



SURFACE MOUNT SCHOTTKY BARRIER DIODE

Product Summary

V _{RRM} (V)	I _F (mA)	V _{Fmax} (V)	I _{Rmax} (μΑ)
30	200	1	2

Features

- Ultra-Small Surface Mount Package
- Low Forward Voltage Drop
- 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)

Description

200mA surface mount Schottky Barrier Diode in SOT523 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.

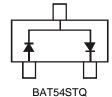
Mechanical Data

- Case: SOT523
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Annealed over Alloy 42 Leadframe.
 Solderable per MIL-STD-202, Method 208 (3)
- Lead-Free Plating
- Polarity: See Diagrams Below
- Weight: 0.002 grams (Approximate)









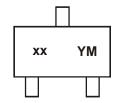
Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
BAT54TQ-7-F	Automotive	SOT523	3,000/Tape & Reel
BAT54STQ-7-F	Automotive	SOT523	3,000/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
- 5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



xx = Product Type Marking Code L1 = BAT54TQ L4 = BAT54STQ YM = Date Code Marking Y = Year (ex: F = 2018) M = Month (ex: 9 = September)

Date Code Key

Date Code N	Су													
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S
Month	Jan	Feb	Ma	ar /	Apr	May	Jun	Jul	Aug	Se	р (Oct	Nov	Dec
Code	1	2	3		4	5	6	7	8	9		0	Ν	D



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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	30	V
Forward Continuous Current (Note 6)	I _{FM}	200	mA
Repetitive Peak Forward Current	I _{FRM}	300	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	600	mA

Thermal Characteristics

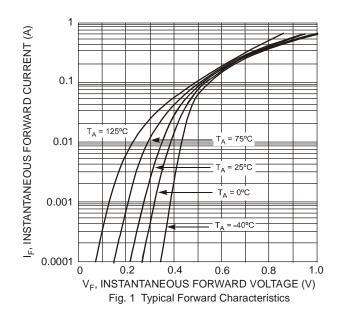
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_{D}	150	mW
Typical Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	490	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

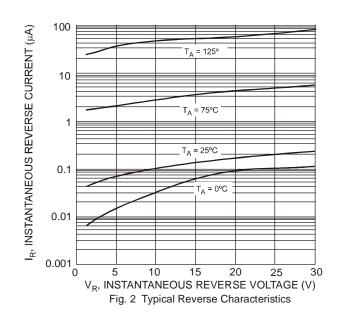
Electrical Characteristics (@TA = +25°C unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	30	_	_	V	$I_R = 100 \mu A$
Forward Voltage	VF	_	_	240 320 400 500 1,000		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	μΑ	$V_R = 25V$
Total Capacitance	C _T	_	_	10	pF	$V_R = 10V, f = 1.0MHz$

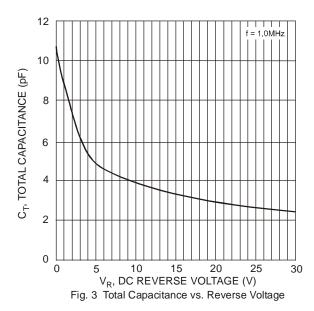
Notes:
6. Device mounted on FR-4 substrate PC board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.

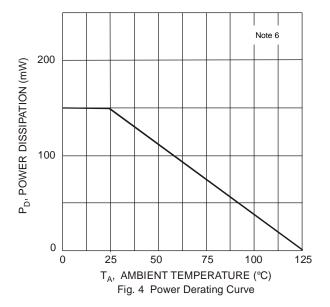
7. Short duration pulse test used to minimize self-heating effect.









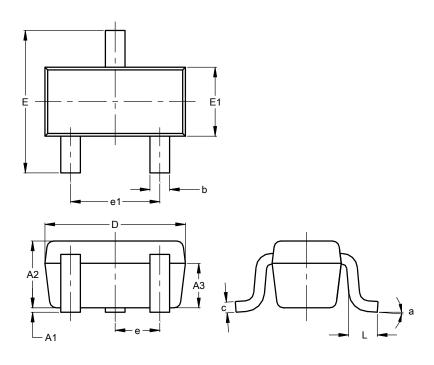




Package Outline Dimensions

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

SOT523

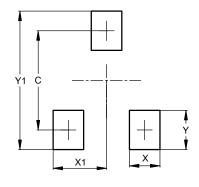


1	0.0	TE00						
SOT523								
Dim	Min Max Typ							
A1	0.00	0.10	0.05					
A2	0.60	0.80	0.75					
A3	0.45	0.65	0.50					
b	0.15	0.30	0.22					
С	0.10	0.20	0.12					
D	1.50	1.70	1.60					
E	1.45	1.75	1.60					
E1	0.75	0.85	0.80					
е		0.50 BS	С					
e1	0.90	1.10	1.00					
L	0.20	0.40	0.33					
а	0°		8°					
All Dimensions in mm								

Suggested Pad Layout

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

SOT523



Dimensions	Value
С	1.29
Х	0.40
X1	0.70
Y	0.51
Y1	1.80

Note: The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application. These dimensions may be modified based on user equipment capability or fabrication criteria. A more robust pattern may be desired for wave soldering and is calculated by adding 0.2 mm to the 'Z' dimension. For further information, please reference document IPC-7351A, Naming Convention for Standard SMT Land Patterns, and for International grid details, please see document IEC, Publication 97.

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.



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