500mA, 20V - 40V Schottky Barrier Diode

FEATURES

- Low power loss, high current capability, low V_F
- Surface mount device type
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application

MECHANICAL DATA

- Case: SOD-123
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 10.0mg (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	500	mA
V_{RRM}	20 - 40	V
I_{FSM}	5.5	A
$T_{J\ MAX}$	125	°C
Package	SOD-123	
Configuration	Single Die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOD-123

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)					
PARAMETER	**SYMBOL**	**B0520LW**	**B0530W**	**B0540W**	**UNIT**
Marking code on the device		SD	SE	SF	
Power Dissipation	P_D	410			mW
Repetitive peak reverse voltage	V_{RRM}	20	30	40	V
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	V
Forward current	I_F	500			mA
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	5.5			A
Junction temperature	T_J	- 55 to +125			°C
Storage temperature	T_{STG}	- 55 to +125			°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	244	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	VALUE	UNIT
Reverse Breakdown Voltage (Minimum Value)	B0520LW	I_R = 250μA	V_{BR}	20	V
	B0530W	I_R = 130μA		30	V
	B0540W	I_R = 20μA		40	V
Forward voltage[1] (Maximum Value)	B0520LW	I_F = 100mA	V_F	0.300	V
	B0530W			0.375	V
	B0540W			-	V
	B0520LW	I_F = 500mA		0.385	V
	B0530W			0.430	V
	B0540W			0.510	V
	B0520LW	I_F = 1000mA		-	V
	B0530W			-	V
	B0540W			0.620	V
Reverse current @ rated V_R[2] (Maximum Value)	B0520LW	V_R = 10V	I_R	75	μA
	B0530W			-	μA
	B0540W			-	μA
	B0520LW	V_R = 15V		-	μA
	B0530W			20	μA
	B0540W			-	μA
	B0520LW	V_R = 20V		250	μA
	B0530W			-	μA
	B0540W			10	μA
	B0520LW	V_R = 30V		-	μA
	B0530W			130	μA
	B0540W			-	μA
	B0520LW	V_R = 40V		-	μA
	B0530W			-	μA
	B0540W			20	μA
Junction capacitance		1MHz, V_R = 0V	C_J	170	pF

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
B05x RHG	SOD-123	3,000 / 7" Tape & Reel

Notes:

1. "x" defines voltage from 20V(B0520LW) to 40V(B0540W)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Characteristics

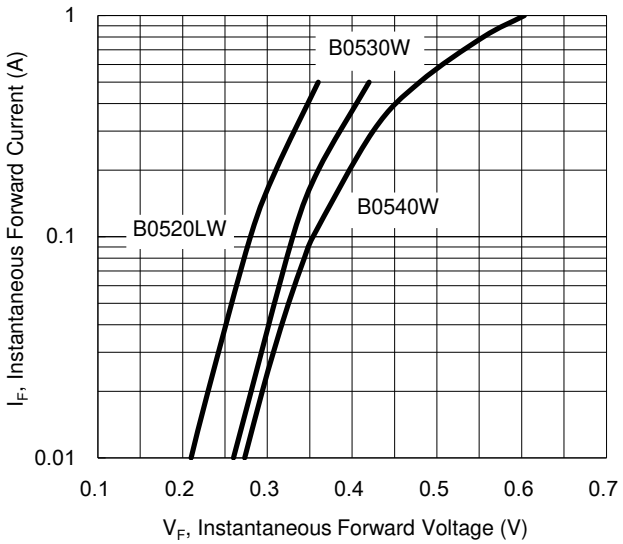


Fig.2 Forward Current Derating Curve

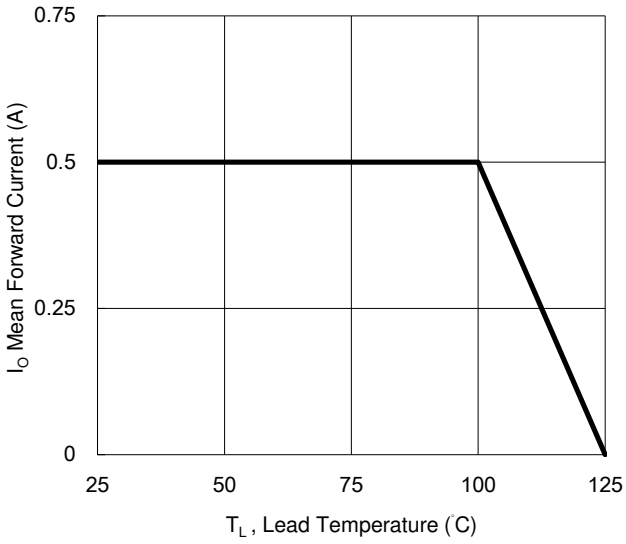


Fig.3 Power Derating Curve

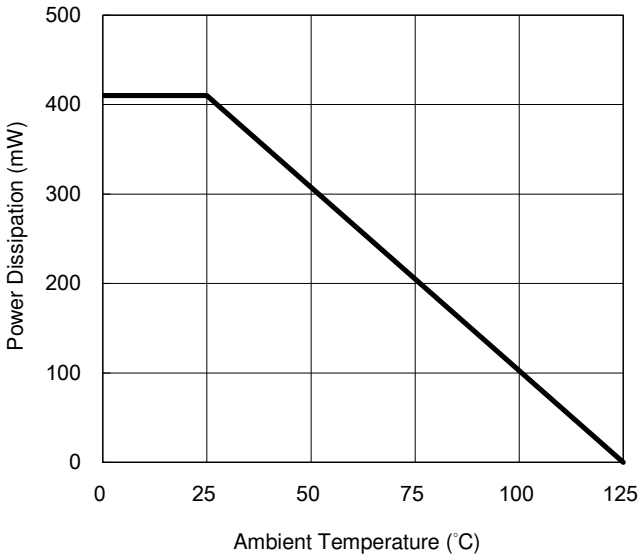
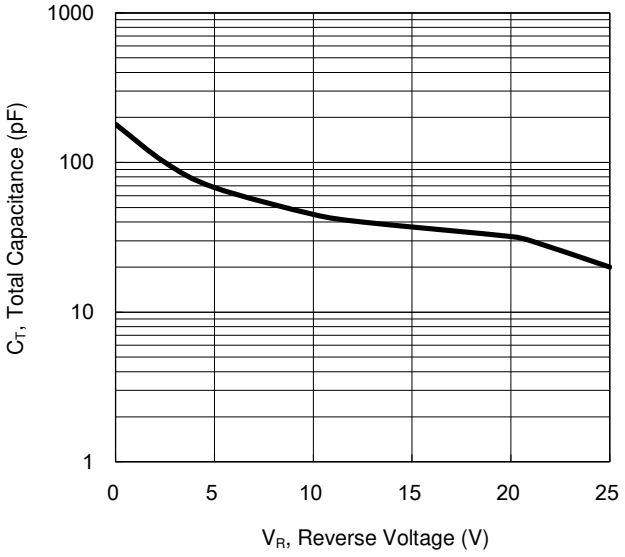
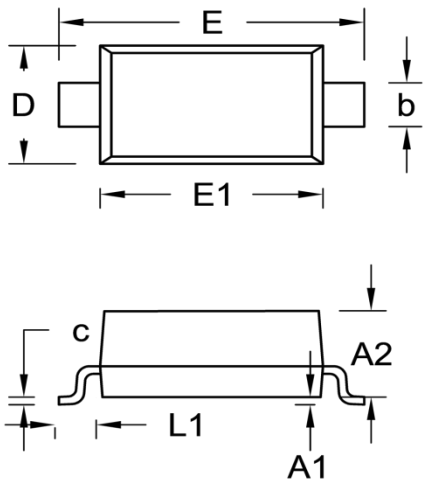


Fig.4 Typical Capacitance vs. Reverse Voltage



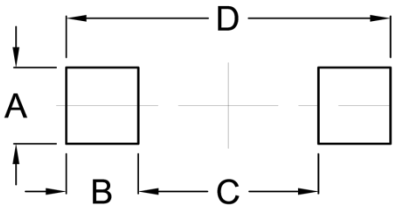
PACKAGE OUTLINE DIMENSIONS

SOD-123



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A1	-	0.10	-	0.004
A2	0.95	1.30	0.037	0.051
b	0.45	0.70	0.018	0.028
c	0.05	0.15	0.002	0.006
D	1.40	1.70	0.055	0.067
E	3.55	3.85	0.140	0.152
E1	2.55	2.85	0.100	0.112
L1	0.50 (REF)		0.020 (REF)	

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	0.95	0.037
B	0.90	0.035
C	2.25	0.089
D	4.05	0.159

Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

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