

CURRENT 40 Ampere
 VOLTAGE RANG 45 to 150 Volts

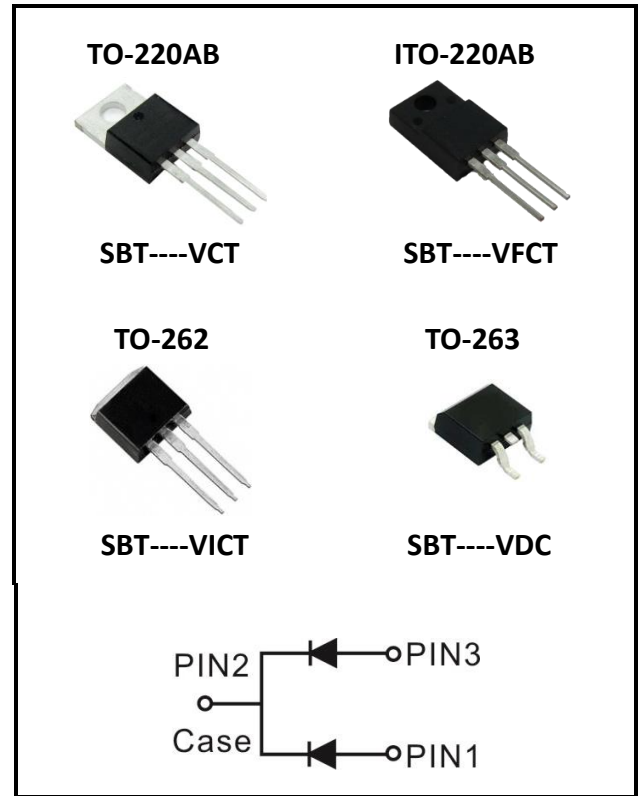
SBT4045VCT THRU SBT40150VFCT

Features

- Low Forward Voltage Drop
- Reliable High Temperature Operation
- Softest, Fast Switching Capability
- 150°C Operating Junction Temperature
- Lead Free Finish, RoHS Compliant

Typical Applications

Device optimized for ultra-low forward voltage drop to maximize efficiency in Power Supply applications



Characteristics

Maximum Ratings Characteristics (TA = 25°C unless otherwise specified)

Parameter	Symbol	SBT4045 VCT/VFCT	SBT4060 VCT/VFCT	SBT40100 VCT/VFCT	SBT40150 VCT/VFCT	Units
DC Blocking Voltage	V _{RM}	45	60	100	150	Volts
Peak Repetitive Reverse Voltage	V _{RRM}					
Average Rectified Forward Current Per device 20A*2 (Rated VR-20Khz Square Wave) - 50% duty cycle	I _o	40				Amps
Peak Forward Surge Current - 1/2 60hz	I _{FSM}	300				Amps
Peak Repetitive Reverse Surge Current (2uS-1Khz)	I _{RRM}	2				Amps
Typical Thermal Resistance (per leg) Package = TO-220AB Package = TO-262 TO-263 Package = ITO-220AB	R _{θjc}	2 3 4				°C/W
Human Body Model ESD Protection (TO-220)	ESD HBM	8				KV
Maximum Rate of Voltage Change (at Rated VR)	dv/dt	10000				V/uS
Operating Junction Temperature	T _J	- 65 to +150				°C
Storage Junction Temperature	T _{STG}	- 65 to +150				°C

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Electrical Characteristics - (per leg) ($T_A = 25^\circ\text{C}$ unless otherwise specified)

	Parameter	Test Conditions	Symbol	Typ.	Max.	Units	
SBT4045VCT/VFCT	Instantaneous Forward Voltage	$I_F = 8\text{ A}$	$T_j = 25^\circ\text{C}$	V_F^*	0.35	-----	Volts
		$I_F = 20\text{ A}$			0.48	0.52	
		$I_F = 8\text{ A}$	$T_j = 125^\circ\text{C}$		0.32	-----	
		$I_F = 20\text{ A}$			0.42	0.47	
	Instantaneous Reverse Current	$V_R = 36\text{ V}$	$T_j = 25^\circ\text{C}$	I_R^*	10	-----	μA
		$V_R = 45\text{ V}$			20	100	μA
		$V_R = 36\text{ V}$	$T_j = 125^\circ\text{C}$		-----	-----	mA
		$V_R = 45\text{ V}$			-----	10	mA
SBT4060VCT/VFCT	Instantaneous Forward Voltage	$I_F = 8\text{ A}$	$T_j = 25^\circ\text{C}$	V_F^*	0.42	-----	Volts
		$I_F = 20\text{ A}$			0.54	0.58	
		$I_F = 8\text{ A}$	$T_j = 125^\circ\text{C}$		0.36	-----	
		$I_F = 20\text{ A}$			0.48	0.50	
	Instantaneous Reverse Current	$V_R = 42\text{ V}$	$T_j = 25^\circ\text{C}$	I_R^*	10	-----	μA
		$V_R = 60\text{ V}$			20	100	μA
		$V_R = 42\text{ V}$	$T_j = 125^\circ\text{C}$		-----	-----	mA
		$V_R = 60\text{ V}$			-----	10	mA
SBT40100VCT/VFCT	Instantaneous Forward Voltage	$I_F = 8\text{ A}$	$T_j = 25^\circ\text{C}$	V_F^*	0.54	-----	Volts
		$I_F = 20\text{ A}$			0.68	0.74	
		$I_F = 8\text{ A}$	$T_j = 125^\circ\text{C}$		0.48	-----	
		$I_F = 20\text{ A}$			0.62	0.68	
	Instantaneous Reverse Current	$V_R = 70\text{ V}$	$T_j = 25^\circ\text{C}$	I_R^*	10	-----	μA
		$V_R = 100\text{ V}$			22	100	μA
		$V_R = 70\text{ V}$	$T_j = 125^\circ\text{C}$		-----	-----	mA
		$V_R = 100\text{ V}$			-----	10	mA
SBT40150VCT/VFCT	Instantaneous Forward Voltage	$I_F = 8\text{ A}$	$T_j = 25^\circ\text{C}$	V_F^*	0.65	-----	Volts
		$I_F = 20\text{ A}$			0.78	0.82	
		$I_F = 8\text{ A}$	$T_j = 125^\circ\text{C}$		0.52	-----	
		$I_F = 20\text{ A}$			0.72	0.77	
	Instantaneous Reverse Current	$V_R = 105\text{ V}$	$T_j = 25^\circ\text{C}$	I_R^*	10	-----	μA
		$V_R = 150\text{ V}$			22	100	μA
		$V_R = 105\text{ V}$	$T_j = 125^\circ\text{C}$		-----	-----	mA
		$V_R = 150\text{ V}$			-----	10	mA

* Pulse width < 300 μs , Duty cycle < 2%

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RATING AND CHARACTERISTIC CURVES

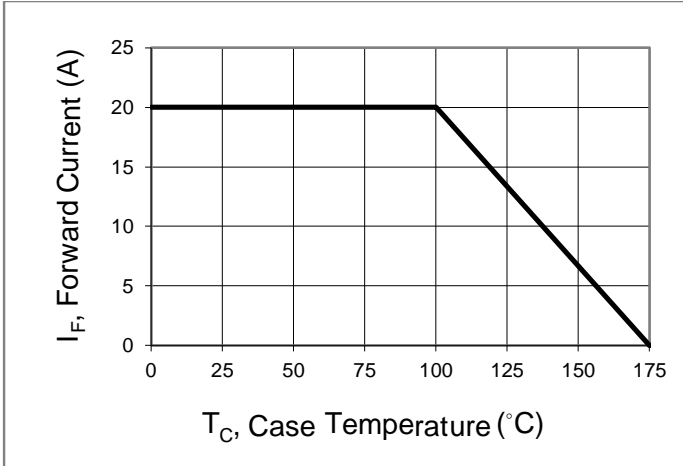


Fig.1 Forward Current Derating Curve

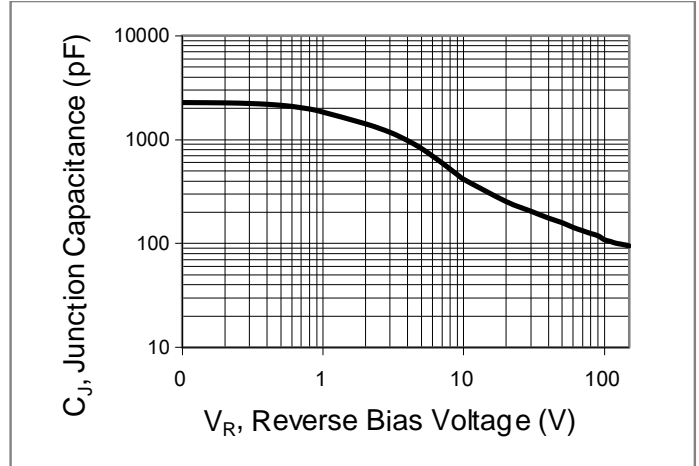


Fig.2 Typical Junction Capacitance

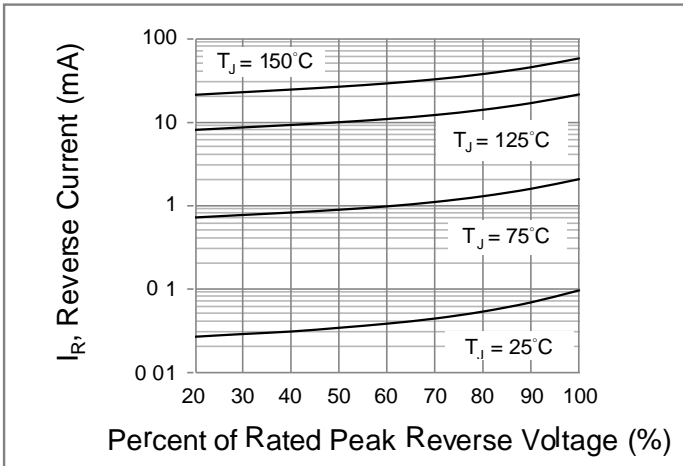


Fig.3 Typical Reverse Characteristics

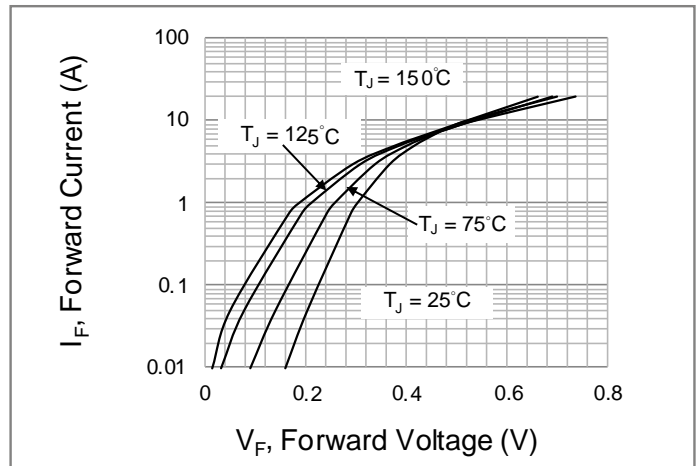


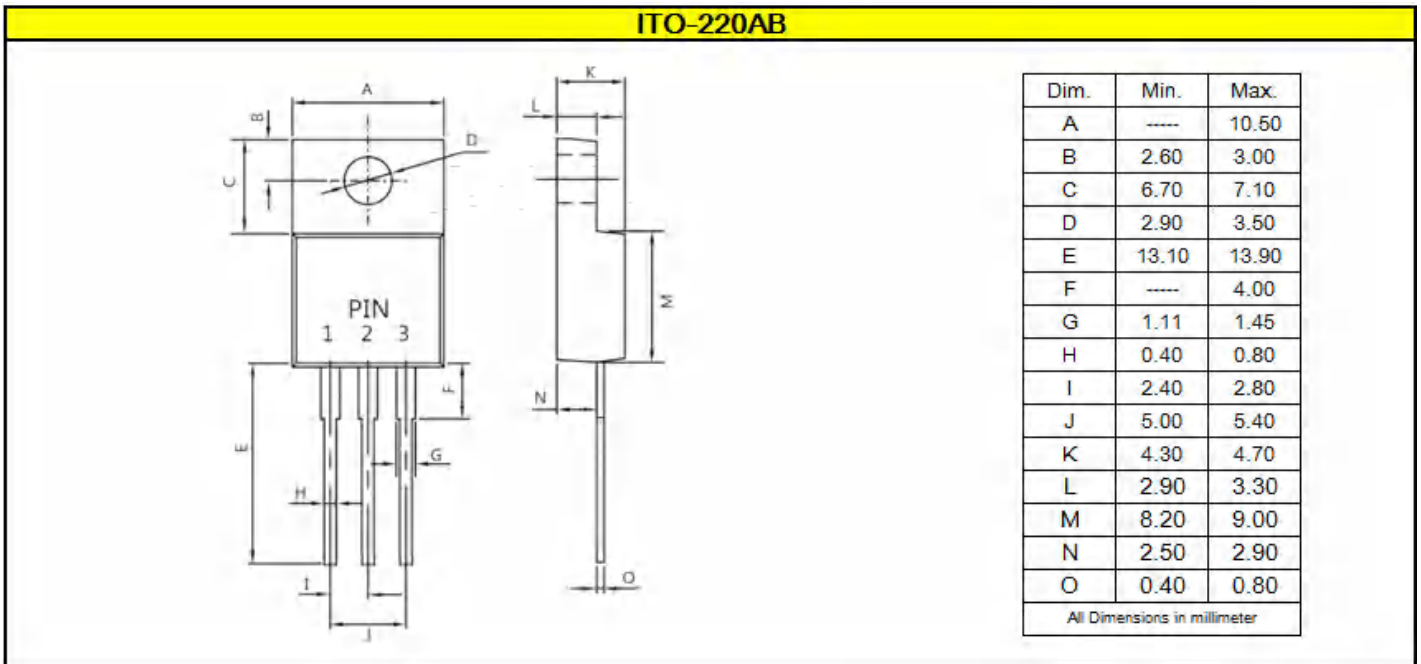
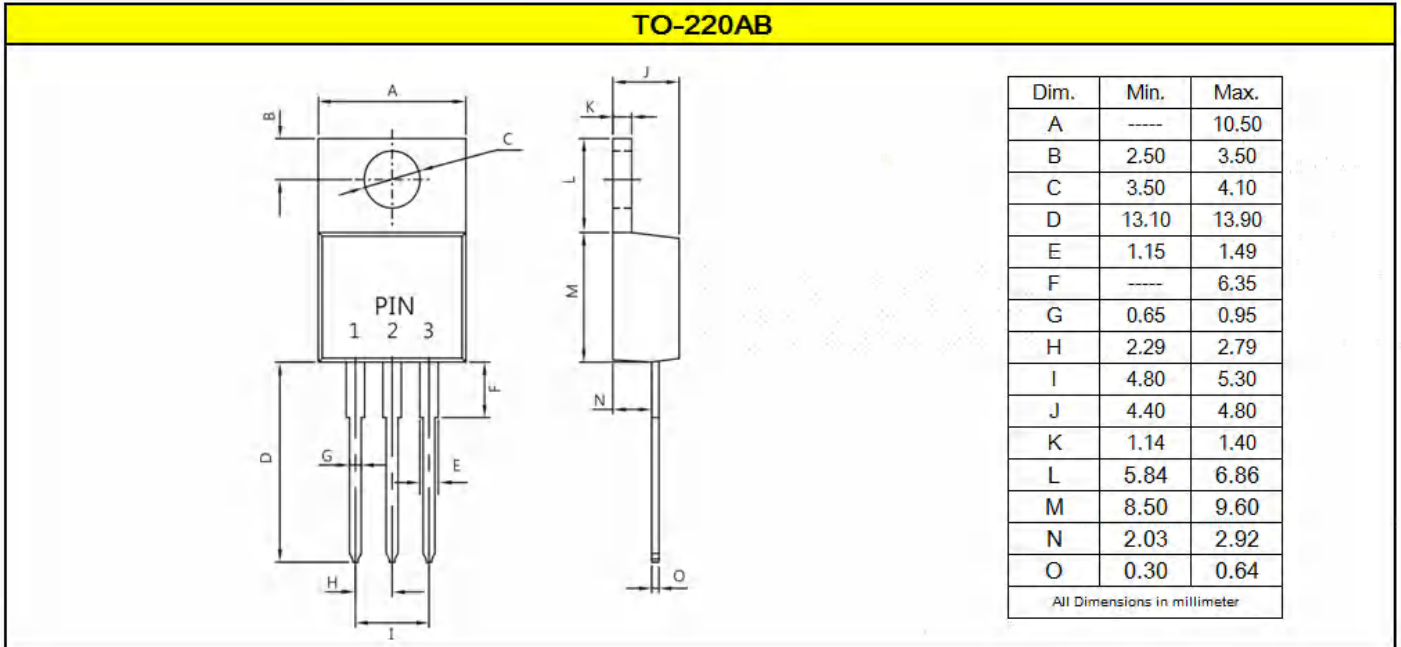
Fig.4 Typical Forward Characteristics

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Package information

Package outline Dimensions millimeters



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