

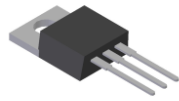
Product Summary (Per Leg)

V _{RRM} (V)	I _O (A)	V _F (TYP) (V) @ +25°C	I _R (MAX) (mA) @ +25°C
100	20	0.61	0.5

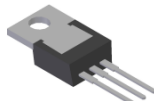
Description and Applications

Packaged in the robust industry-standard TO220AB and ITO-220AB packages, the SBRTF40U100CT and SBRTF40U100CTFP provide ultra low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

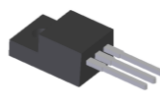
- DC-DC Converters
- AC-DC Adaptors



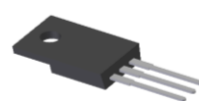
TO220AB
Top View



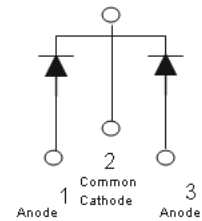
TO220AB
Bottom



ITO-220AB
Top View



ITO-220AB
Bottom View



Package Pin-Out
Configuration

Features and Benefits

- Reduced Ultra-low Forward Voltage Drop (V_F)
Better Efficiency. V_F=0.34V at I_F=5A
- Avalanche Rated
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

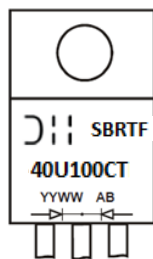
- Case: TO220AB, ITO-220AB
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish.
Solderable per MIL-STD-202, Method 208
- Weight
 - TO220AB – 1.85 grams (Approximate)
 - ITO-220AB – 1.65 grams (Approximate)

Ordering Information (Note 4)

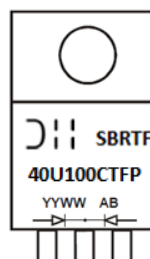
Part Number	Case	Packaging
SBRTF40U100CT	TO220AB	50 pieces/tube
SBRTF40U100CTFP	ITO-220AB	50 pieces/tube

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



SBRTF40U100CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 = 2015)
WW = Week (01-53)



SBRTF40U100CTFP = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 = 2015)
WW = Week (01-53)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	100	V
Average Rectified Output Current (Per Leg) (Total)	I _O	20 40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Per Leg)	I _{FSM}	200	A
Peak Avalanche Power (1μs, +25°C)	P _{ARM}	10,000	W
Non-Repetitive Avalanche Energy (T _J = +25°C, I _{AS} = 9A, L = 10mH)	E _{AS}	340	mJ

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance			
TO220AB (Note 5)	R _{θJA}	55	°C/W
TO220AB (Note 6)	R _{θJC}	1	
TO220AB (Note 6)	R _{θJA}	7	
ITO-220AB (Note 5)	R _{θJA}	45	
ITO-220AB (Note 6)	R _{θJC}	1.6	
ITO-220AB (Note 6)	R _{θJA}	11	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (Per Leg) (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 7)	V _F	—	0.40	—	V	I _F = 5A, T _J = +25°C
		—	0.48	0.58		I _F = 10A, T _J = +25°C
		—	0.61	0.68		I _F = 20A, T _J = +25°C
		—	0.34	—		I _F = 5A, T _J = +125°C
		—	—	0.65		I _F = 20A, T _J = +125°C
Leakage Current (Note 7)	I _R	—	0.08	0.25	mA	V _R = 90V, T _J = +25°C
		—	0.15	0.5		V _R = 100V, T _J = +25°C
		—	—	30		V _R = 80V, T _J = +125°C
		—	35	—		V _R = 100V, T _J = +125°C
Junction Capacitance	C _J	—	250	—	pF	V _R = 40V, f = 1.0MHz

- Notes:
5. Test with no additional heatsink.
 6. Test with additional heatsink (Aluminum, 50 x 50 x 23mm).
 7. Short duration pulse test used to minimize self-heating effect.

NEW PRODUCT

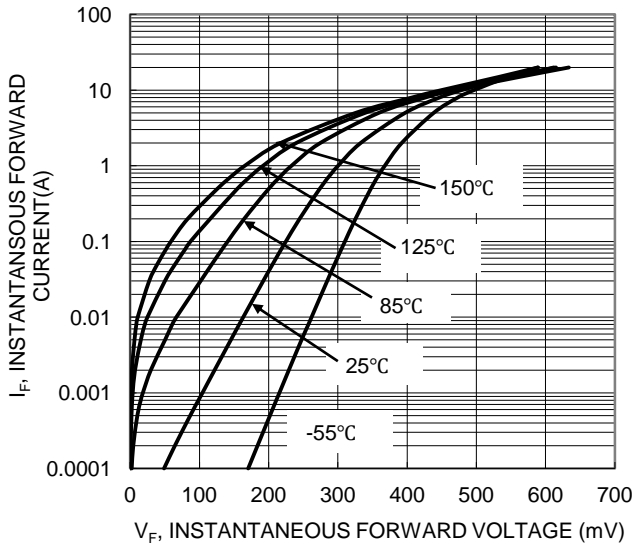


Figure 1. Typical Forward Characteristics

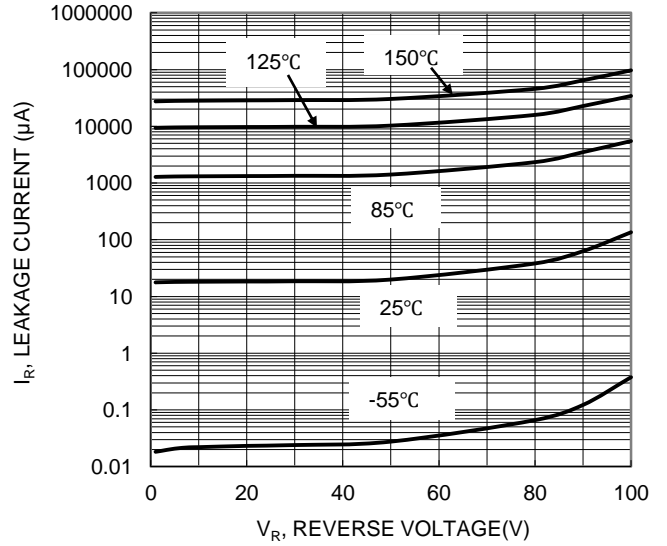


Figure 2. Typical Reverse Characteristics

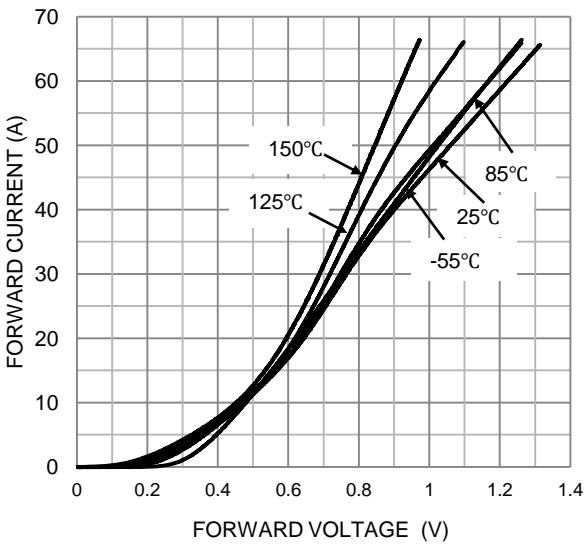


Figure 3. High Current Forward Characteristics

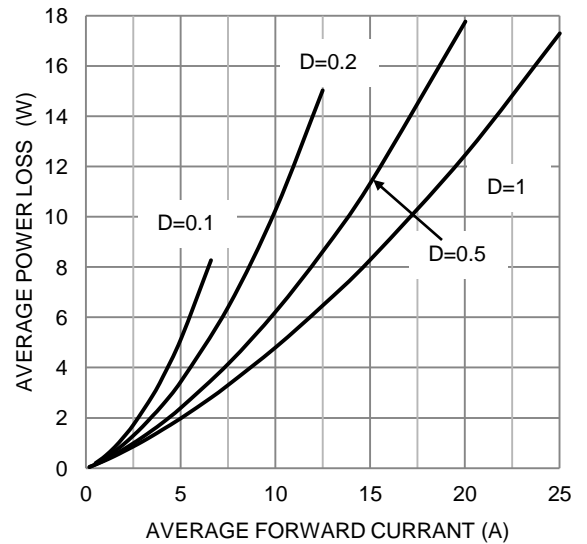


Figure 4. Forward Power Loss Characteristics Per Diode $T=25^\circ\text{C}$

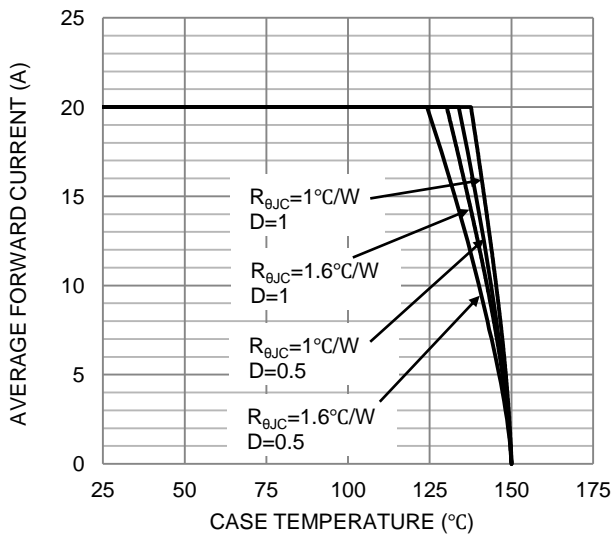


Figure 5. Current Derating per Leg

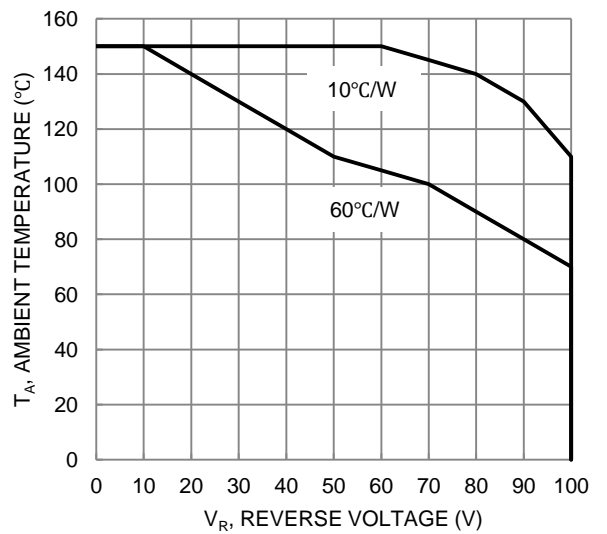
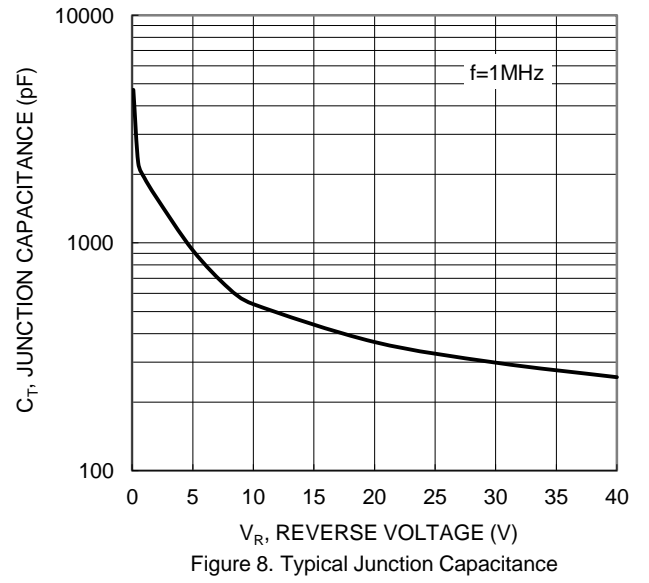
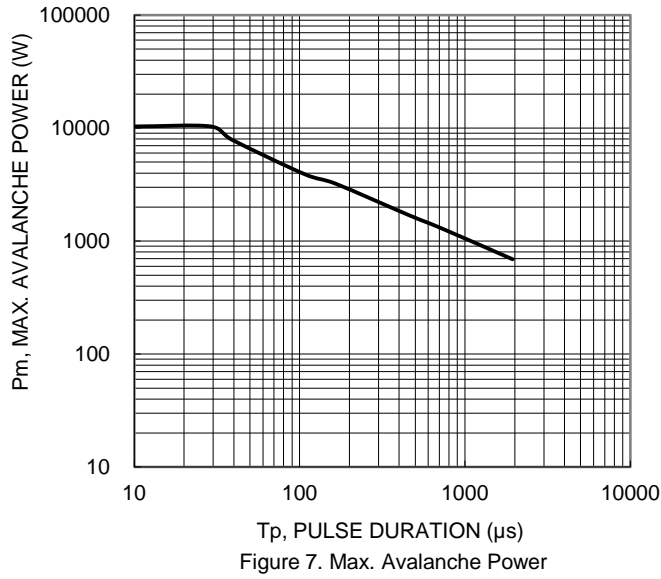


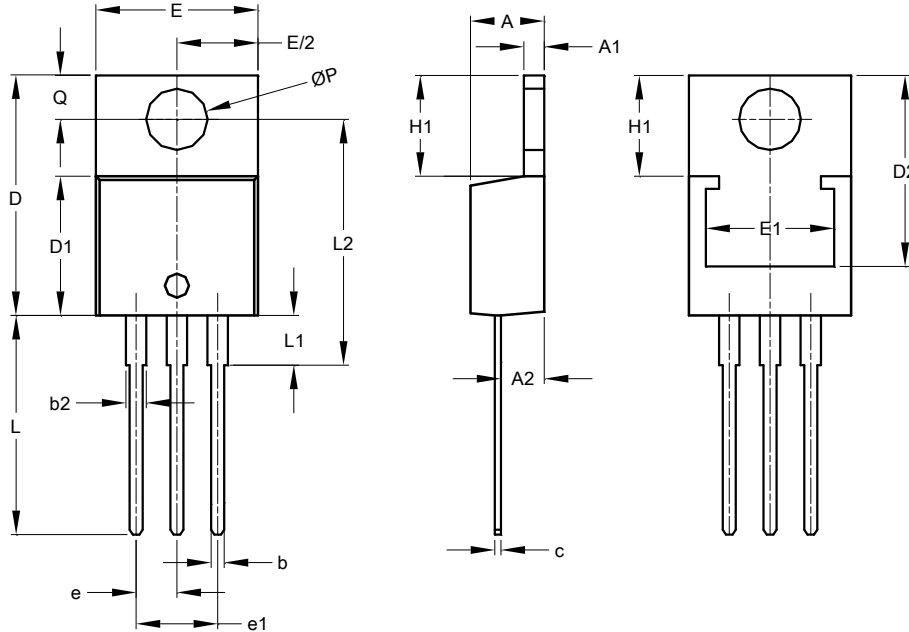
Figure 6. Reverse Safe Operating Area



Package Outline Dimensions

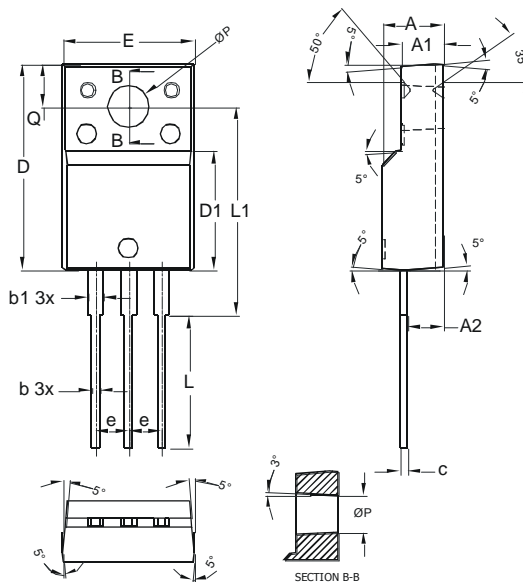
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

(1) Package Type: TO220AB



TO220AB				
Dim	Min	Max	Typ	
A	3.56	4.82	-	
A1	0.51	1.39	-	
A2	2.04	2.92	-	
b	0.39	1.01	0.81	
b2	1.15	1.77	1.24	
c	0.356	0.61	-	
D	14.22	16.51	-	
D1	8.39	9.01	-	
D2	11.45	12.87	-	
e	-	-	2.54	
e1	-	-	5.08	
E	9.66	10.66	-	
E1	6.86	8.89	-	
H1	5.85	6.85	-	
L	12.70	14.73	-	
L1	-	6.35	-	
L2	15.80	16.20	16.00	
P	3.54	4.08	-	
Q	2.54	3.42	-	
All Dimensions in mm				

(2) Package Type: ITO-220AB



ITO-220AB			
Dim	Min	Typ	Max
A	4.50	4.70	4.90
A1	3.04	3.24	3.44
A2	2.56	2.76	2.96
b	0.50	0.60	0.75
b1	1.10	1.20	1.35
c	0.50	0.60	0.70
D	15.67	15.87	16.07
D1	8.99	9.19	9.39
e	2.54		
E	9.91	10.11	10.31
L	9.45	9.75	10.05
L1	15.80	16.00	16.20
P	2.98	3.18	3.38
Q	3.10	3.30	3.50
All Dimensions in mm			

NEW PRODUCT

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