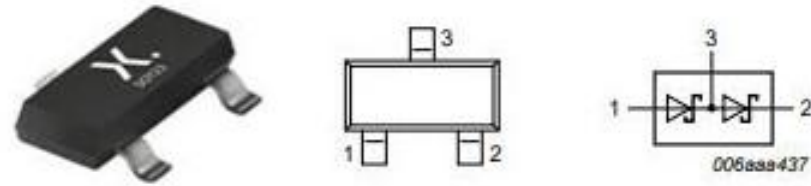


Decoding BAT54S Schottky Diode

Introduction to BAT54S Schottky Diode

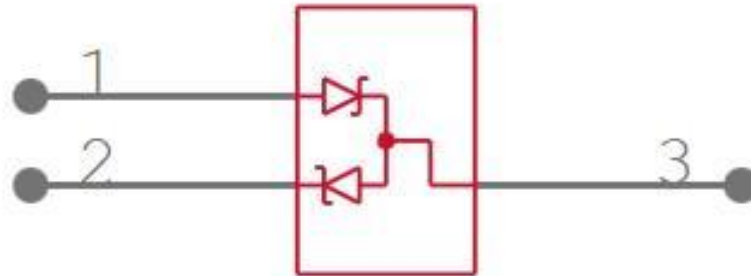
The **BAT54S** is a **Planar Schottky barrier diode** with an integrated guard ring for stress protection, encapsulated in a small **SOT23 (TO-236AB)** Surface-Mounted Device (SMD) plastic package.

BAT54S Pinout



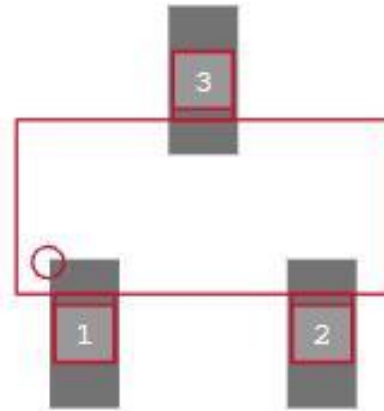
Pin	Name
1	anode (diode 1)
2	cathode (diode 2)
3	cathode (diode1) anode (diode 2)

BAT54S CAD Model



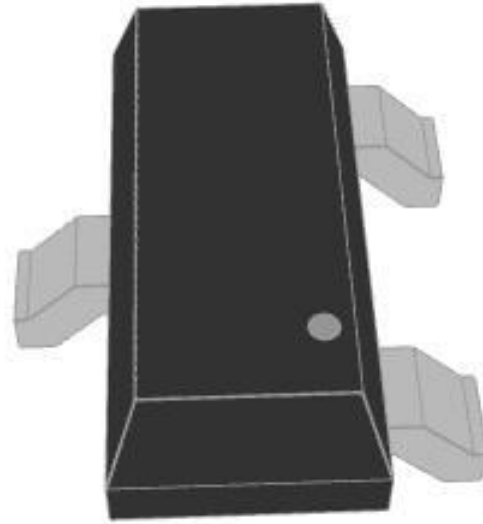
BAT54S Symbol

BAT54S CAD Model



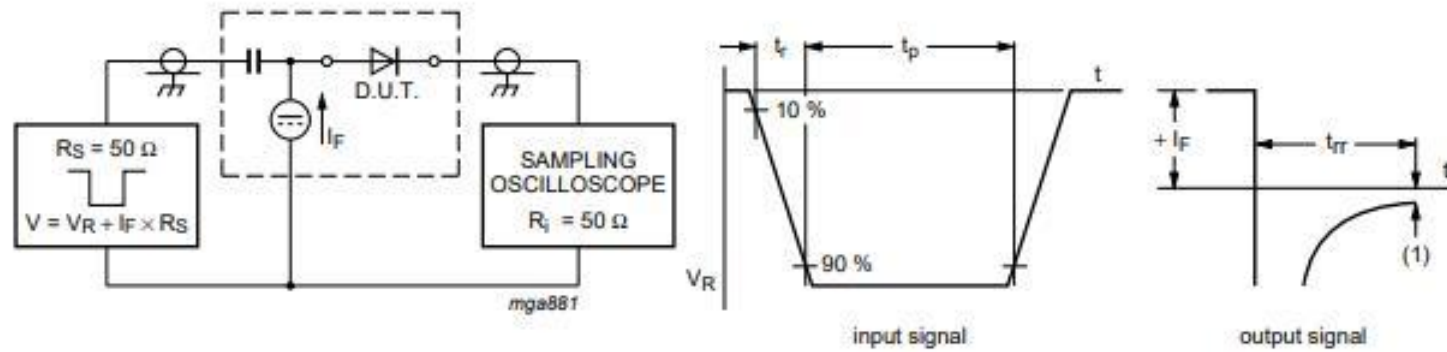
BAT54S Footprint

BAT54S CAD Model



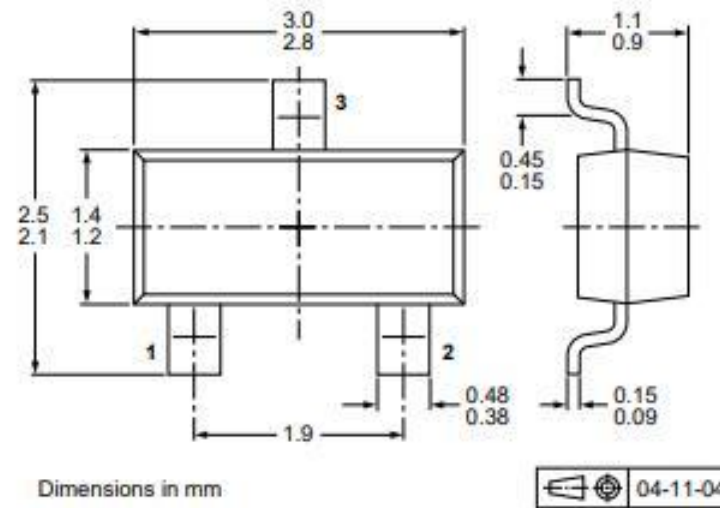
BAT54S 3D Model

BAT54S Test Circuit

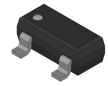


(1) $I_R = 1 \text{ mA}$

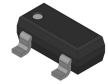
BAT54S Package



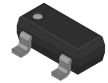
BAT54S Feature



Low forward voltage



Low capacitance



AEC-Q101 qualified

BAT54S Application

 Ultra high-speed switching

 Voltage clamping

 Line termination

 Reverse polarity protection

BAT54S Specifications

Type	Parameter		
Factory Lead Time	4 Weeks	Contact Material i	Copper
Mount	Surface Mount	Mounting Type	Surface Mount
Package / Case	TO-236-3, SC-59, SOT-23-3	Number of Pins	3
Diode Element Material	SILICON	Packaging i	Tape & Reel (TR)
Series	Automotive, AEC-Q101	JESD-609 Code	e3
Part Status i	Active	Moisture Sensitivity Level (MSL)	1 (Unlimited)
Number of Terminations	3	ECCN Code	EAR99
Terminal Finish	Tin (Sn)	Max Operating Temperature i	150°C
Min Operating Temperature	-55°C	Color	Black
HTS Code i	8541.10.00.70	Terminal Position	DUAL
Terminal Form i	GULL WING	Peak Reflow Temperature (Cel)	260
Current Rating i	500mA	Time@Peak Reflow Temperature- Max (s)	30

BAT54S Specifications

Base Part Number	BAT54S	Pin Count i	3
Lead Pitch	2.5mm	Number of Elements	2
Power Dissipation-Max	0.25W	Speed	Small Signal =< 200mA (Io), Any Speed
Diode Type	Schottky	Current - Reverse Leakage @ Vr	2µA @ 25V
Voltage - Forward (Vf) (Max) @ If	800mV @ 100mA	Forward Current i	200mA
Operating Temperature - Junction	150°C Max	Output Current-Max	0.2A
Voltage - DC Reverse (Vr) (Max)	30V	Current - Average Rectified (Io)	200mA DC
Forward Voltage i	800mV	Reverse Recovery Time	5ns
Diode Configuration	1 Pair Series Connection	Height	3.1mm
Length	28mm	Width	30.5mm
REACH SVHC	Unknown	RoHS Status i	ROHS3 Compliant

Advantages of BAT54S Schottky Diode

Firstly, its low forward voltage drop enhances energy efficiency and minimizes power losses, making it particularly suitable for battery-operated devices.




Additionally, the BAT54S exhibits rapid switching characteristics, contributing to high-speed signal processing and response times in electronic circuits.

Advantages of BAT54S Schottky Diode

The compact SOT-23 package design further facilitates space-efficient integration into compact electronic layouts.

Its robustness, coupled with a wide operating temperature range, ensures reliable performance across diverse operating conditions, reinforcing BAT54S as a preferred choice for designers seeking efficiency, speed, and reliability in their electronic projects.

BAT54S **VS** Other Diodes

Image			
Part Number	BAT54S,215	MMBD4448	MMBD7000
Manufacturer	Nexperia USA Inc.	ON Semiconductor	ON Semiconductor
Mount	Surface Mount	Surface Mount	Surface Mount
Package / Case	TO-236-3, SC-59, SOT-23-3	TO-236-3, SC-59, SOT-23-3	TO-236-3, SC-59, SOT-23-3
Forward Voltage	800 mV	1 V	1.1 V
Current - Average ...	200mA (DC)	200mA	200mA
Reverse Recovery ...	5ns	4 ns	4 ns
RoHS Status	ROHS3 Compliant	ROHS3 Compliant	ROHS3 Compliant
Forward Current	200 mA	200 mA	200 mA
Number of Pins	3	3	3
View Compare		BAT54S,215 VS MMBD4448	BAT54S,215 VS MMBD7000

Final Thoughts on BAT54S in Contemporary Electronics

The BAT54S Schottky diode stands as a pivotal component in contemporary electronics, offering a multitude of advantages. Its low forward voltage drop, swift switching characteristics, and compact design make it an ideal choice for various applications.

Final Thoughts on BAT54S in Contemporary Electronics

Whether in battery-powered devices, high-speed circuits, or space-constrained layouts, the BAT54S excels in optimizing energy efficiency, ensuring rapid signal processing, and facilitating efficient integration. Its versatility, coupled with reliability across diverse conditions, positions the BAT54S as a cornerstone for modern electronic designs, embodying efficiency, speed, and dependability in the ever-evolving landscape of electronic applications.