SB1020 THRU SB10200

List

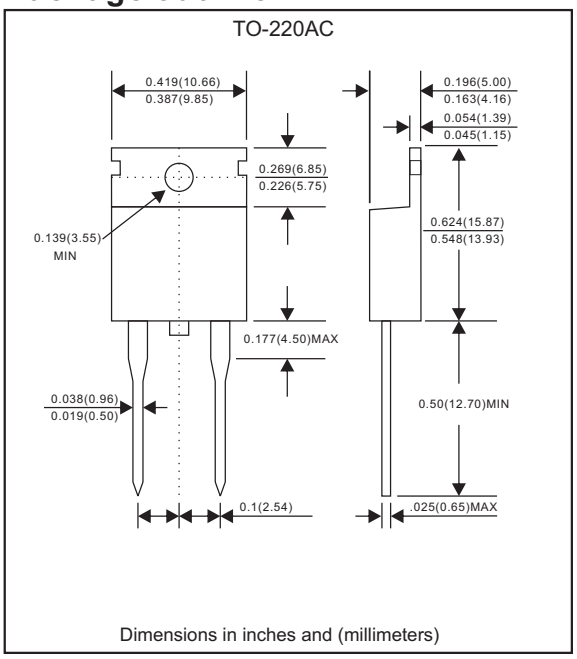
SB1020 THRU SB10200

10A Power Schottky Barrier Rectifiers- 20V-200V

Features

- Low power loss, high efficiency.
- High current capability
- High surge capability.
- Guardring for overvoltage protection.
- Low stored charge majority carrier conduction
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. SB1020-H.

Package outline



Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC TO-220AC molded plastic body over passivated chip
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : Approximated 2.05 gram

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

PARAMETER	SYMBOLS	SB 1020	SB 1040	SB 1045	SB 1060	SB 1080	SB 10100	SB 10150	SB 10200	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	20	40	45	60	80	100	150	200	V
Maximum RMS voltage	V_{RMS}	14	28	31.5	42	56	70	105	140	V
Maximum DC blocking voltage	V_{DC}	20	40	45	60	80	100	150	200	V
Maximum average forward rectified current	I_O	10								A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	I_{FSM}	150								A
Operating junction temperature range	T_J	-55 to +125			-55 to +150					°C
Storage temperature range	T_{STG}	-65 to +175								°C

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

PARAMETER	SYMBOLS	SB 1020	SB 1040	SB 1045	SB 1060	SB 1080	SB 10100	SB 10150	SB 10200	UNIT
Maximum forward voltage at I_F=10A	V_F	0.55			0.75	0.85		0.90	0.92	V
Maximum DC reverse current at T_J =25°C at rated DC blocking voltage at T_J =100°C	I_R	0.5 50								mA mA

Thermal Characteristics

PARAMETER	SYMBOLS	SB 1020	SB 1040	SB 1045	SB 1060	SB 1080	SB 10100	SB 10150	SB 10200	UNIT
Typical thermal resistance junction to case	$R_{\theta JC}$	2.0								°C/W

Rating and characteristic curves (SB1020 THRU SB10200)

Fig.1 - Forward Current Derating Curve

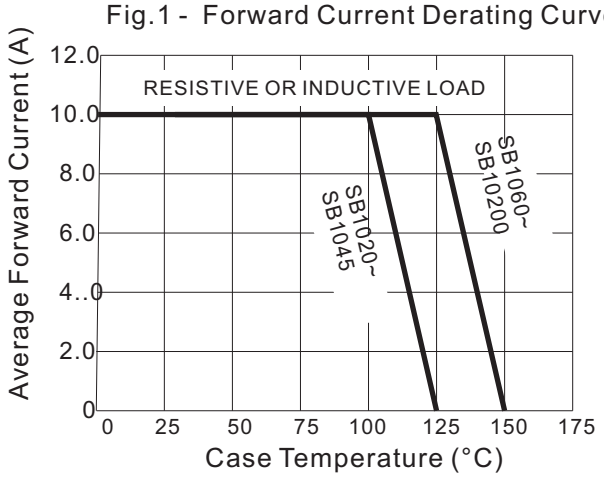


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

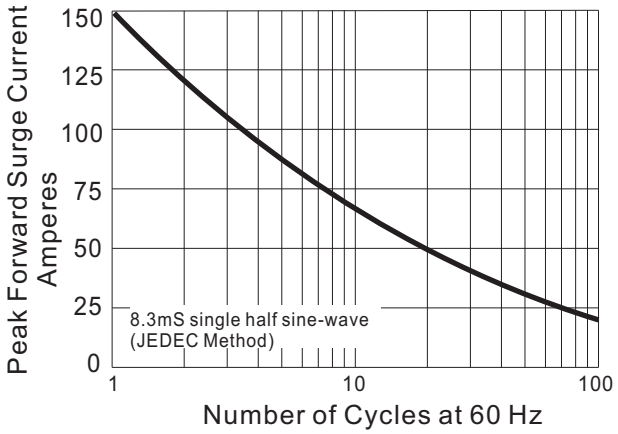


FIG.3-TYPICAL REVER CHARACTERISTICS

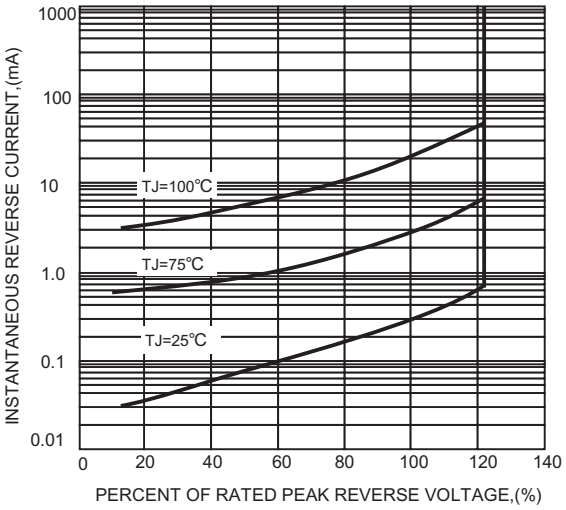


FIG.4-TYPICAL FORWARD CHARACTERISTICS

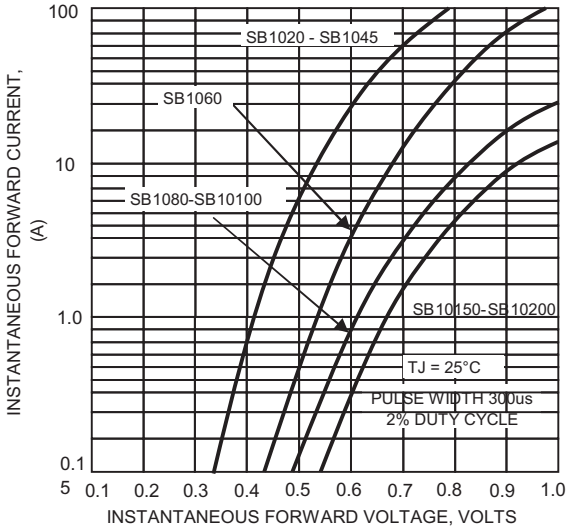
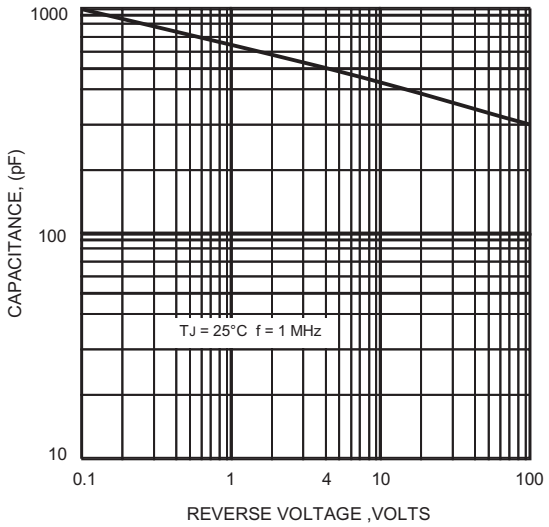


FIG.5-TYPICAL JUNCTION CAPACITANCE



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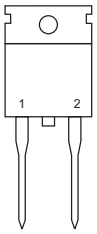
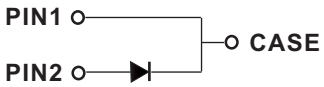
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
SB1020	SB1020
SB1040	SB1040
SB1045	SB1045
SB1060	SB1060
SB1080	SB1080
SB10100	SB10100
SB10150	SB10150
SB10200	SB10200

Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
TO-220AC	50	525*32*7.5	1000	555*150*40	580*230*175	5,000	15.0

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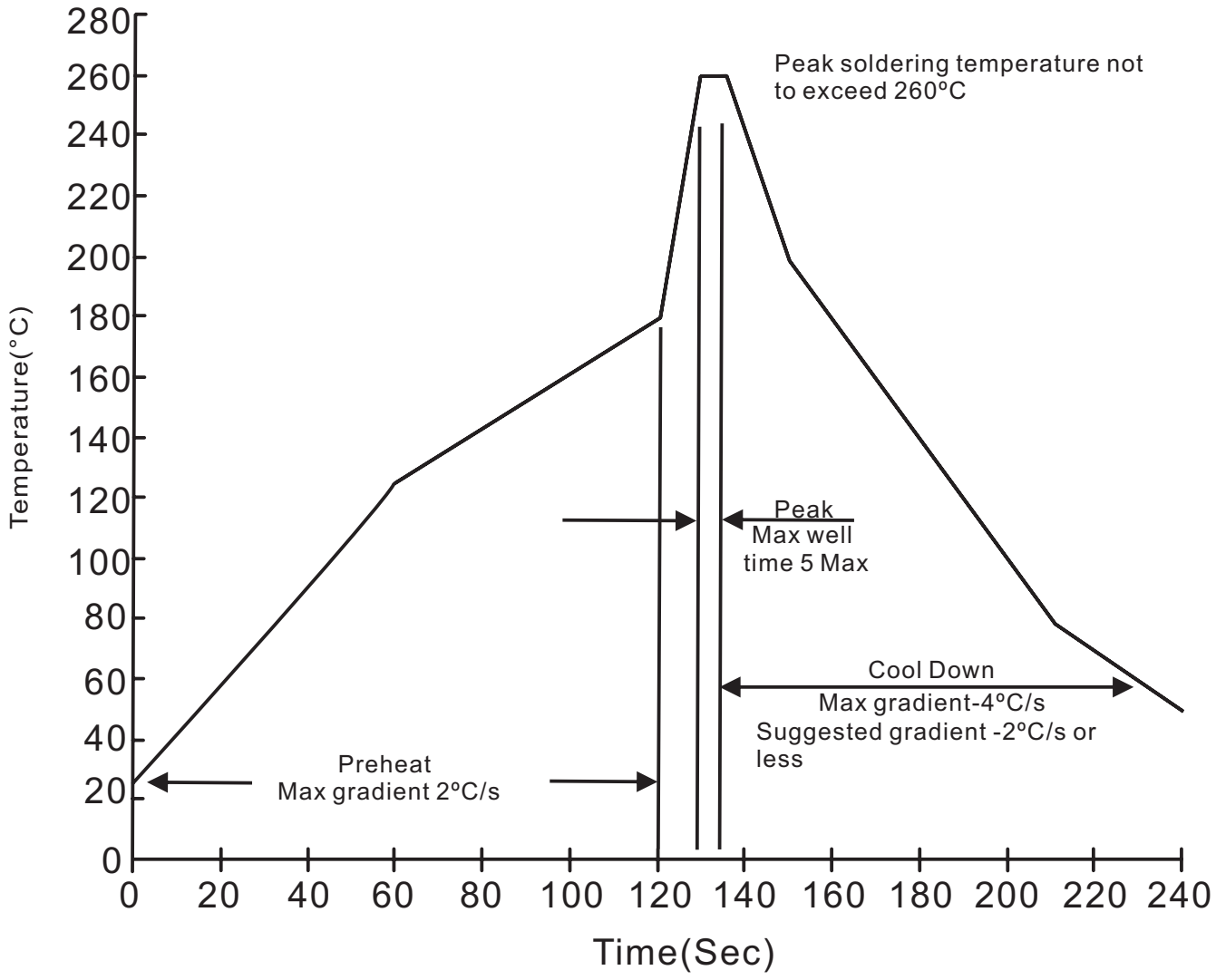
Suggested thermal profiles for soldering processes

1.Lead free temperature profile wave-soldering



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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	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	8.3ms single half sine-wave , one surge.	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