward Voltage	VF		_	240 320 400 500 800	mV	I <sub>F</sub> = 0.1mA I <sub>F</sub> = 1mA I <sub>F</sub> = 10mA I <sub>F</sub> = 30mA I <sub>F</sub> = 100mA
Reverse Leakage Current (Note 8)	I <sub>R</sub>	_	_	2.0	μA	V <sub>R</sub> = 25V
Total Capacitance	Ст	_	_	10	pF	V <sub>R</sub> = 1.0V, f = 1.0MHz
Reverse Recovery Time	t <sub>RR</sub>	_	_	5.0	ns	$I_F$ = 10mA through $I_R$ = 10mA to $I_R$ = 1.0mA, $R_L$ = 100 $\Omega$

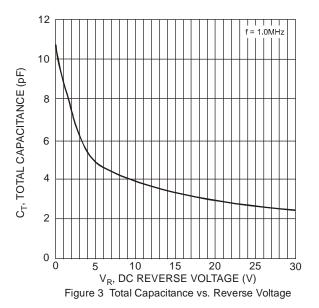
Notes:

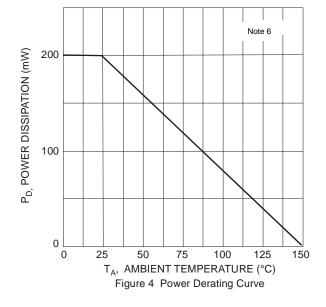
- 6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
- 7. The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ .
- The heat generated must be less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









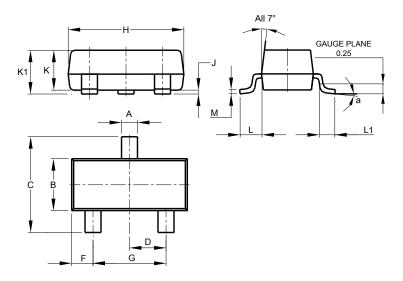




# **Package Outline Dimensions**

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

#### SOT23

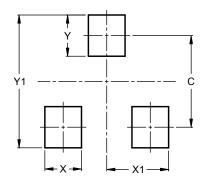


SOT23							
Dim	Min	Max	Тур				
Α	0.37	0.51	0.40				
В	1.20	1.40	1.30				
С	2.30	2.50	2.40				
D	0.89	1.03	0.915				
F	0.45	0.60	0.535				
G	1.78	2.05	1.83				
Н	2.80	3.00	2.90				
7	0.013	0.10	0.05				
K	0.890	1.00	0.975				
K1	0.903	1.10	1.025				
٦	0.45	0.61	0.55				
L1	0.25	0.55	0.40				
М	0.085	0.150	0.110				
а	0°	8°					
All	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
Υ	0.9
Y1	2.9



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