B5817WS-FL / B5818WS-FL / B5819WS-FL

List

B5817WS-FL / B5818WS-FL / B5819WS-FL

1.0A Surface Mount Schottky Barrier Diode 20V-40V

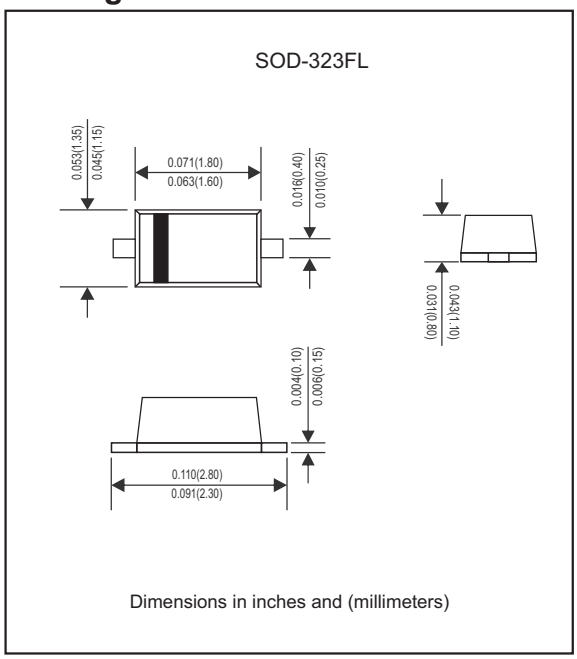
Features

- Surface mounting type
- For use in low voltage, high frequency inverters
- Free wheeling, and polarity protection applications
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. B5817WS-FL-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323FL
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.005 gram

Package Outline



Maximum ratings (AT T_A=25°C unless otherwise noted)

Parameter	Symbol	B5817WS-FL	B5818WS-FL	B5819WS-FL	Unit
Reverse voltage	V_R	20	30	40	V
Average forward rectified current	$I_{F(AV)}$	1			A
Non-repetitive peak forward surge current (t=8.3ms)	I_{FSM}	9			A
Power dissipation	P_{tot}	450			mW
Operating junction temperature range	T_J	-55 to +125			°C
Storage temperature range	T_{STG}	-55 to +125			°C

Electrical characteristics (AT T_A=25°C unless otherwise noted)

Parameter	Symbol	B5817WS-FL	B5818WS-FL	B5819WS-FL	Unit
Minimum reverse breakdown voltage at I_R=1mA	V_{BR}	20	30	40	V
Maximum forward voltage at I_F=1A	V_F	0.45	0.55	0.60	V
Maximum forward voltage at I_F=3A		0.75	0.875	0.90	
Maximum reverse voltage leakage current at rated V_R	I_R	1			mA
Maximum total capacitance at V_R=4V, f=1MHz	C_{tot}	120			pF

Rating and characteristic curves (B5817WS-FL/B5818WS-FL/B5819WS-FL)

Fig.1 Forward Current Derating Curve

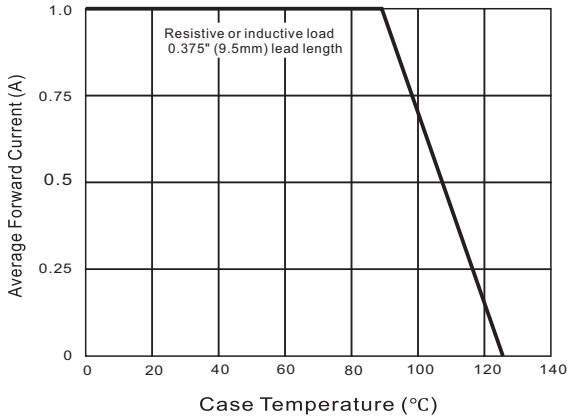


Fig.2 Maximum Non-Repetitive Peak Forward Surge Current

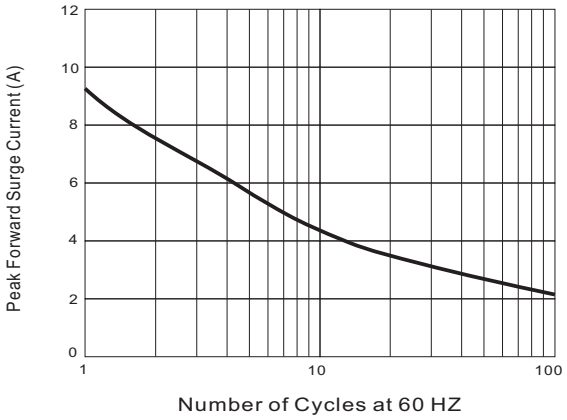


Fig.3 Typical Instantaneous Forward Characteristics

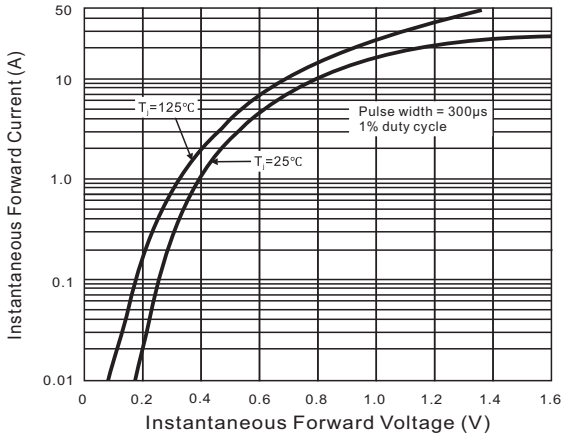


Fig.4 Typical Reverse Characteristics

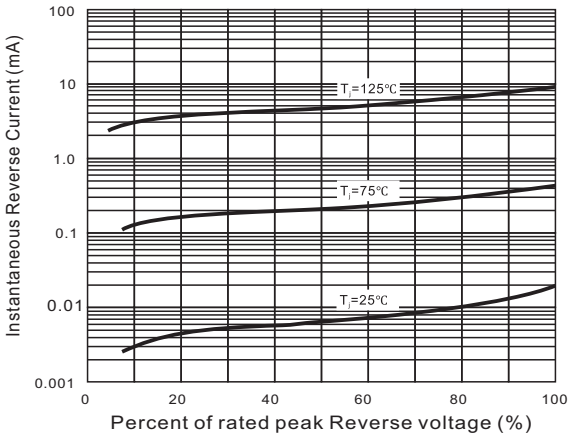


Fig.5 Typical Junction Capacitance

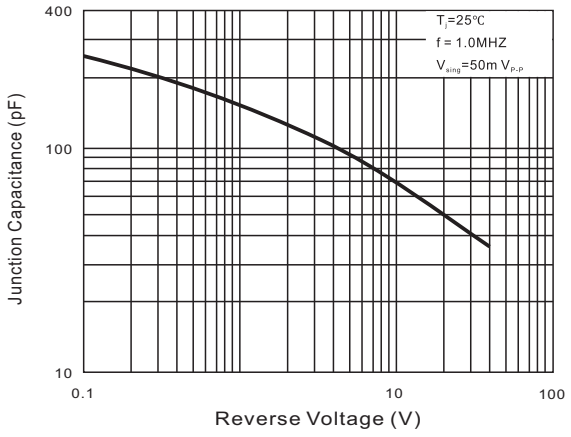
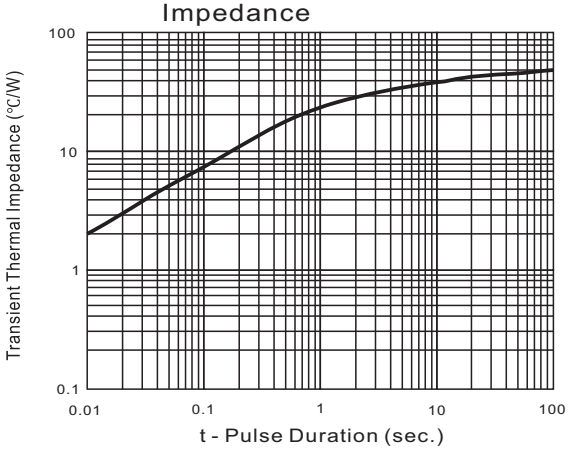


Fig.6 Typical Transient Thermal Impedance



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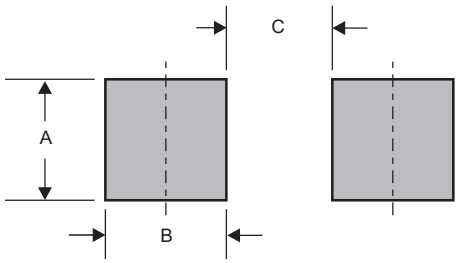
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
B5817WS-FL	SJ
B5818WS-FL	SL
B5819WS-FL	SL

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323FL	0.033 (0.83)	0.027 (0.70)	0.057 (1.45)

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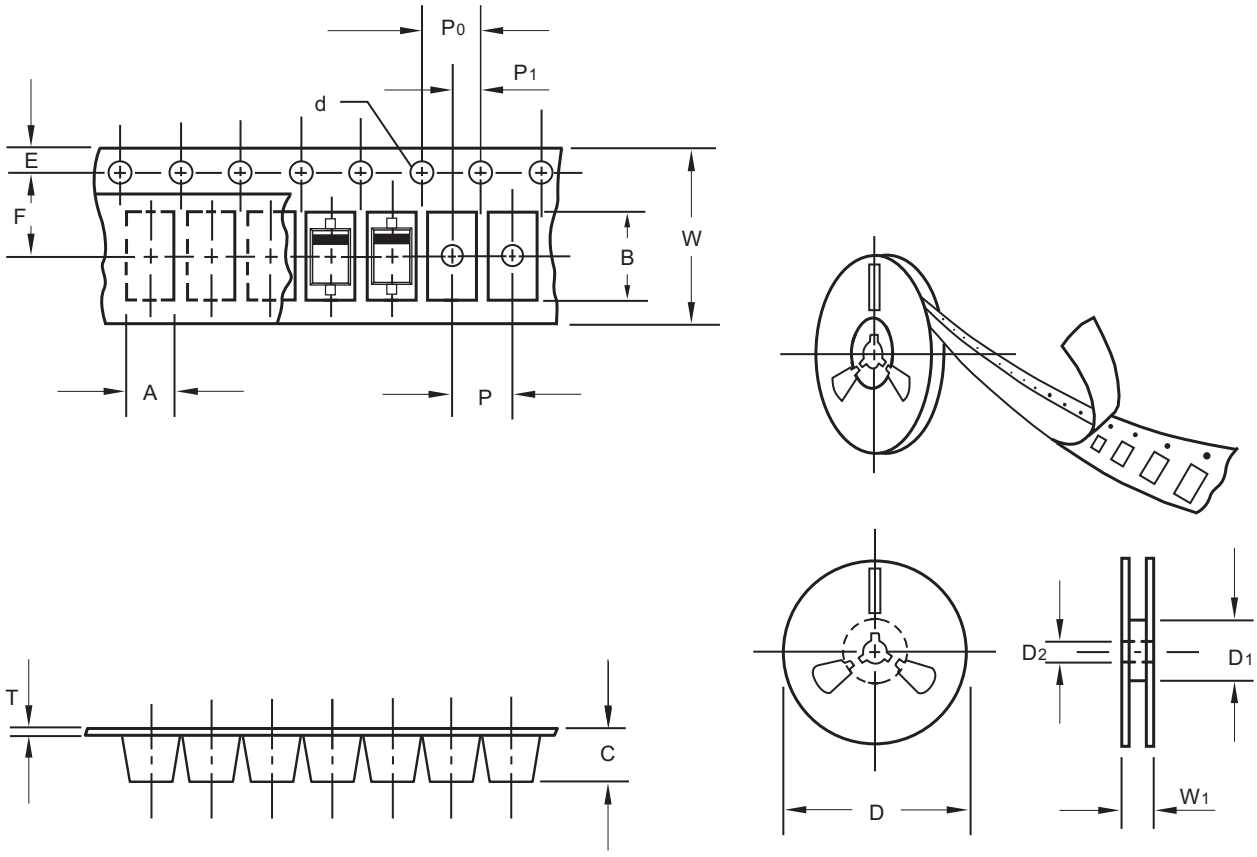
Packing information



unit:mm

Item	Symbol	Tolerance	SOD-323FL
Carrier width	A	0.1	1.45
Carrier length	B	0.1	2.75
Carrier depth	C	0.1	0.97
Sprocket hole	d	0.1	1.55
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D_1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	62.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Carrier thickness	T	0.02	0.21
Tape width	W	0.1	8.00
Reel width	W_1	1.0	11.40

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

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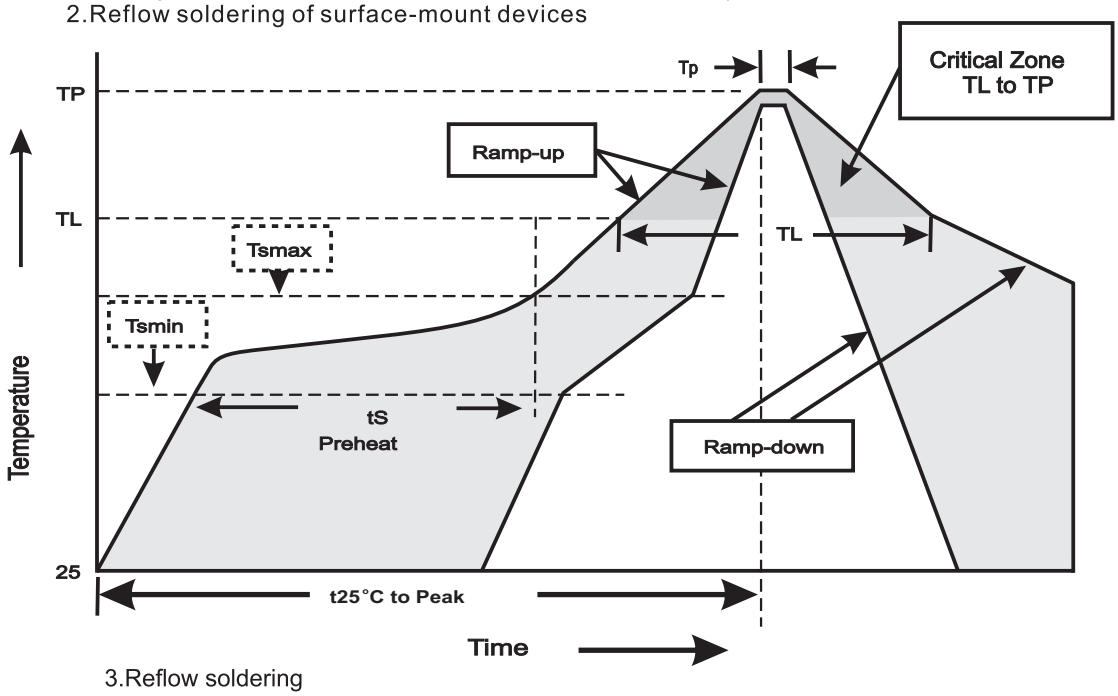
Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOD-323FL	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	8.0

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_R=80% rate at T_J=125°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at T_A=25°C for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	T_A = 25°C, I_F = I_O On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	15P_{SIG} at T_A=121°C for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	Peak Forward Surge Current at 60Hz for 1cycle	MIL-STD-750D METHOD-4066-2
9. Humidity	at T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031