

SB3020CT THRU SB30200CT

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SB3020CT THRU SB30200CT

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

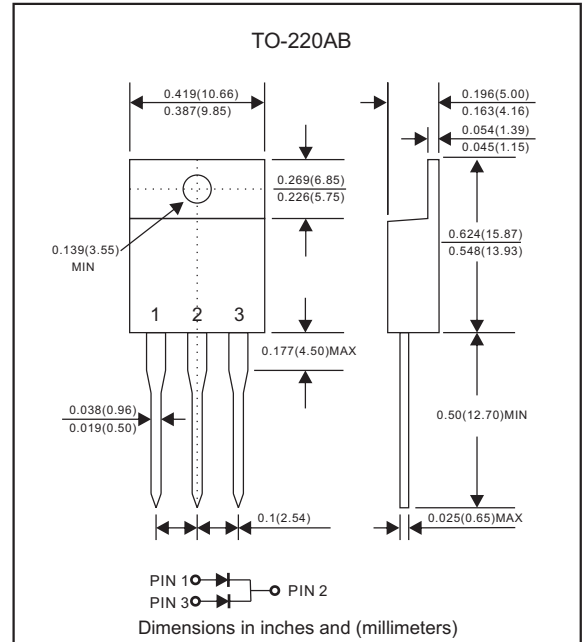
Features

- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- 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.

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 guaranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : Approximated 2.10 gram

Package outline



Maximum ratings (AT $T_A=25^{\circ}\text{C}$ 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						$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-65 to +175									$^{\circ}\text{C}$

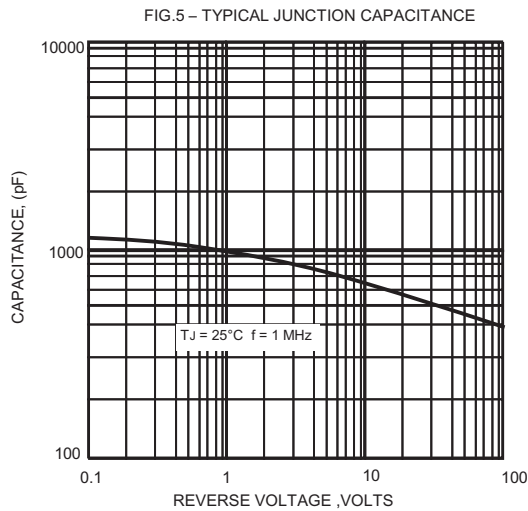
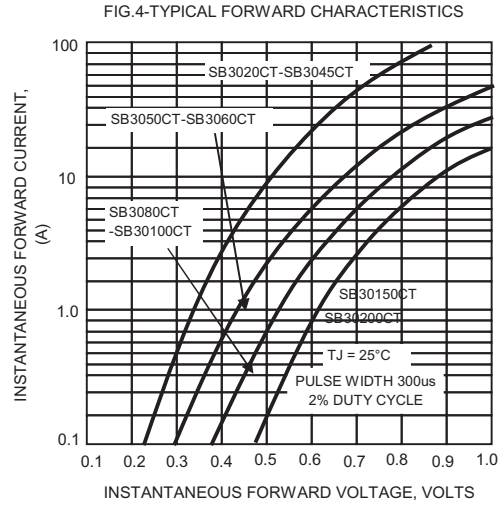
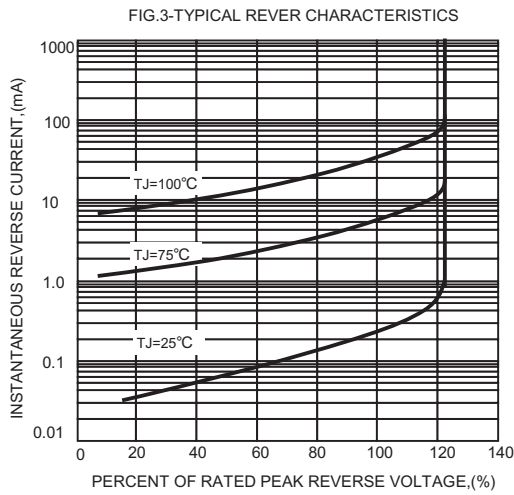
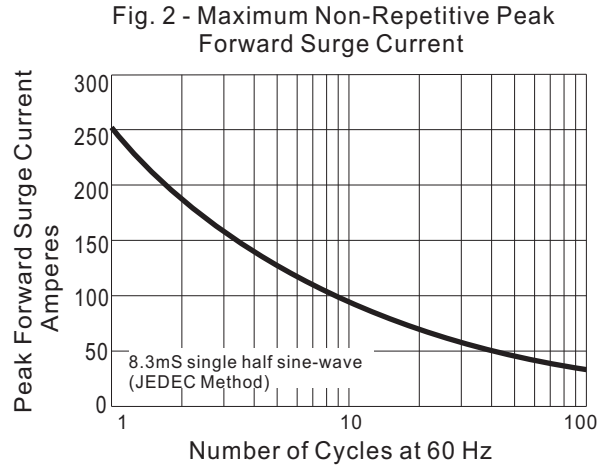
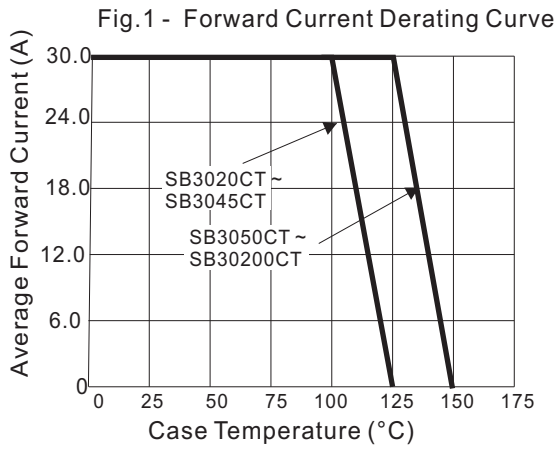
Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	SB 3020CT	SB 3040CT	SB 3045CT	SB 3050CT	SB 3060CT	SB 3080CT	SB 30100CT	SB 30150CT	SB 30200CT	UNIT	
Maximum forward voltage per leg at $I_F=15\text{A}$	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 $T_J=100^{\circ}\text{C}$ per leg	I_R	0.5					50					mA mA

Thermal Characteristics

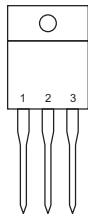
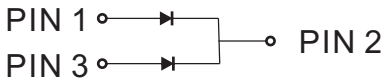
PARAMETER	SYMBOLS	SB 3020CT	SB 3040CT	SB 3045CT	SB 3050CT	SB 3060CT	SB 3080CT	SB 30100CT	SB 30150CT	SB 30200CT	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	2.0									$^{\circ}\text{C}/\text{W}$

Rating and characteristic curves (SB3020CT THRU SB30200CT)



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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

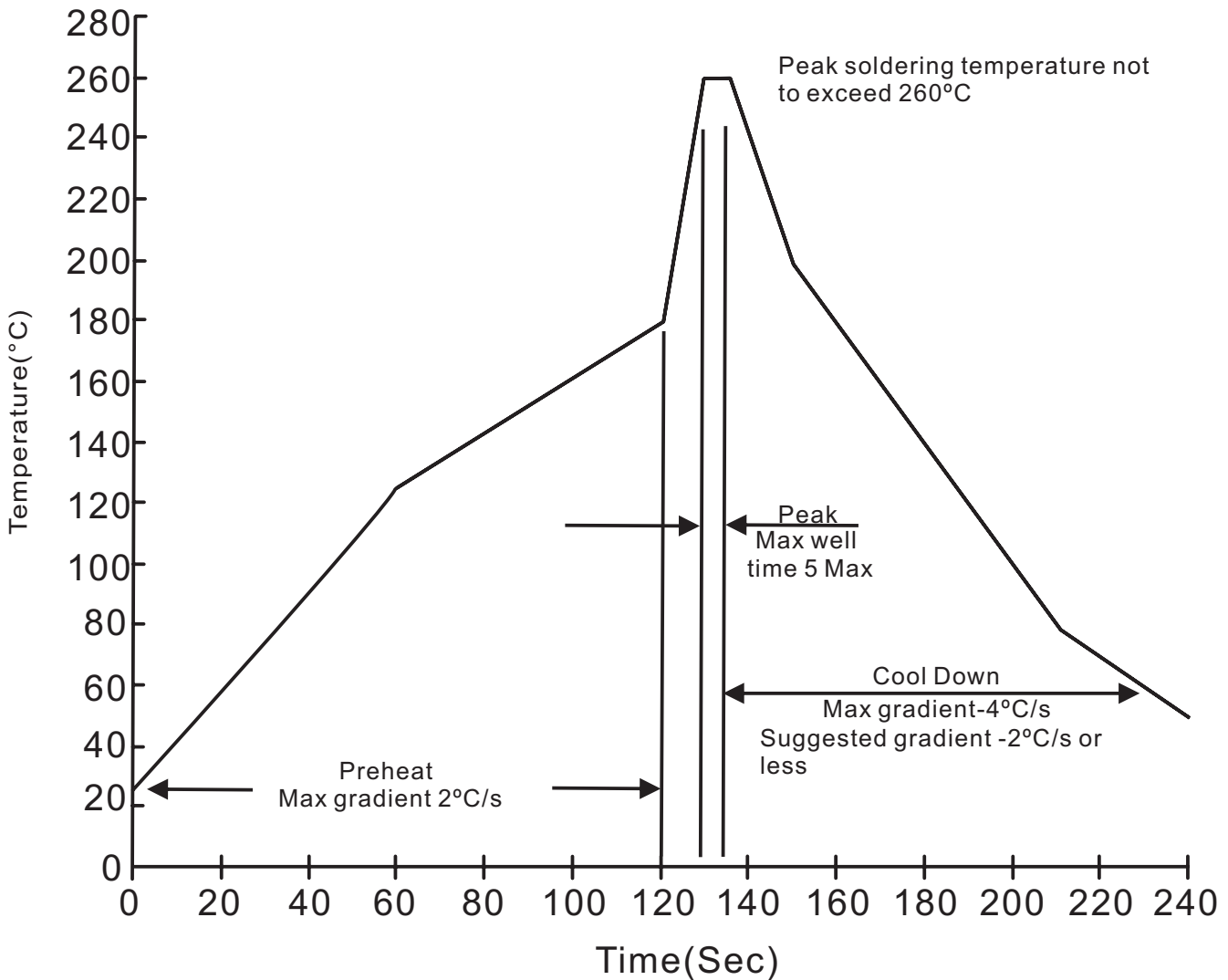
Tube packing

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



SB3020CT THRU SB30200CT**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