

B0520LW / B0530W / B0540W**List**

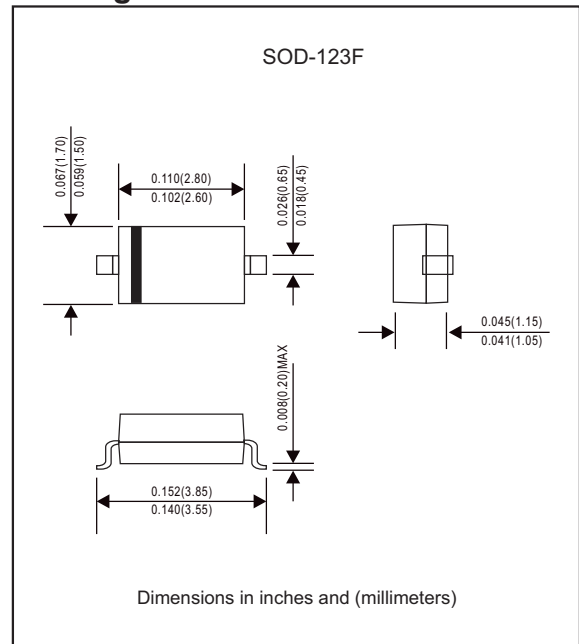
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B0520LW / B0530W / B0540W**0.5A Surface Mount Schottky
Barrier Rectifiers- 20-40V****Features**

- Small surface mounting type
- Low forward voltage
- Guard ring construction for transient protection
- High conductance
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. B0520LW-H

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123F
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.010 gram

Package outline**Maximum ratings** (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

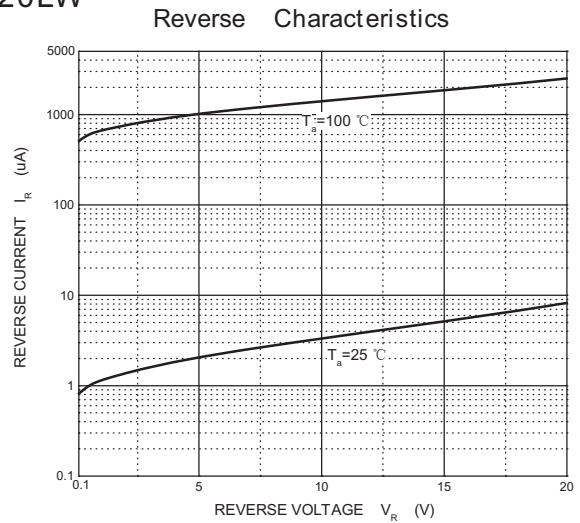
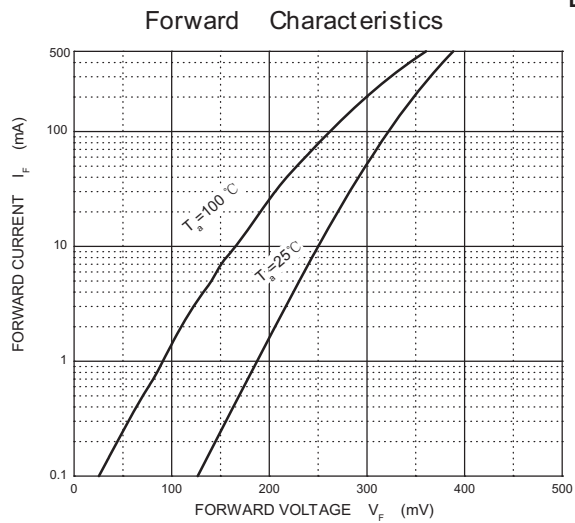
PARAMETER	SYMBOLS	B0520LW	B0530W	B0540W	UNIT
Maximum peak repetitive peak reverse voltage	V_{RRM}	20	30	40	Volts
Maximum working peak reverse voltage	V_{RWM}				
Maximum DC blocking voltage	V_R				
Maximum RMS voltage	V_{RMS}	14	21	28	Volts
Maximum average rectified output current	I_O	0.5			Amps
Non-repetitive peak forward surge current @t=8.3ms	I_{FSM}	5.5			Amps
Power dissipation	P_D	500			mW
Typical thermal resistance junction to ambient	$R_{\theta JA}$	250			$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	T_J	-55 to +125			$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150			$^{\circ}\text{C}$

Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

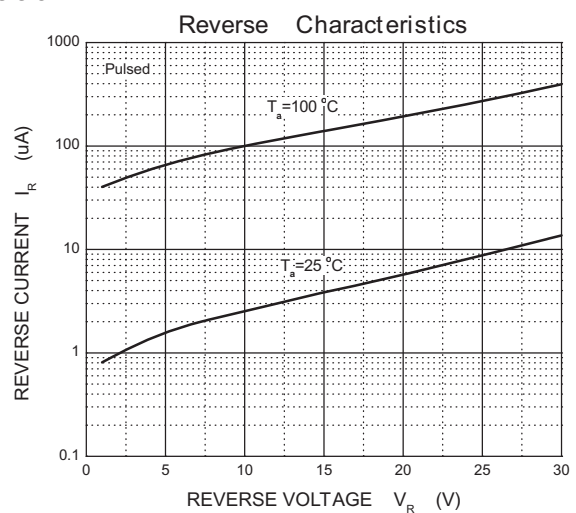
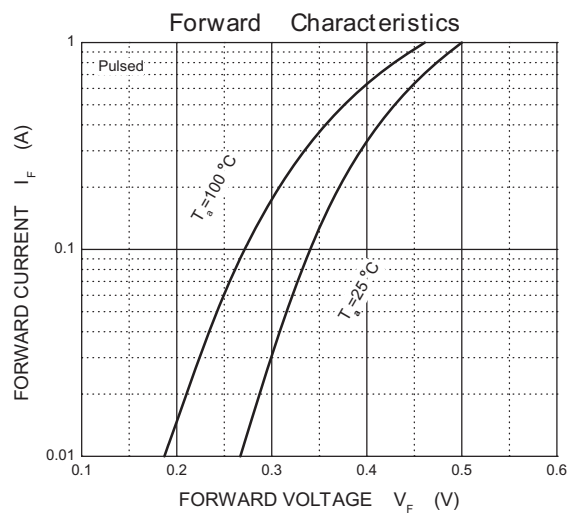
PARAMETER	SYMBOLS	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	$V_{(BR)R}$	20			V
		30			
		40			
Forward voltage	V_F			0.330 0.375 0.390 0.430 0.510 0.620	V
Reverse leakage current	I_R			75 20 250 10 130 20	μA
Capacitance between terminals	C_T		170 170	170	pF

Rating and characteristic curves

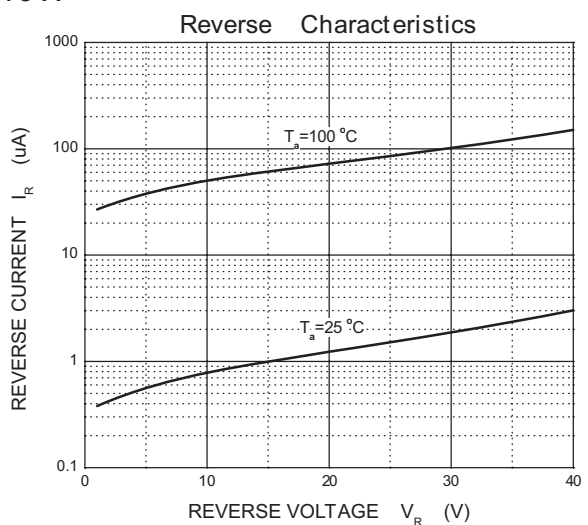
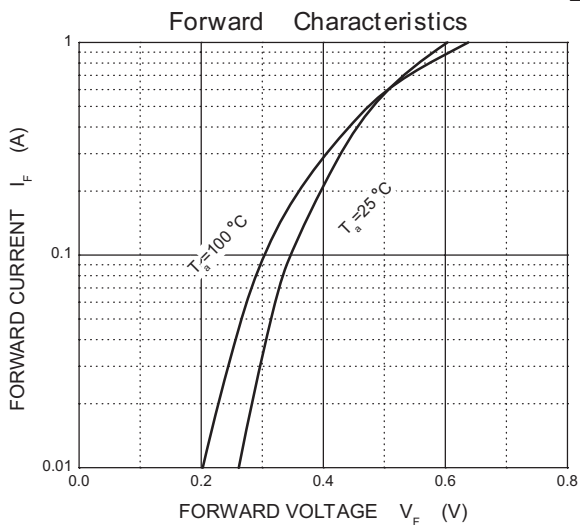
B0520LW



B0530W



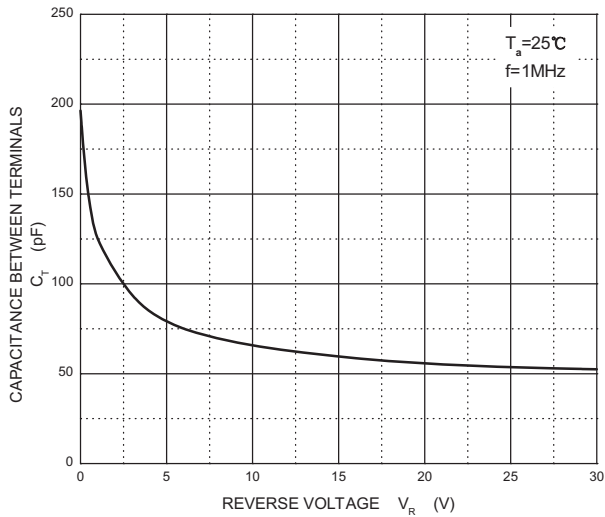
B0540W



Rating and characteristic curves

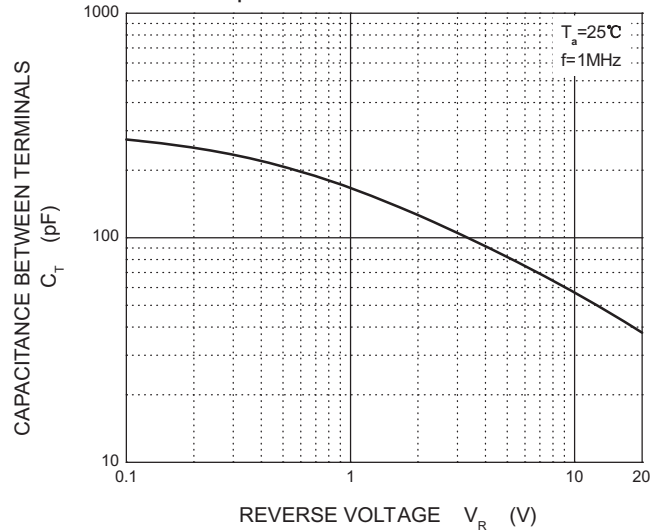
B0520LW

Capacitance Characteristics



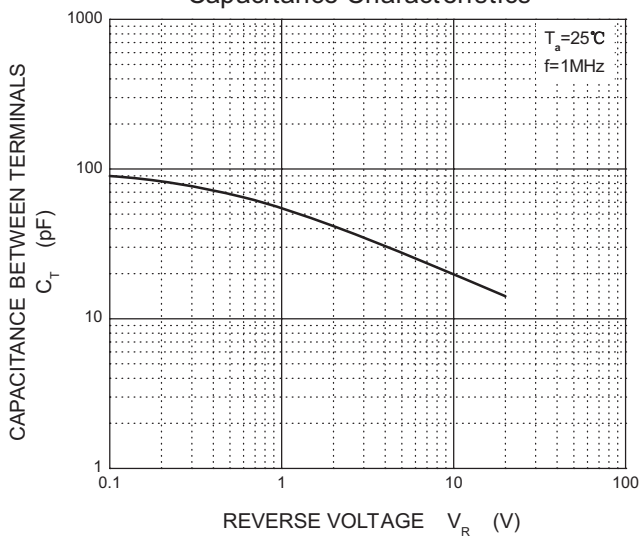
B0530W

Capacitance Characteristics

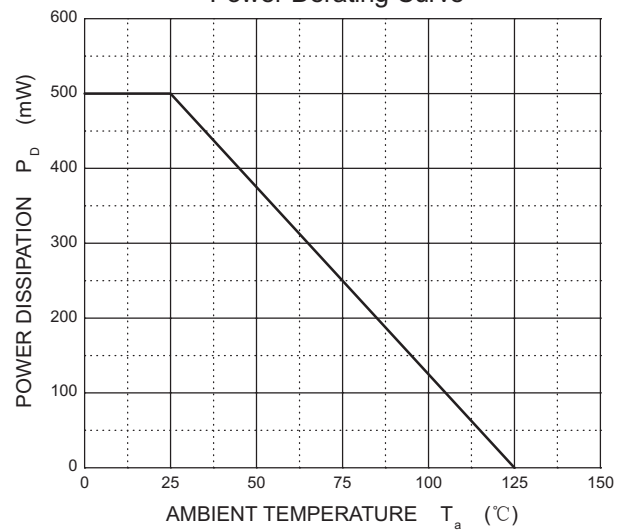


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Capacitance Characteristics



Power Derating Curve

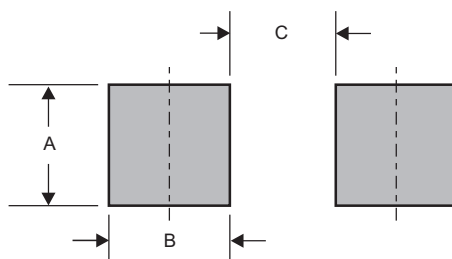


B0520LW / B0530W / B0540W**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

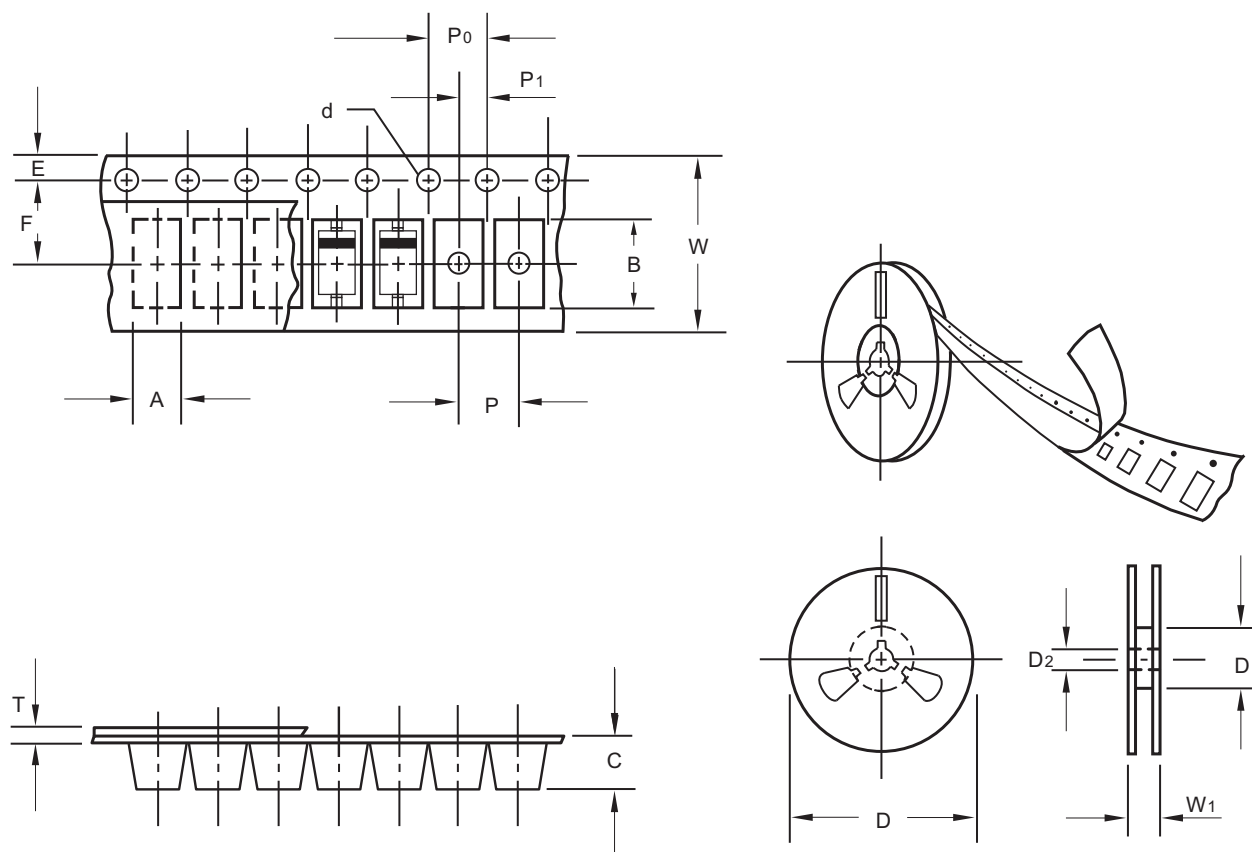
Marking

Type number	Marking code
B0520LW	SD,SJ
B0530W	SE,SK
B0540W	SF,SL

Suggested solder pad layout

Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123F	0.048 (1.22)	0.036 (0.91)	0.093 (2.36)

B0520LW / B0530W / B0540W**Packing information**

unit:mm

Item	Symbol	Tolerance	SOD-123F
Carrier width	A	0.1	1.85
Carrier length	B	0.1	3.95
Carrier depth	C	0.1	1.57
Sprocket hole	d	0.1	1.55
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	54.40
Feed hole diameter	D2	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	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	12.3

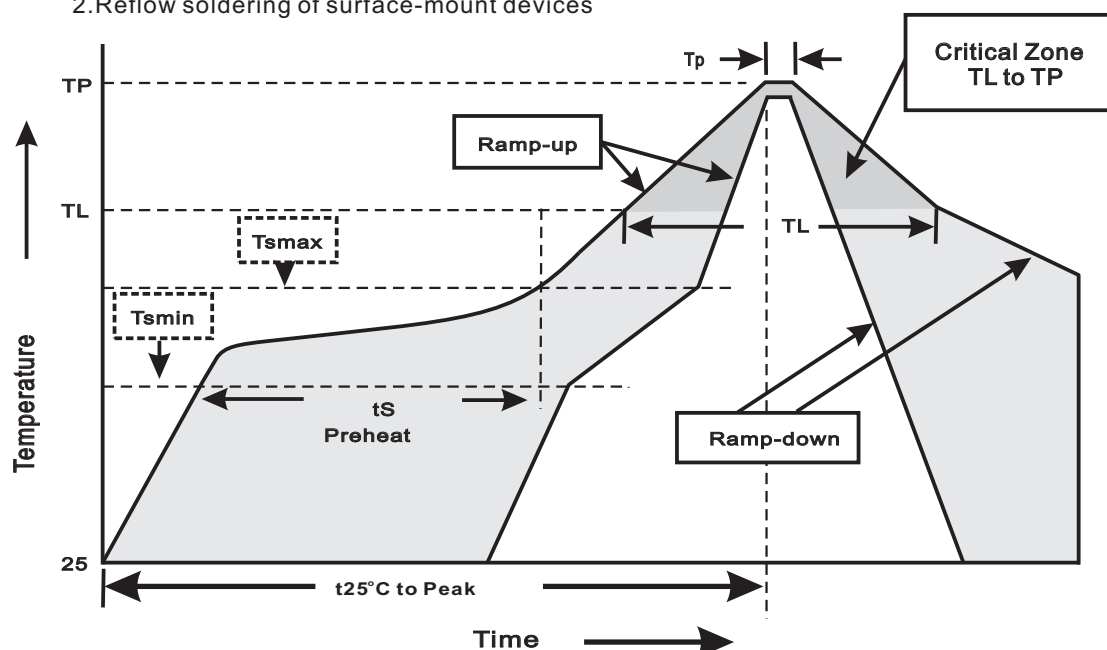
Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

B0520LW / B0530W / B0540W**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-123F	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	9.5

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(T _{sin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} 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

B0520LW / B0530W / B0540W**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{sec.}$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^\circ\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 125^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$, $I_F = I_O$ 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 $T_A = 121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to $+125^\circ\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	Non-repetitive peak forward surge current	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A = 85^\circ\text{C}$, 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