

20V, 1A SCHOTTKY BARRIER RECTIFIER

Features

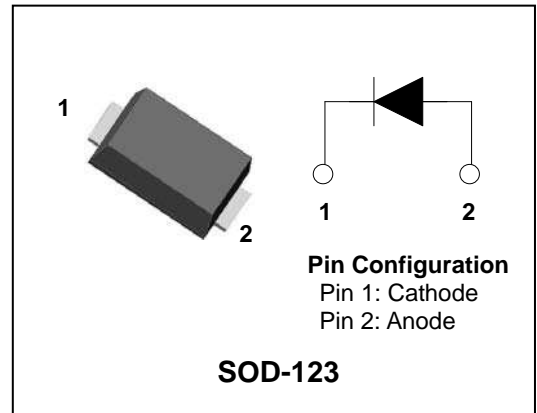
- Low forward voltage drop
- Low power loss and High efficiency
- Low leakage current
- High surge capability
- Full lead (Pb)-free and RoHS compliant device

Applications

- High efficiency SMPS
- Output rectification
- High frequency switching
- Freewheeling
- DC-DC converter systems

Description

The SDB120G is suited for Switch Mode Power Supply and high frequency DC to DC converters. This device is especially intended for use in low voltage, high frequency inverters, freewheeling and polarity protection applications.



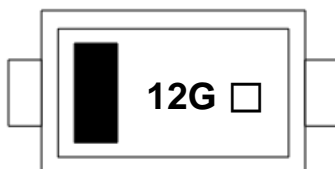
Product Characteristics

$I_{F(AV)}$	1A
V_{RRM}	20V
V_{FM} at 125°C	0.35V (Typ.)
T_J max.	150°C

Ordering Information

Device	Marking Code	Package	Packaging
SDB120G	12G□	SOD-123	Tape & Reel

Marking Information



12G = Specific Device Code

□ = Year & Week Code Marking

■ = Color band denote cathode

Absolute Maximum Ratings (Rating at 25°C ambient temperature unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage	V_{RRM} V_{RWM} V_R	20	V
Maximum average forward rectified current	$I_{F(AV)}$	1	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode	I_{FSM}	12	A
Storage temperature range	T_{stg}	-55°C to +150°C	°C
Maximum operating junction temperature	T_J	150	°C

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to ambient	$R_{th(j-a)}$ ¹⁾	250	°C/W

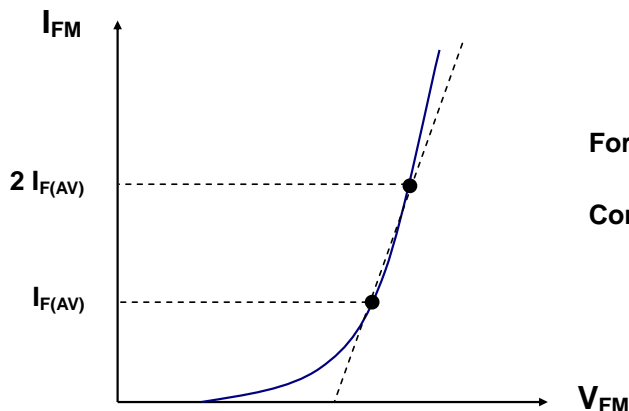
* 1) Device mounted on FR-4 board with recommended pad layout.

Electrical Characteristics (Rating at 25°C ambient temperature unless otherwise specified.)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Peak forward voltage drop	V_{FM} ²⁾	$I_{FM} = 1A$	$T_J = 25^\circ C$	-	0.45	0.50	V
			$T_J = 125^\circ C$	-	0.35	0.40	V
Reverse leakage current	I_{RM} ²⁾	$V_R = V_{RRM}$	$T_J = 25^\circ C$	-	-	1	mA
			$T_J = 125^\circ C$	-	-	25	mA
Typical junction capacitance	C_J	$V_R = 1V, f = 1MHz$	-	280	-	pF	

* 2) Pulse test: $t_p \leq 380 \mu s$, Duty cycle $\leq 2\%$

To evaluate the conduction losses use the following equation : $P_F = 0.34 I_{F(AV)} + 0.091 I_F^2 (RMS)$



$$\text{Forward Voltage : } V_{FM} = V_{to} + rd I_{FM}$$

$$\text{Conduction Loss : } P_F = V_{to} I_{F(AV)} + rd I_F^2 (RMS)$$

Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics

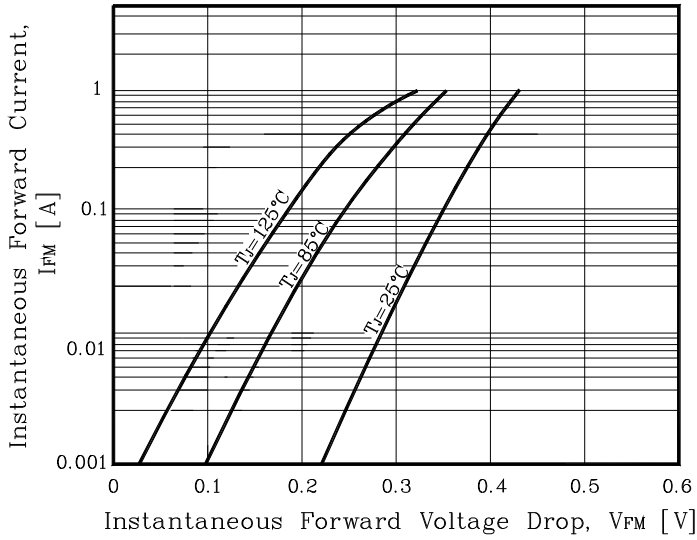


Fig. 2) Typical Reverse Characteristics

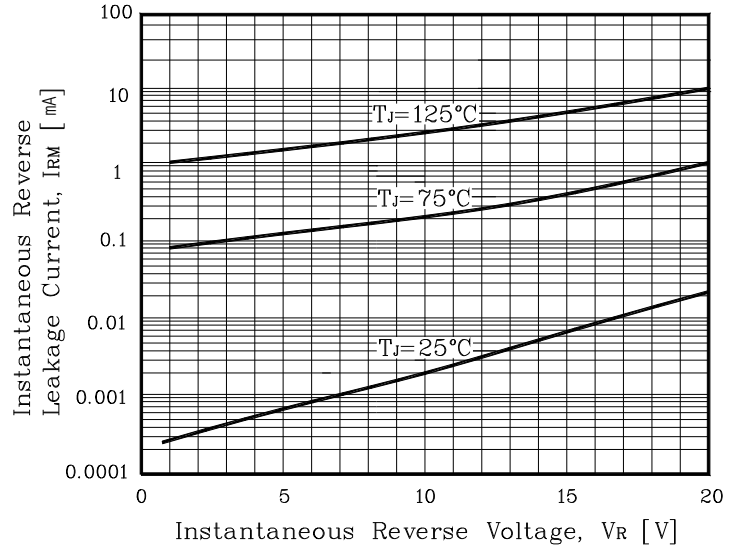


Fig. 3) Maximum Forward Derating Curve

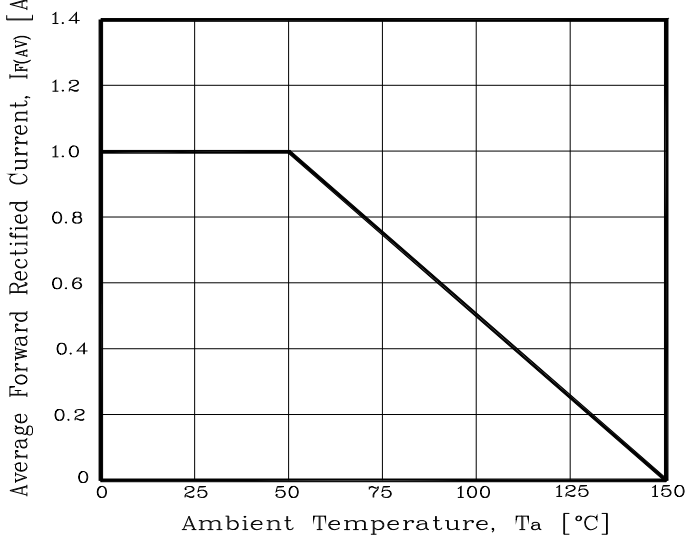


Fig. 4) Forward Power Dissipation

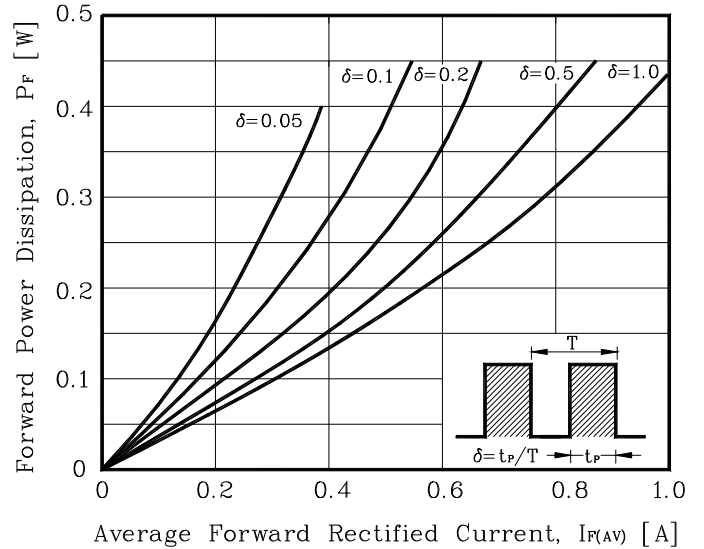
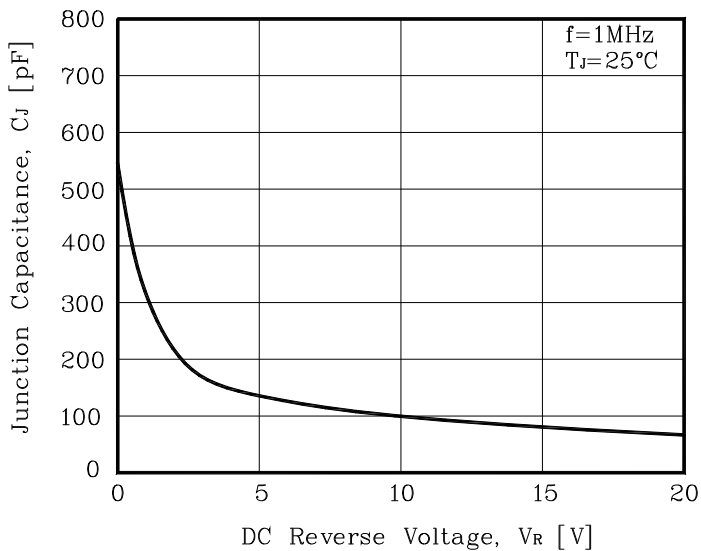
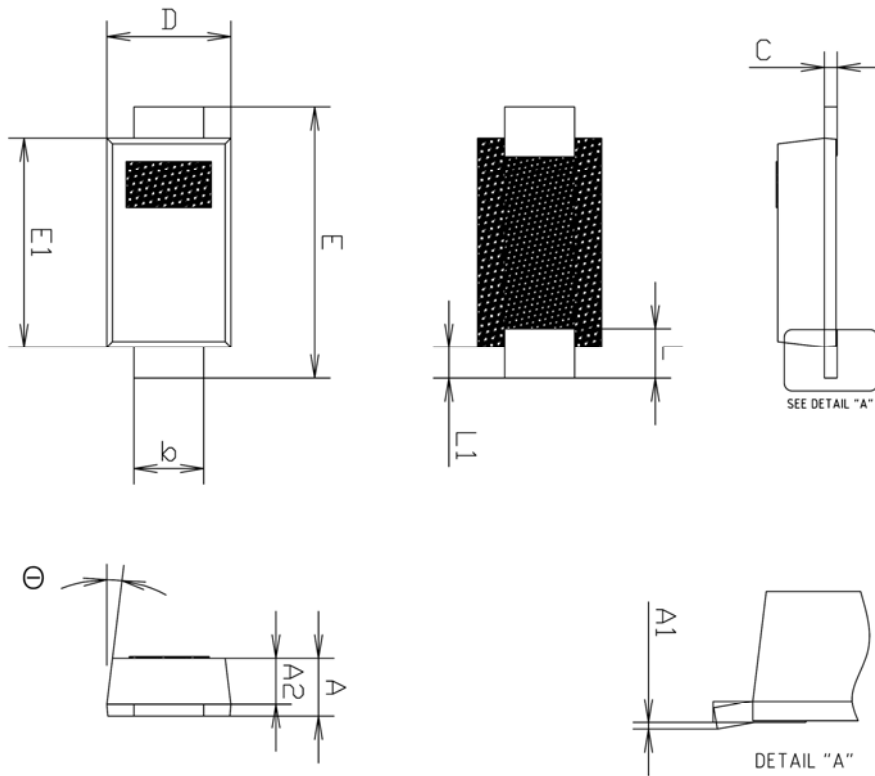


Fig. 5) Typical Junction Capacitance

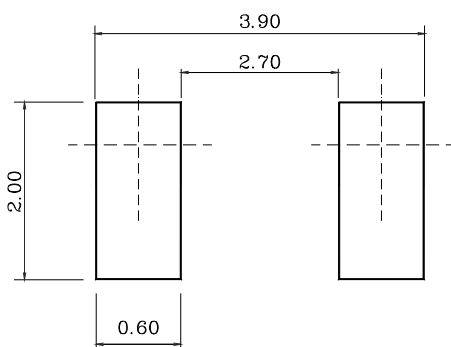


Package Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	0.70	0.750	0.80	
A1	0.00	—	0.10	
A2	0.55	0.60	0.65	
b	0.85	0.92	0.99	
c	0.12	0.17	0.22	
D	1.50	1.60	1.70	
E	3.30	3.50	3.70	
E1	2.60	2.70	2.80	
L	0.49	0.64	0.79	
L1	0.30	0.40	0.50	
Θ	4°	—	10°	

Recommend PCB Solder Land Dimension (Unit: mm)



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