

Vishay Semiconductors

Small Signal Schottky Diode



FEATURES





 This diode features very low turn-on voltage and fast switching. This device is protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges



 This diode is also available in the SOD-123 case with type designation BAT46W-V and in the MiniMELF case with type designations LL46



- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see <u>www.vishav.com/doc?99912</u>

MECHANICAL DATA

Case: DO-35

Weight: approx. 125 mg
Cathode band color: Black
Packaging codes/options:

TR/10K per 13" reel (52 mm tape), 50K/box TAP/10K per ammopack (52 mm tape), 50K/box

PARTS TABLE						
PART	ORDERING CODE	INTERNAL CONSTRUCTION	TYPE MARKING	REMARKS		
BAT46	BAT46-TR or BAT46-TAP	Single diode	BAT46	Tape and reel/ammopack		

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Repetitive peak reverse voltage		V _{RRM}	100	V	
Forward continuous current (1)		I _F	150	mA	
Repetitive peak forward current (1)	$t_p < 1 \text{ s, } \delta < 0.5$	I _{FRM}	350	mA	
Surge forward current (1)	t _p < 10 ms	I _{FSM}	750	mA	
Power dissipation (1)	T _{amb} = 80 °C	P _{tot}	150	mW	

Note

⁽¹⁾ Valid provided that electrodes are kept at ambient temperature

THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to ambient air	Valid provided that electrodes are kept at ambient temperature	R _{thJA}	300	K/W	
Junction temperature		Tj	125	°C	
Ambient operating temperature range		T _{amb}	- 65 to + 125	°C	
Storage temperature range		T _{stg}	- 65 to + 150	°C	



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ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	I _R = 100 μA (pulsed)	V _(BR)	100			V
	V _R = 1.5 V	I _R			0.5	μΑ
	$V_R = 1.5 \text{ V}, T_j = 60 ^{\circ}\text{C}$	I _R			5	μΑ
	V _R = 10 V	I _R			0.8	μΑ
Leakage current ⁽¹⁾	$V_R = 10 \text{ V}, T_j = 60 ^{\circ}\text{C}$	I _R			7.5	μΑ
Leakage current (1)	V _R = 50 V	I _R			2	μA
	$V_R = 50 \text{ V}, T_j = 60 ^{\circ}\text{C}$	I _R			15	μΑ
	V _R = 75 V	I _R			5	μΑ
	$V_R = 75 \text{ V}, T_j = 60 ^{\circ}\text{C}$	I _R			20	μΑ
	I _F = 0.1 mA	V _F			250	mV
Forward voltage (1)	I _F = 10 mA	V _F			450	mV
	I _F = 250 mA	V _F			1000	mV
Diada canacitanas	V _R = 0 V, f = 1 MHz	C _D		10		pF
Diode capacitance	V _R = 1 V, f = 1 MHz	C _D		6		pF

Note

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

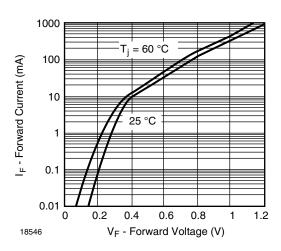


Fig. 1 - Typical Instantaneous Forward Characteristics

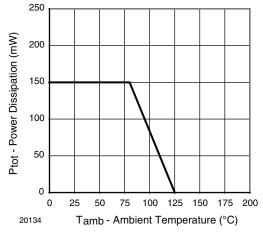


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

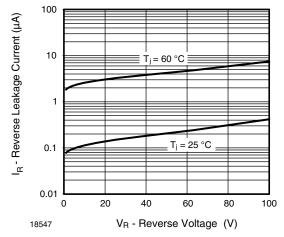


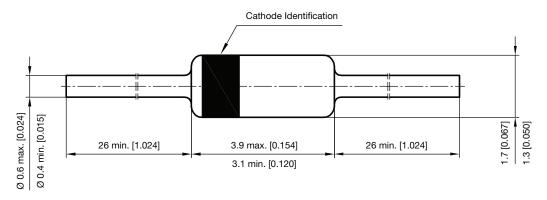
Fig. 2 - Typical Reverse Characteristics

 $^{^{(1)}~}$ Pulse test; $t_p \leq 300~\mu s,$, $\delta < 2~\%$



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PACKAGE DIMENSIONS in millimeters (inches): DO-35



Rev. 6 - Date: 19. December 2011 Document no.: SB-V-3906.04-031(4)

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Revision: 02-Oct-12 Document Number: 91000

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Офис по работе с юридическими лицами:

105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru moschip.ru_6 moschip.ru 4 moschip.ru 9