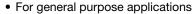


### Vishay Semiconductors

## **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



 Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

### **LINKS TO ADDITIONAL RESOURCES**



#### **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 <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Repetitive peak reverse voltage		$V_{RRM}$	30	V		
Forward continuous current (1)		I <sub>F</sub>	200	mA		
Repetitive peak forward current (1)	$t_p < 1 \text{ s, } \delta < 0.5$	I <sub>FRM</sub>	500	mA		
Surge forward current (1)	t <sub>p</sub> < 10 ms	I <sub>FSM</sub>	4	Α		
Power dissipation (1)	T <sub>amb</sub> = 65 °C	P <sub>tot</sub>	200	mW		

#### Note

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

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Thermal resistance junction to ambient air (1)		R <sub>thJA</sub>	300	K/W		
Junction temperature		Tj	125	°C		
Ambient operating temperature range		T <sub>amb</sub>	-65 to +125	°C		
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C		

#### Note

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



## Vishay Semiconductors

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	I <sub>R</sub> = 100 μA (pulsed)		V <sub>(BR)</sub>	30			V
Lookaga augrant (1)	V <sub>R</sub> = 25 V		I <sub>R</sub>			0.5	μA
Leakage current (1)	$V_R = 25 \text{ V}, T_j = 100 \text{ °C}$		I <sub>R</sub>			100	μA
	I <sub>F</sub> = 200 mA		V <sub>F</sub>			1000	mV
	I <sub>F</sub> = 10 mA	BAT42	V <sub>F</sub>			400	mV
Forward voltage (1)	I <sub>F</sub> = 50 mA	BAT42	V <sub>F</sub>			650	mV
	I <sub>F</sub> = 2 mA	BAT43	V <sub>F</sub>	260		330	mV
	I <sub>F</sub> = 15 mA	BAT43	V <sub>F</sub>			450	mV
Diode capacitance	V <sub>R</sub> = 1 V, f = 1 MHz		C <sub>D</sub>		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 <sub>rr</sub>			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<sub>amb</sub> = 25 °C, unless otherwise specified)

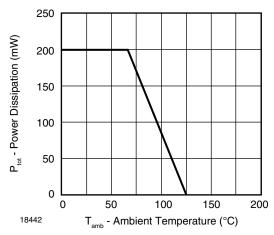


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

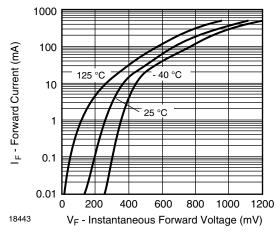


Fig. 2 - Typical Forward Characteristics

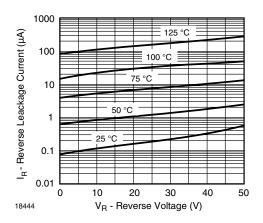


Fig. 3 - Typical Reverse Characteristics

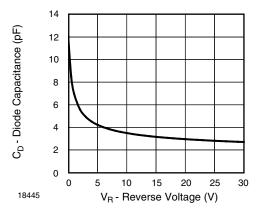


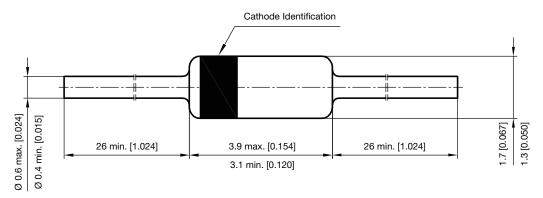
Fig. 4 - Typical Capacitance vs. Reverse Voltage

<sup>(1)</sup> Pulse test;  $t_p < 300 \mu s$ ,  $t_p/T < 0.02$ 



# Vishay Semiconductors

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



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

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