

CURRENT 40 Ampere
VOLTAGE RANG 45 to 150 Volts

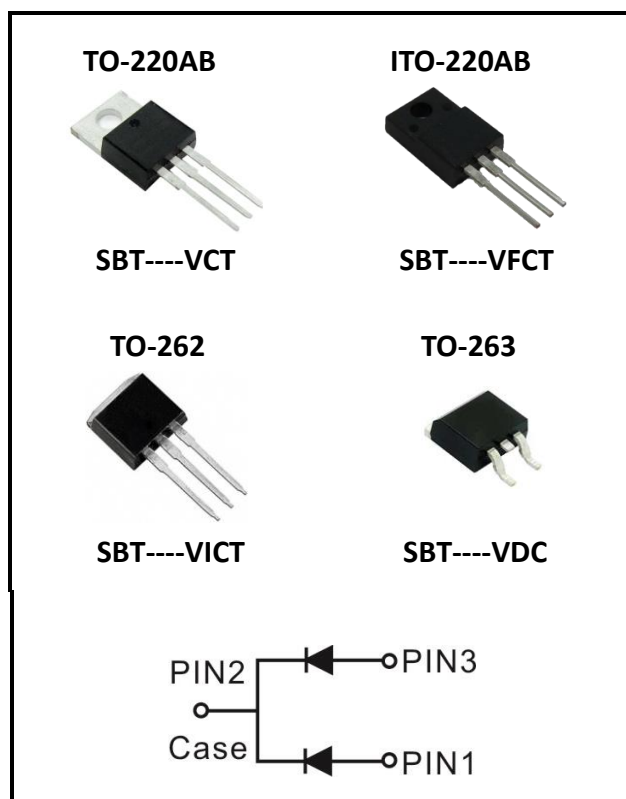
SBT4045VCT THRU SBT40150VFCT

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 ($T_A = 25^\circ\text{C}$ 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	I _o	40				Amps
(Rated V _R -20Khz Square Wave) - 50% duty cycle						
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				℃/W
Human Body Model ESD Protection (TO-220)	ESD HBM	8				
Maximum Rate of Voltage Change (at Rated V _R)	dv/dt	10000				V/uS
Operating Junction Temperature	T _J	- 65 to +150				℃
Storage Junction Temperature	T _{STG}	- 65 to +150				℃

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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 A	T _j =25℃	V _F *	0.35	-----	Volts
		I _F =20 A			0.48	0.52	
		I _F =8 A	T _j =125℃		0.32	-----	
		I _F =20 A			0.42	0.47	
	Instantaneous Reverse Current	V _R =36 V	T _j =25℃	I _R *	10	-----	uA
		V _R =45 V			20	100	uA
		V _R =36 V	T _j =125℃		-----	-----	mA
		V _R =45 V			-----	10	mA
SBT4060VCT/VFCT	Instantaneous Forward Voltage	I _F =8 A	T _j =25℃	V _F *	0.42	-----	Volts
		I _F =20 A			0.54	0.58	
		I _F =8 A	T _j =125℃		0.36	-----	
		I _F =20 A			0.48	0.50	
	Instantaneous Reverse Current	V _R =42 V	T _j =25℃	I _R *	10	-----	uA
		V _R =60 V			20	100	uA
		V _R =42 V	T _j =125℃		-----	-----	mA
		V _R =60 V			-----	10	mA
SBT40100VCT/VFCT	Instantaneous Forward Voltage	I _F =8 A	T _j =25℃	V _F *	0.54	-----	Volts
		I _F =20 A			0.68	0.74	
		I _F =8 A	T _j =125℃		0.48	-----	
		I _F =20 A			0.62	0.68	
	Instantaneous Reverse Current	V _R =70 V	T _j =25℃	I _R *	10	-----	uA
		V _R =100 V			22	100	uA
		V _R =70 V	T _j =125℃		-----	-----	mA
		V _R =100 V			-----	10	mA
SBT40150VCT/VFCT	Instantaneous Forward Voltage	I _F =8 A	T _j =25℃	V _F *	0.65	-----	Volts
		I _F =20 A			0.78	0.82	
		I _F =8 A	T _j =125℃		0.52	-----	
		I _F =20 A			0.72	0.77	
	Instantaneous Reverse Current	V _R =105 V	T _j =25℃	I _R *	10	-----	uA
		V _R =150 V			22	100	uA
		V _R =105 V	T _j =125℃		-----	-----	mA
		V _R =150 V			-----	10	mA

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

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RATING AND CHARACTERISTIC CURVES

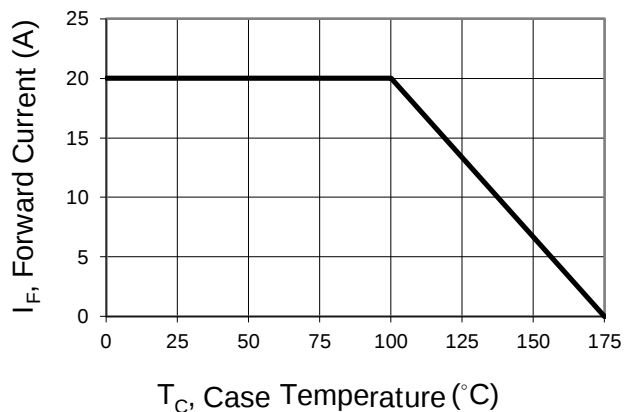


Fig.1 Forward Current Derating Curve

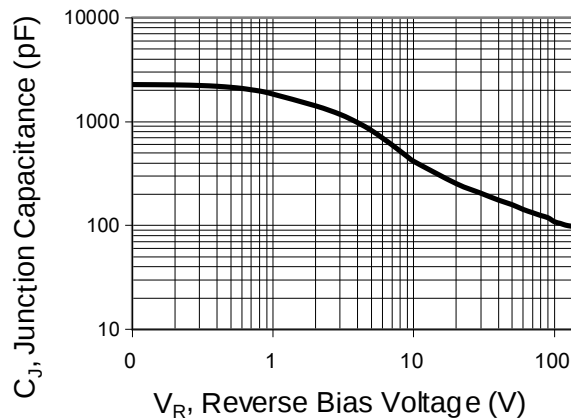


Fig.2 Typical Junction Capacitance

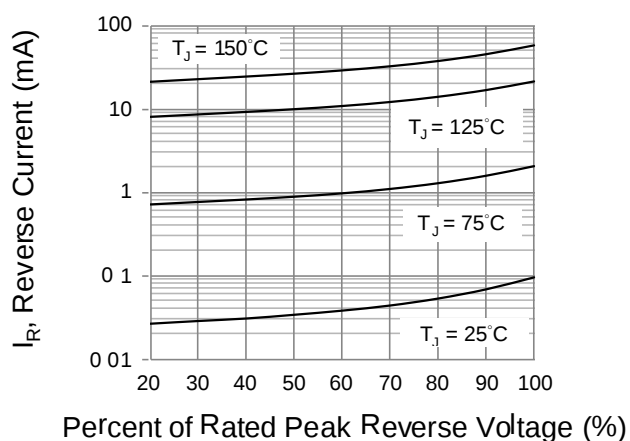


Fig.3 Typical Reverse Characteristics

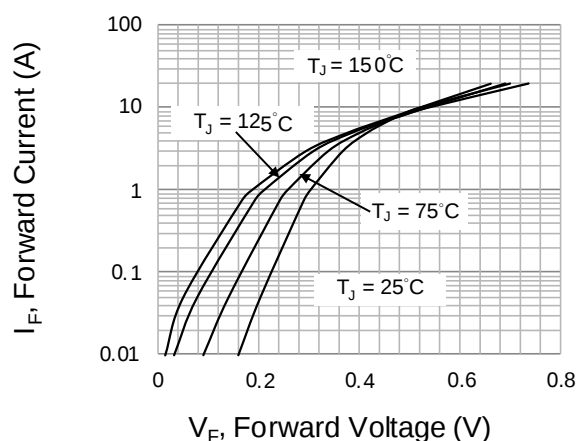


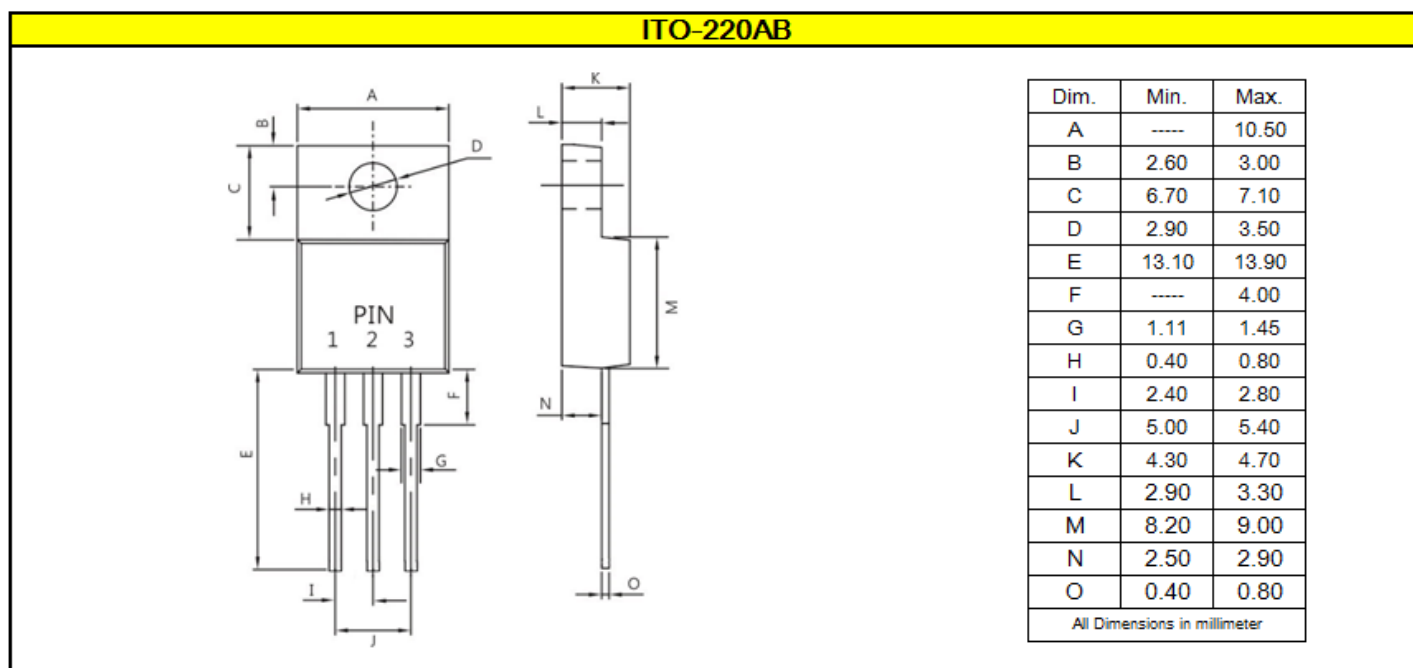
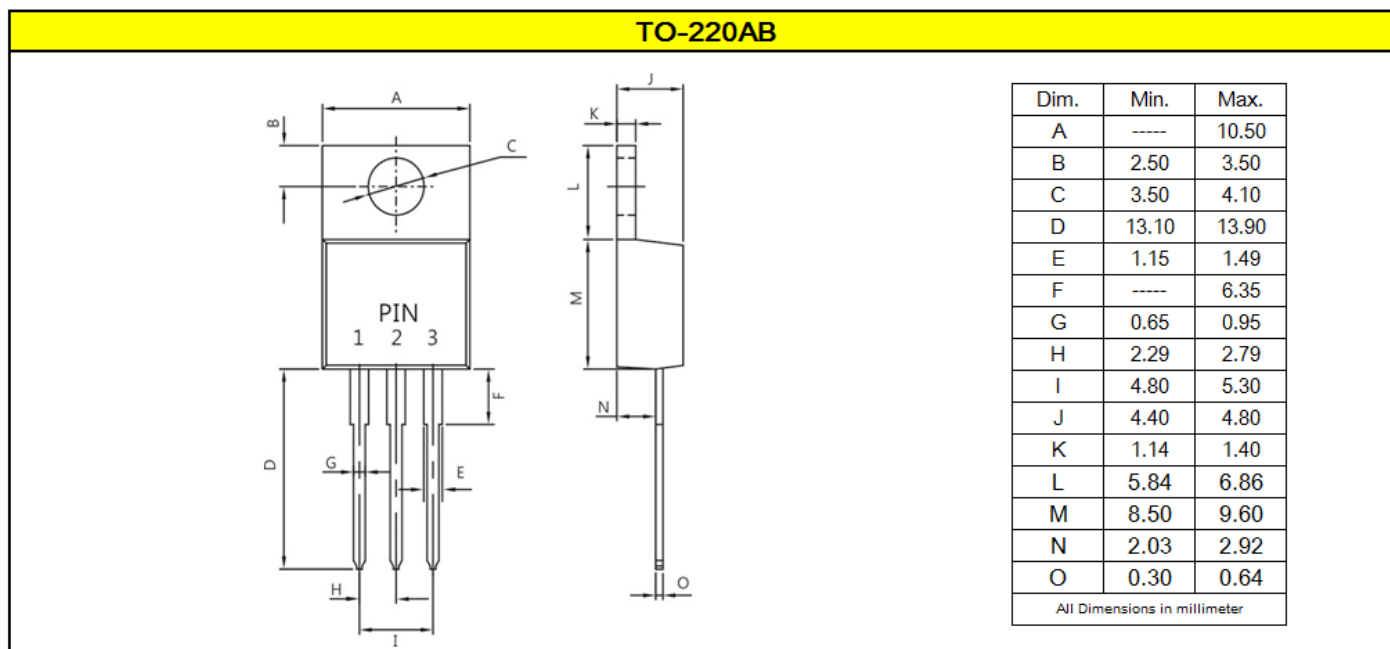
Fig.4 Typical Forward Characteristics

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Package information

Package outline Dimensions millimeters



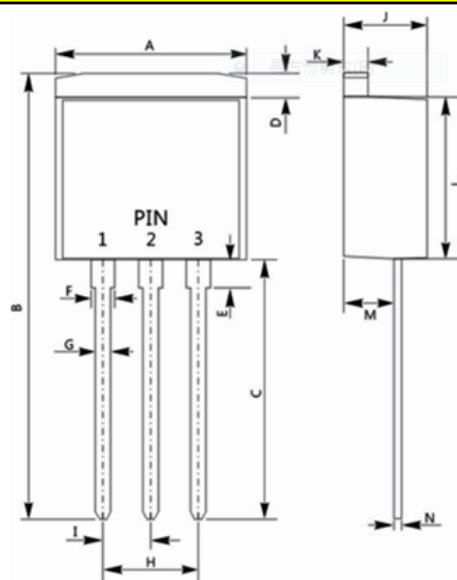
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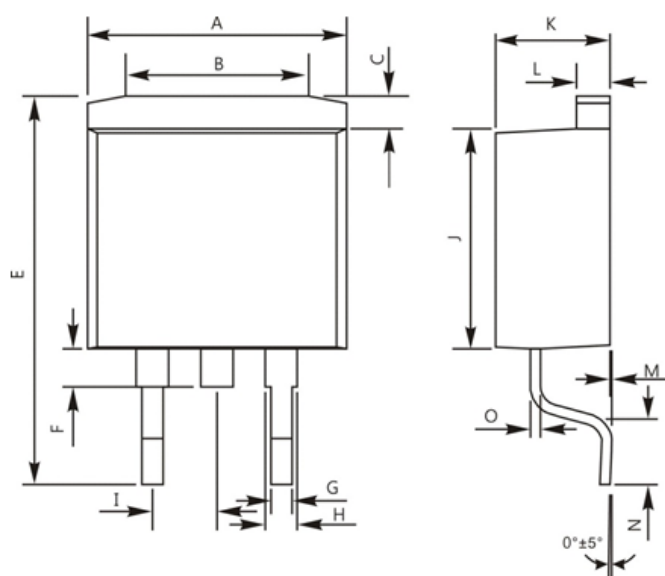
TO-262 (I²PAK)



Dim.	Min.	Max.
A	-----	10.40
B	23.44	24.20
C	13.25	14.25
D	1.27	Ref.
E	-----	4.10
F	1.14	1.40
G	0.76	1.00
H	4.95	5.20
I	2.54	Ref.
J	4.40	4.80
K	1.25	1.45
L	8.60	9.00
M	2.50	2.80
N	0.35	0.56

All Dimensions in millimeter

TO-263 (D²PAK)



Dim.	Min.	Max.
A	9.65	10.69
B	7.30	Ref.
C	1.30	Ref.
E	14.70	15.90
F	1.5	Ref.
G	0.76	1.00
H	1.14	1.70
I	2.54	Ref.
J	8.55	9.50
K	4.40	4.85
L	1.25	1.50
M	-----	0.25
N	2.30	2.80
O	0.36	0.60

All Dimensions in millimeter