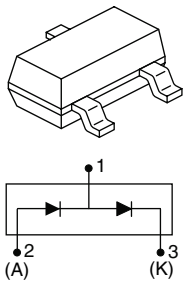
Schottky Diode, 2 x 0.1 A



SOT-23

FEATURES

- Small foot print, surface mountable
- Very low forward voltage drop
- Extremely fast switching speed for high frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for industrial level

Pb-free
RoHS COMPLIANT

DESCRIPTION

This Schottky barrier diode is designed for high speed switching applications, voltage clamping and circuit protection. Miniature surface mount packages with reduced foot print are excellent for portable applications where space is limited.

PRODUCT SUMMARY	
$I_{F(AV)}$	2 x 0.1 A
V_R	30 V

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
I_F	DC	0.2	A
V_{RRM}		30	V
I_{FSM}	t_p = 10 ms sine	1.0	A
V_F	30 mA DC, T_J = 25 °C	0.5	V
P_d	Power dissipation at T_A = 25 °C	200	mW
T_J	Range	- 65 to 150	°C

VOLTAGE RATINGS			
PARAMETER	SYMBOL	BAT54SPbF	UNITS
Maximum DC reverse voltage	V_R	30	V
Maximum working peak reverse voltage	V_{RWM}		

ABSOLUTE MAXIMUM RATINGS						
PARAMETER		SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current	per leg	$I_{F(AV)}$	DC		0.1	A
	per device				0.2	
Maximum peak one cycle non-repetitive surge current at T_J = 25 °C		I_{FSM}	5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated V_{RRM} applied	8.4	
			10 ms sine or 6 ms rect. pulse		1.0	

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V_{FM} (1)	0.1 A	T_J = 25 °C	0.65	V
		30 mA		0.50	
		10 mA		0.40	
		1 mA		0.32	
		0.1 mA		0.24	
Maximum reverse leakage current	I_{RM} (1)	V_R = 25 V		2	µA
		V_R = 30 V		3	
Maximum junction capacitance	C_T	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz), T_J = 25 °C		10	pF
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/µs

Note

(1) Pulse width < 300 µs, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T_J (1), T_{Stg}		- 65 to 150	°C
Maximum thermal resistance, junction to ambient	R_{thJA}	Mounted on PC board FR4 with minimum pad size	500	°C/W
Approximate weight			0.008	g
Marking device		Case style SOT-23	HY$\overline{W}$LC	

Note

(1) $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{thJA}}$ thermal runaway condition for a diode on its own heatsink

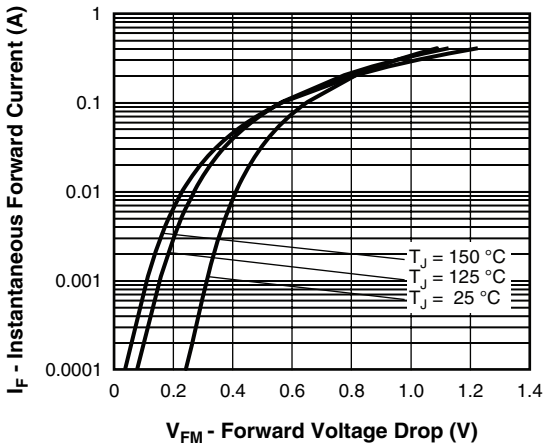


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

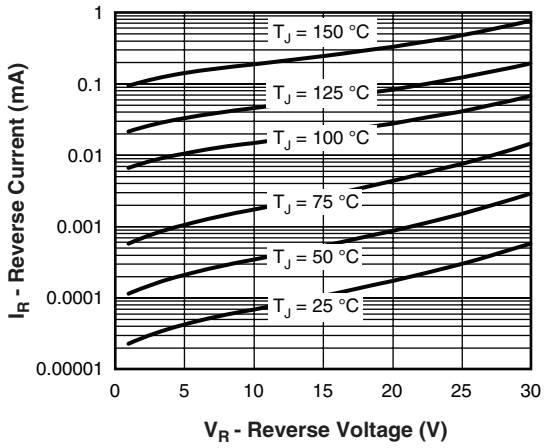


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

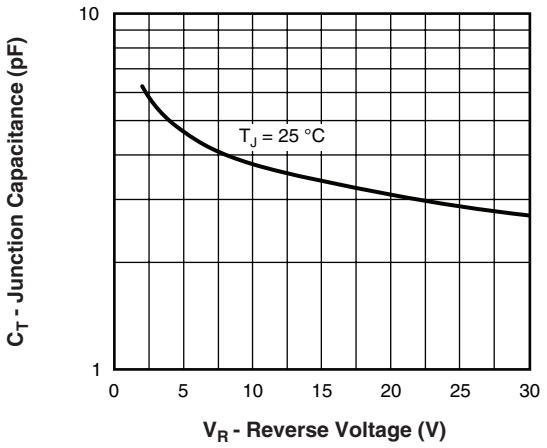


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

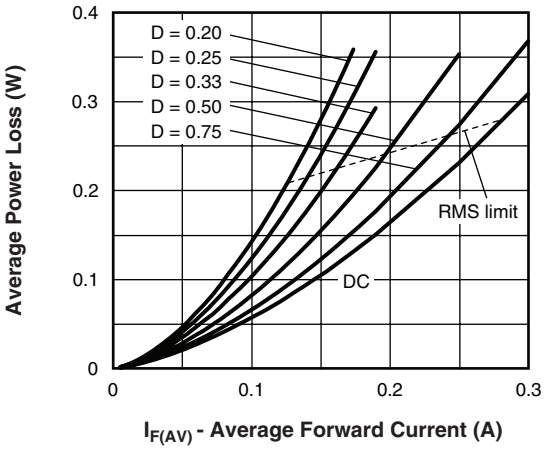


Fig. 4 - Forward Power Loss Characteristics

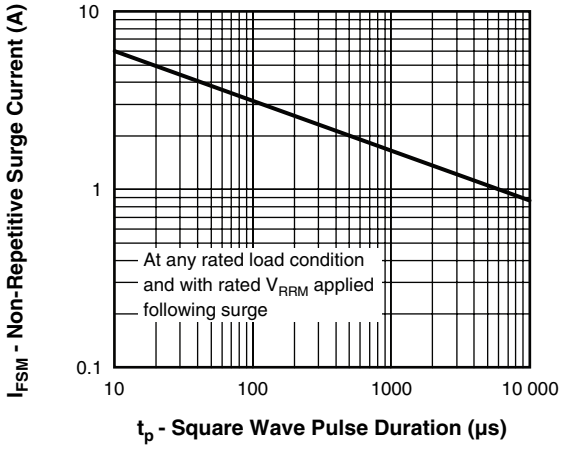


Fig. 5 - Maximum Non-Repetitive Surge Current

ORDERING INFORMATION TABLE					
DEVICE	PACKAGE	MARKING	CONFIGURATION	BASE QUANTITY	DELIVERY MODE
BAT54S	SOT-23	HY̲W̅LC	Dual Series	3000	Tape and reel

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95048
Part marking information	www.vishay.com/doc?95338
Packaging information	www.vishay.com/doc?95061

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