SB3020CT THRU SB30200CT

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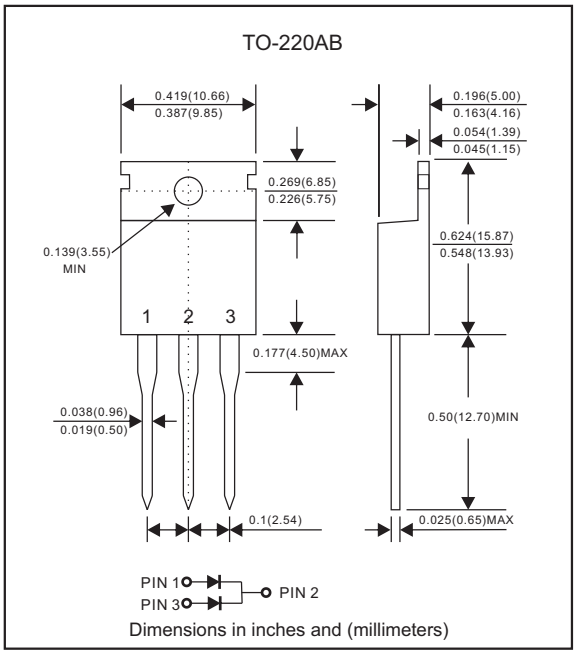
SB3020CT THRU SB30200CT

30A Power Schottky Barrier Rectifiers - 20V-200V

Features

- For use in low voltage, high frequency inverters, free wheelling, and polarity protectionapplications
- Offer 15A half wave and 30A full wave rectification.
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- 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. SB3020CT-H.

Package outline



Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC TO-220AB 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 2.10 gram

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

PARAMETER	SYMBOLS	SB 3020CT	SB 3040CT	SB 3045CT	SB 3050CT	SB 3060CT	SB 3080CT	SB 30100CT	SB 30150CT	SB 30200CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	20	40	45	50	60	80	100	150	200	V
Maximum RMS voltage	V_{RMS}	14	28	31.5	35	42	56	70	105	140	V
Maximum DC blocking voltage	V_{DC}	20	40	45	50	60	80	100	150	200	V
Maximum average forward rectified current	I_O	30									A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	I_{FSM}	250									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 3020CT	SB 3040CT	SB 3045CT	SB 3050CT	SB 3060CT	SB 3080CT	SB 30100CT	SB 30150CT	SB 30200CT	UNIT
Maximum forward voltage per leg at I_F=15A	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 per leg	I_R	0.5 50									mA mA

Thermal Characteristics

PARAMETER	SYMBOLS	SB 3020CT	SB 3040CT	SB 3045CT	SB 3050CT	SB 3060CT	SB 3080CT	SB 30100CT	SB 30150CT	SB 30200CT	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	2.0									°C/W

Rating and characteristic curves (SB3020CT THRU SB30200CT)

Fig.1 - Forward Current Derating Curve

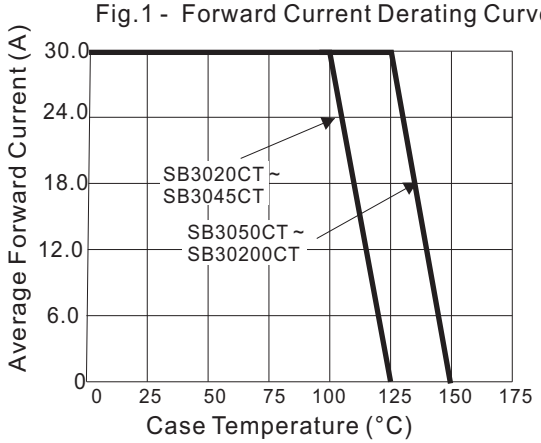


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

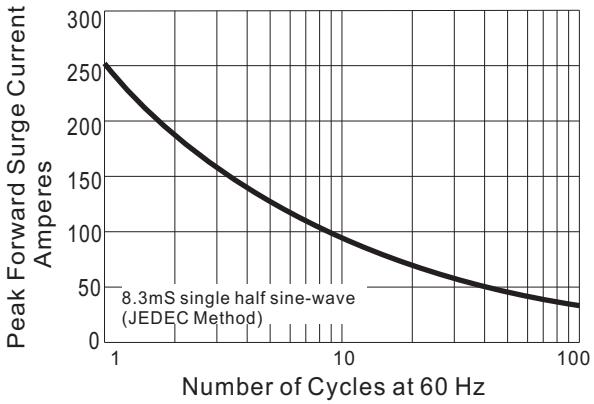


FIG.3-TYPICAL REVER CHARACTERISTICS

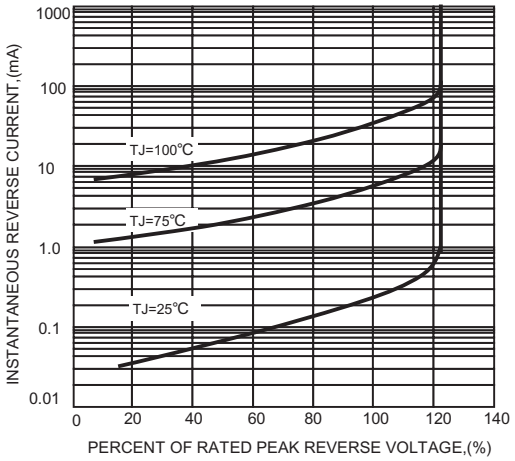


FIG.4-TYPICAL FORWARD CHARACTERISTICS

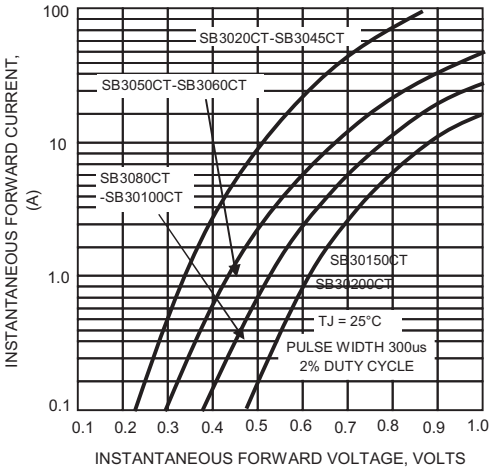
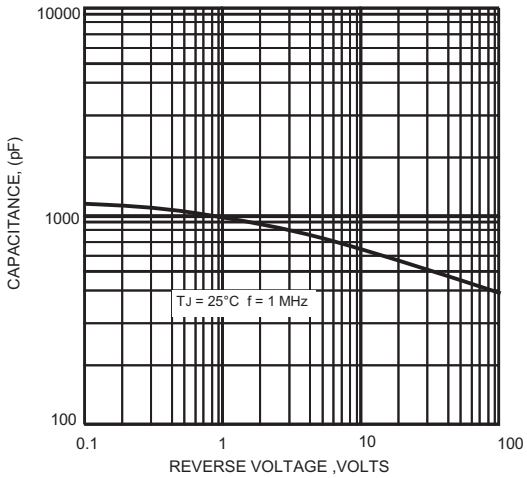
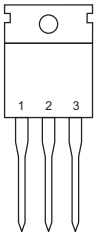
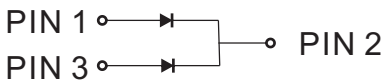


FIG.5 – TYPICAL JUNCTION CAPACITANCE



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Pinning information

Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
SB3020CT	SB3020CT
SB3040CT	SB3040CT
SB3045CT	SB3045CT
SB3050CT	SB3050CT
SB3060CT	SB3060CT
SB3080CT	SB3080CT
SB30100CT	SB30100CT
SB30150CT	SB30150CT
SB30200CT	SB30200CT

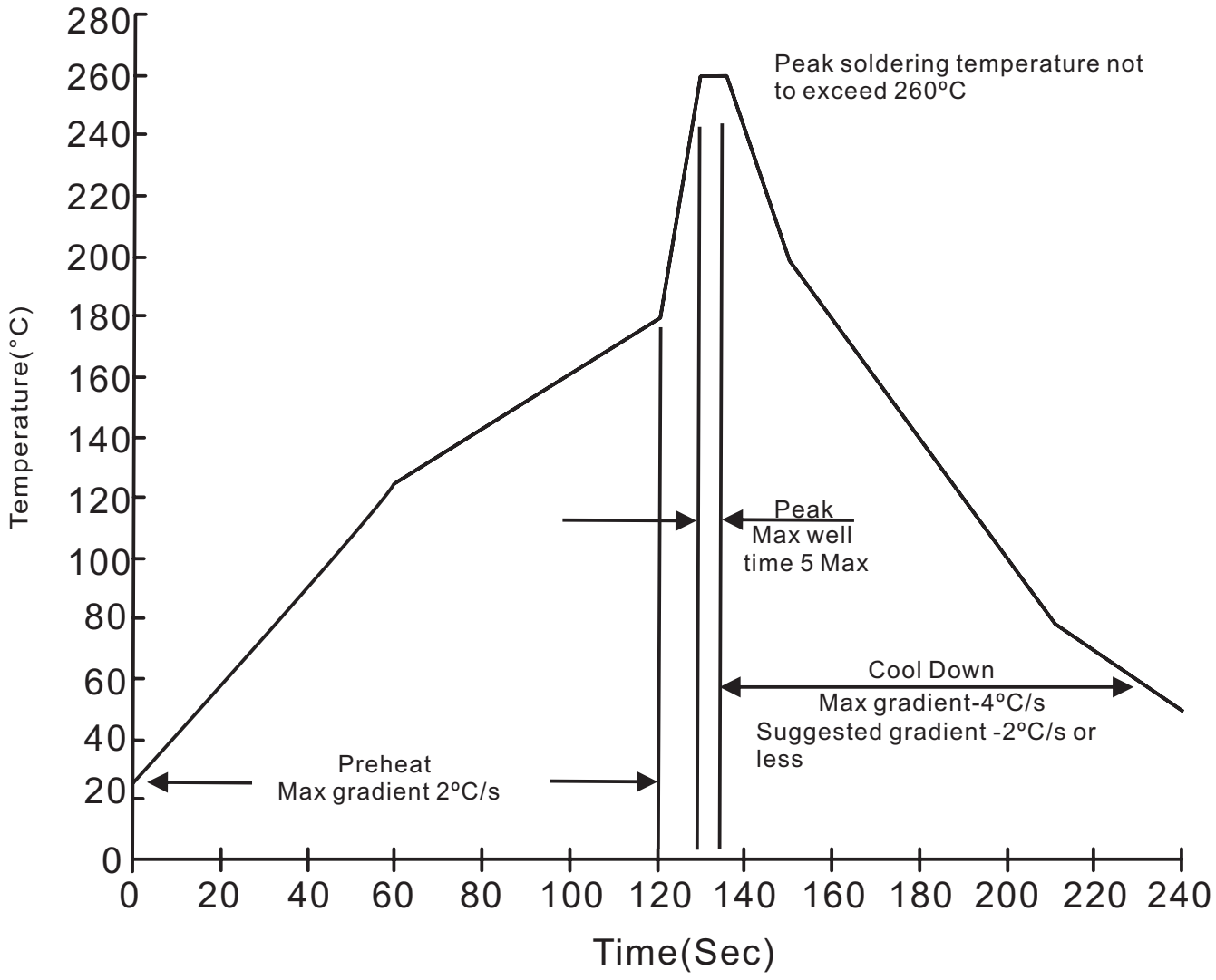
Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
TO-220AB	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