

SB1020F THRU SB10200F

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SB1020F THRU SB10200F

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

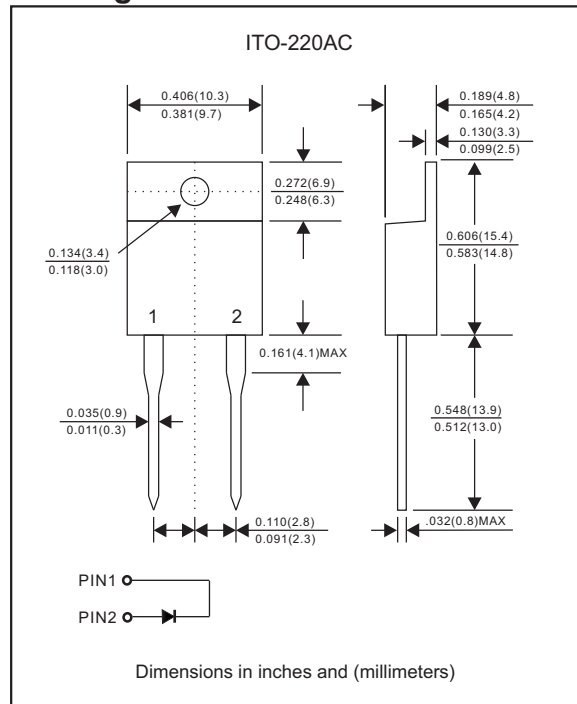
Features

- 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. SB1020F-H.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC ITO-220AC molded plastic body over passivated chip
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : Approximated 1.7 gram

Package outline



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

PARAMETER	SYMBOLS	SB 1020F	SB 1040F	SB 1045F	SB 1060F	SB 1080F	SB 10100F	SB 10150F	SB 10200F	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					$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-65 to +175								$^{\circ}\text{C}$

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

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

Thermal Characteristics

PARAMETER	SYMBOLS	SB 1020F	SB 1040F	SB 1045F	SB 1060F	SB 1080F	SB 10100F	SB 10150F	SB 10200F	UNIT
Typical thermal resistance junction to case	$R_{\theta JC}$	2.5								$^{\circ}\text{C}/\text{W}$

Rating and characteristic curves (SB1020F THRU SB10200F)

Fig.1 - Forward Current Derating Curve

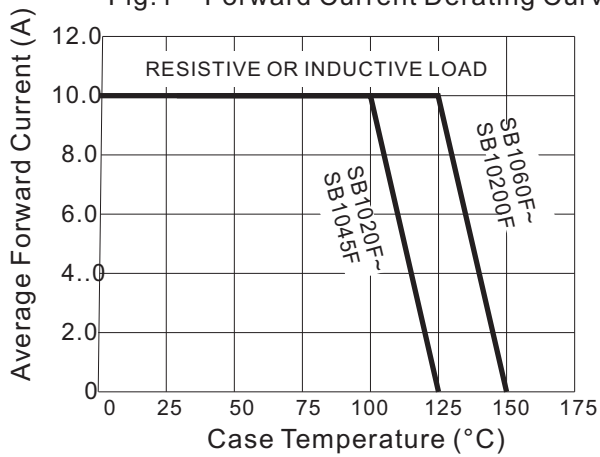


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

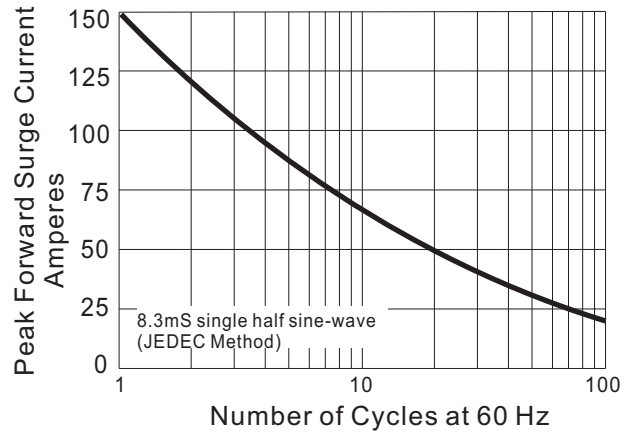


FIG.3-TYPICAL REVER CHARACTERISTICS

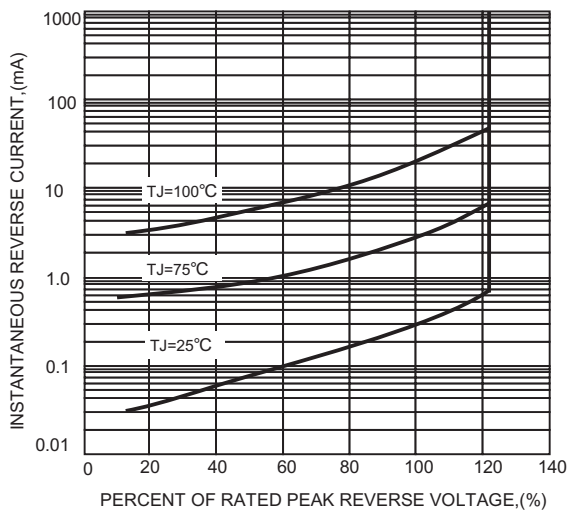


FIG.4-TYPICAL FORWARD CHARACTERISTICS

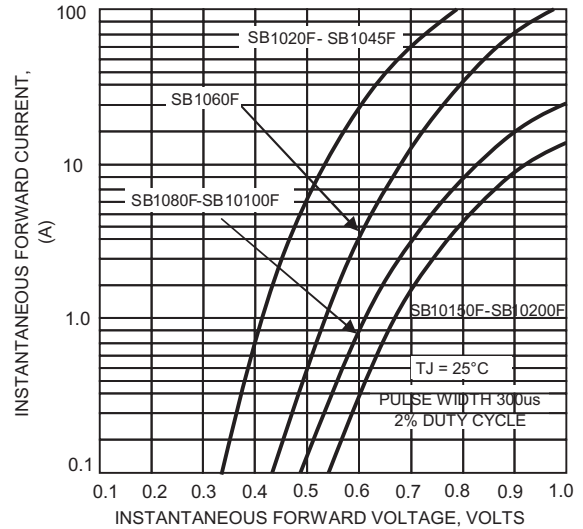
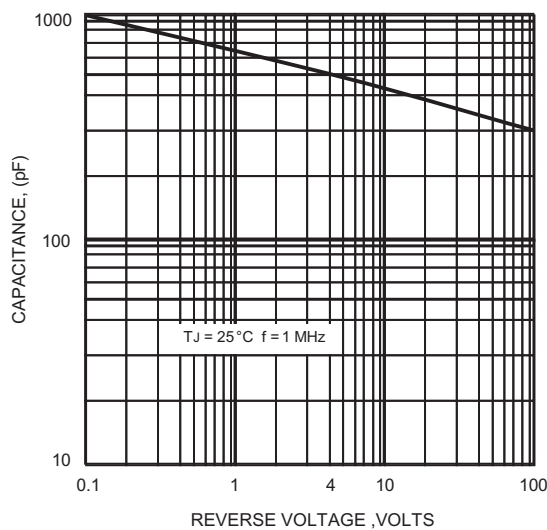
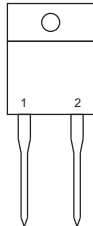
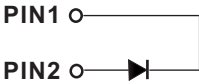


FIG.5-TYPICAL JUNCTION CAPACITANCE



SB1020F THRU SB10200F**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
SB1020F	SB1020F
SB1040F	SB1040F
SB1045F	SB1045F
SB1060F	SB1060F
SB1080F	SB1080F
SB10100F	SB10100F
SB10150F	SB10150F
SB10200F	SB10200F

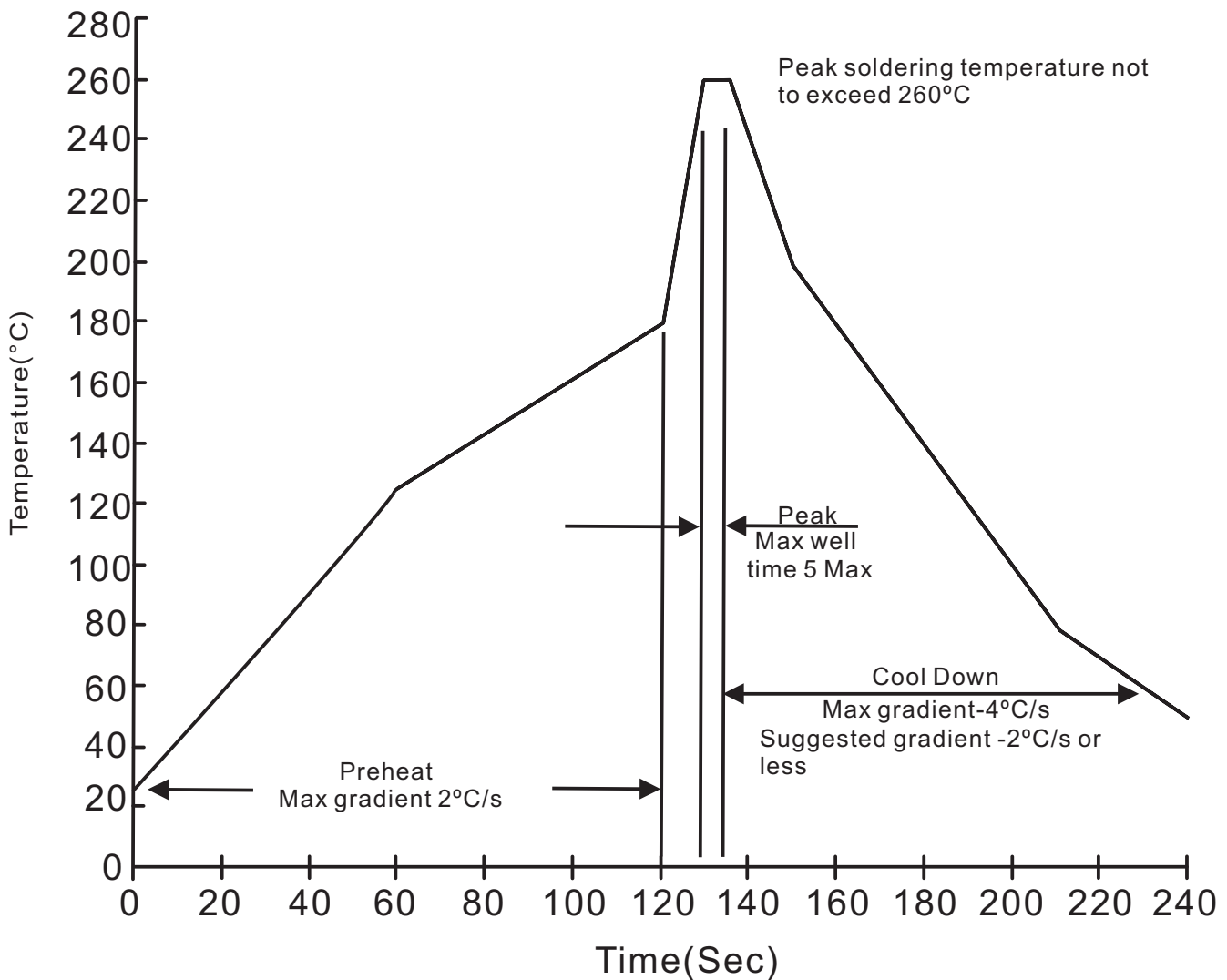
Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
ITO-220AC	50	525*32*7.0	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



SB1020F THRU SB10200F**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm 5^{\circ}\text{C}$ for $10\pm 2\text{sec}$. immerse body into solder $1/16''\pm 1/32''$	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	8.3ms single half sine-wave , one surge.	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