

Vishay Semiconductors

Small Signal Schottky Diode



FEATURES





 These diodes feature very low turn-on voltage and fast guard ring against excessive voltage, such as electrostatic discharges



 These diodes are also available in the SOD-123 case with the type designations BAT42W-V to BAT43W-V and in MiniMELF SOD-80 case with the type designations LL42 to LL43



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

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MECHANICAL DATA

Case: DO-35 (DO-204AH)
Weight: approx. 125 mg
Cathode band color: black
Packaging codes/options:

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

PARTS TABLE				
PART	ORDERING CODE	CIRCUIT CONFIGURATION	TYPE MARKING	REMARKS
BAT42	BAT42-TR or BAT42-TAP	Single	BAT42	Tape and reel/ammopack
BAT43	BAT43-TR or BAT43-TAP	Single	BAT43	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}	30	V	
Forward continuous current (1)		I _F	200	mA	
Repetitive peak forward current (1)	$t_p < 1 \text{ s, } \delta < 0.5$	I _{FRM}	500	mA	
Surge forward current (1)	t _p < 10 ms	I _{FSM}	4	Α	
Power dissipation (1)	T _{amb} = 65 °C	P _{tot}	200	mW	

Note

(1) Valid provided that leads at a distance of 4 mm from case 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 (1)		R _{thJA}	300	K/W		
Junction temperature		T _j	125	°C		
Ambient operating temperature range		T _{amb}	-65 to +125	°C		
Storage temperature range		T _{stq}	-65 to +150	°C		

Note

⁽¹⁾ Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature



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ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	I _R = 100 μA (pulsed)		V _(BR)	30			V
1 - 1 (1)	V _R = 25 V		I _R			0.5	μA
Leakage current (1)	$V_R = 25 \text{ V}, T_j = 100 ^{\circ}\text{C}$		I _R			100	μA
	I _F = 200 mA		V _F			1000	mV
	I _F = 10 mA	BAT42	V _F			400	mV
Forward voltage (1)	$I_F = 50 \text{ mA}$	BAT42	V _F			650	mV
	I _F = 2 mA	BAT43	V _F	260		330	mV
	I _F = 15 mA	BAT43	V _F			0.5 100 1000 400 650	mV
Diode capacitance	V _R = 1 V, f = 1 MHz		C _D		7		pF
Reserve recovery time	$I_F = 10 \text{ mA}, I_R = 10 \text{ mA},$ $I_R = 1 \text{ mA}, R_L = 100 \Omega$		t _{rr}			5	ns
Rectification efficieny	$R_L = 15 \text{ k}\Omega, C_L = 300 \text{ pF},$ f = 45 MHz, $V_{RF} = 2 \text{ V}$		ην	80			%

Note

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

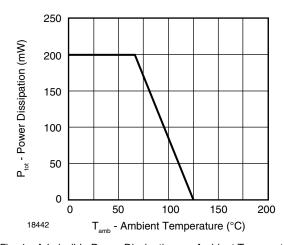


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

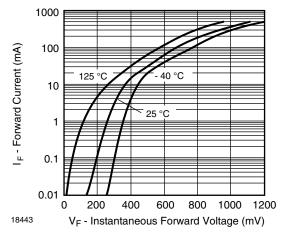


Fig. 2 - Typical Forward Characteristics

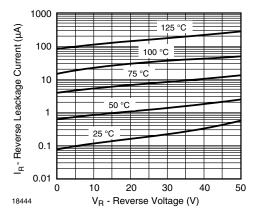


Fig. 3 - Typical Reverse Characteristics

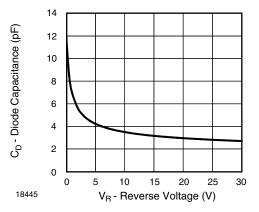
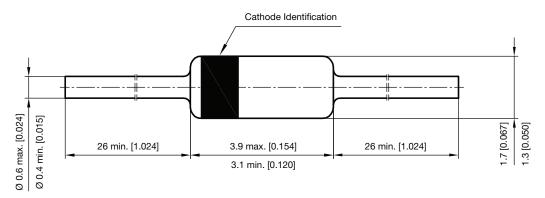


Fig. 4 - Typical Capacitance vs. Reverse Voltage

 $^{^{(1)}~}$ Pulse test; $t_p < 300~\mu s,\, t_p/T < 0.02$

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PACKAGE DIMENSIONS in millimeters (inches): DO-35 (DO-204AH)



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