

Features

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Also Available in Green Molding Compound (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability (D2PAK / TO263 Only)**

Mechanical Data

- Case: TO-220AB, ITO-220AB, D²PAK (TO-263)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ^(E3)
- Weight: TO-220AB – 1.85 grams (approximate)
D2PAK – 1.6 grams (approximate)
ITO-220AB – 1.65 grams (approximate)



TO-220AB
Top View



TO-220AB
Bottom View



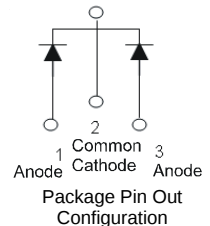
D²PAK



ITO-220AB
Top View



ITO-220AB
Bottom View

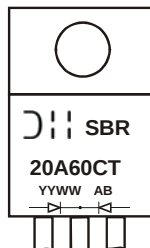


Ordering Information (Notes 2 & 3)

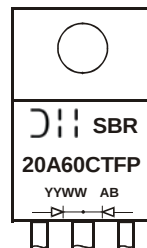
Part Number	Qualification	Case	Packaging
SBR20A60CT	Commercial	TO-220AB	50 pieces/tube
SBR20A60CT-G	Commercial	TO-220AB	50 pieces/tube
SBR20A60CTB	Commercial	D2PAK	50 pieces/tube
SBR20A60CTB-G	Commercial	D2PAK	50 pieces/tube
SBR20A60CTB-13	Commercial	D2PAK	800/Tape & Reel
SBR20A60CTBQ-13	Automotive	D2PAK	800/Tape & Reel, 13-inch
SBR20A60CTB-13-G	Commercial	D2PAK	800/Tape & Reel
SBR20A60CTFP	Commercial	ITO-220AB	50 pieces/tube
SBR20A60CTFP-G	Commercial	ITO-220AB	50 pieces/tube
SBR20A60CTFP-JT	Commercial	ITO-220AB (Alternate)	50 pieces/tube
SBR20A60CTFP-JT-G	Commercial	ITO-220AB (Alternate)	50 pieces/tube

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes
2. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20A60CTB-G.
3. For packaging details, go to our website at <http://www.diodes.com>.

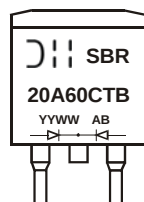
Marking Information



SBR20A60CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last two digits of year (ex: 06 = 2006)
WW = Week (01-53)



SBR20A60CTFP = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last two digits of year (ex: 06 = 2006)
WW = Week (01-53)



SBR20A60CTB = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last two digits of year (ex: 06 = 2006)
WW = Week (01-53)

SBR is a registered trademark of Diodes Incorporated.

SBR20A60

Document number: DS30965 Rev. 10 - 2

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Maximum Ratings (Per Leg) @T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
 For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _{RM}	60	V
Average Rectified Output Current Per Device (Per Leg) (Total)	I _O	10 20	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	180	A
Peak Repetitive Reverse Surge Current (2uS-1KHz)	I _{RRM}	3	A
Isolation Voltage (ITO-220AB Only) From terminal to heatsink t = 3 sec.	V _{AC}	2000	V
Repetitive Peak Avalanche Power (1μs, 25°C)	P _{ARM}	7000	W

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Package = TO-220AB Package = D ² PAK (TO-263) Package = ITO-220AB	R _{θJC}	2 2 4	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 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	V _F	-	- 0.47 -	0.65 0.56 0.79	V	I _F = 10A, T _J = 25°C I _F = 10A, T _J = 125°C I _F = 20A, T _J = 25°C
Leakage Current (Note 4)	I _R	-	-	0.5 100	mA	V _R = 60V, T _J = 25°C V _R = 60V, T _J = 125°C

Notes: 4. Short duration pulse test used to minimize self-heating effect.

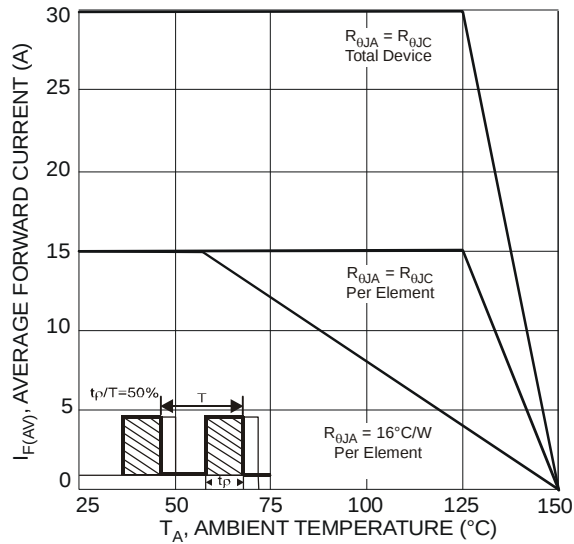


Fig. 1 Forward Current Derating Curve

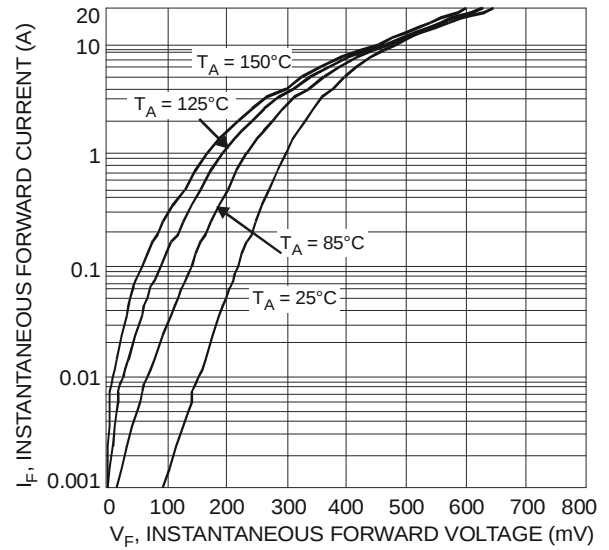


Fig. 2 Typical Forward Characteristics

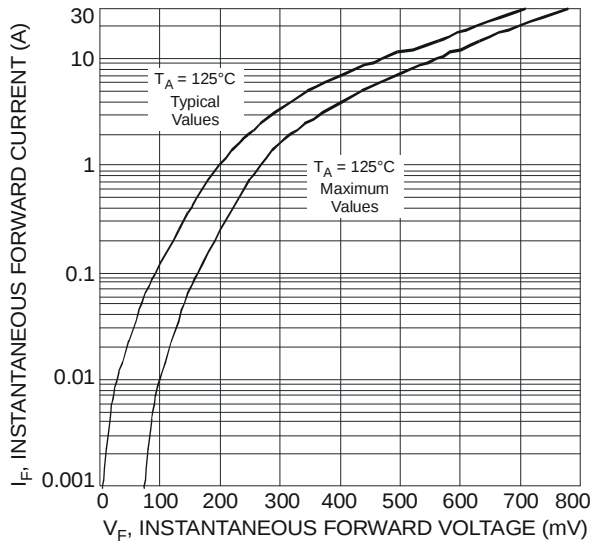


Fig. 3 Forward Characteristics @ $T_A = 125^\circ\text{C}$

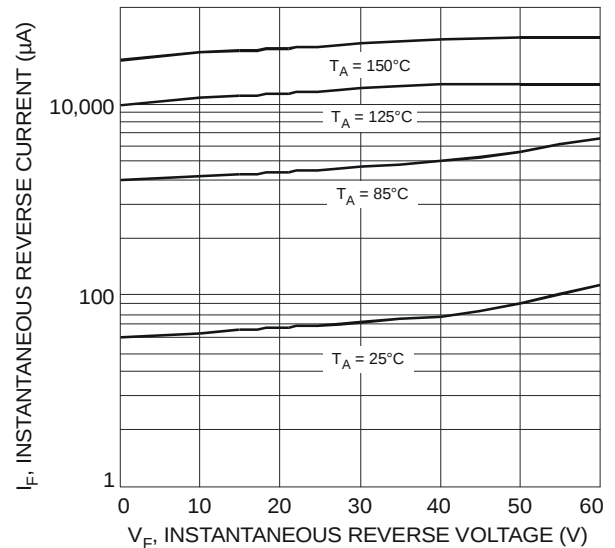


Fig. 4 Typical Reverse Characteristics

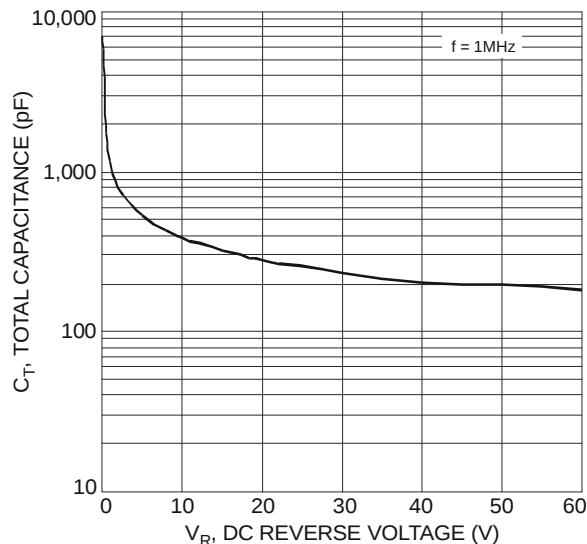


Fig. 5 Total Capacitance vs. Reverse Voltage

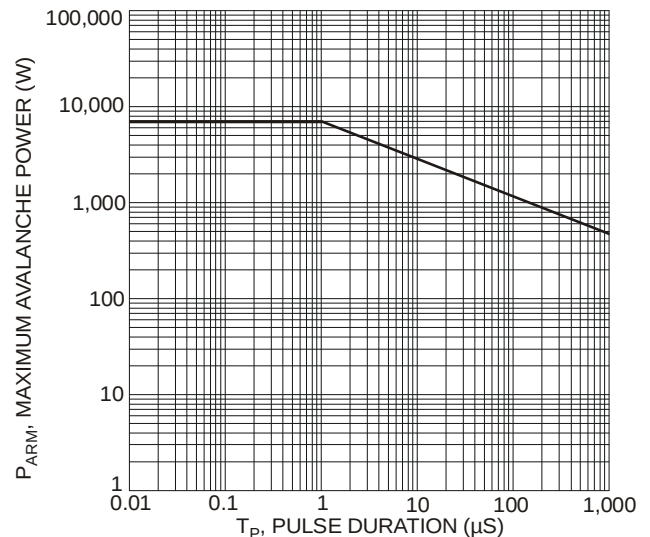
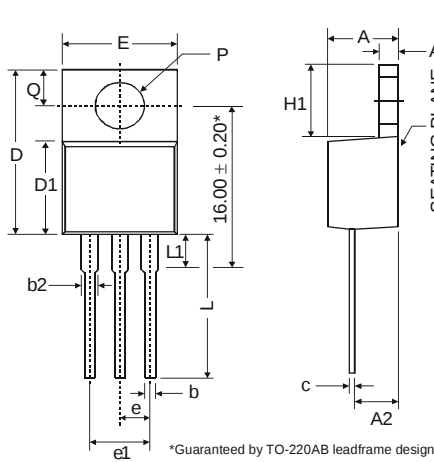
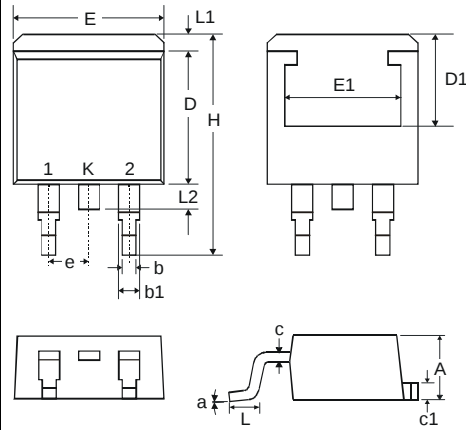


Fig. 6 Maximum Avalanche Power Curve

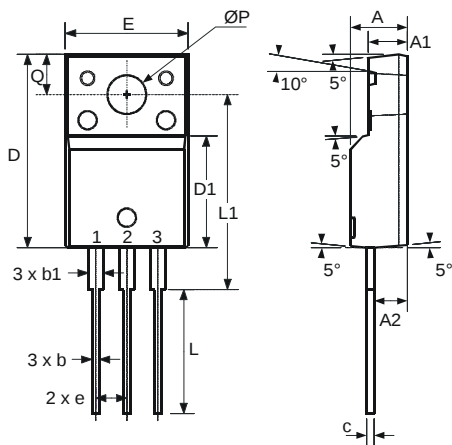
Package Outline Dimensions



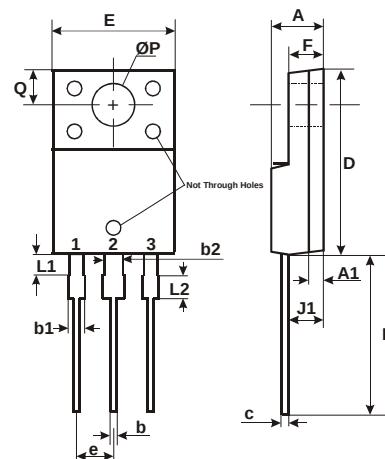
TO-220AB			
Dim	Min	Typ	Max
A	3.56	-	4.82
A1	0.51	-	1.39
A2	2.04	-	2.92
b	0.39	0.81	1.01
b2	1.15	1.24	1.77
c	0.356	-	0.61
D	14.22	-	16.51
D1	8.39	-	9.01
e	2.54		
e1	5.08		
E	9.66	-	10.66
H1	5.85	-	6.85
L	12.70	-	14.73
L1	-	-	6.35
P	3.54	-	4.08
Q	2.54	-	3.42
All Dimensions in mm			



D ² PAK		
Dim	Min	Max
A	4.07	4.82
b	0.51	0.99
b1	1.15	1.77
c	0.356	0.58
c1	1.143	1.65
D	8.39	9.65
D1	6.55	—
E	9.66	10.66
E1	6.23	—
e	2.54 Typ	
H	14.61	15.87
L	1.78	2.79
L1	—	1.67
L2	—	1.77
a	0°	8°
All Dimensions in mm		

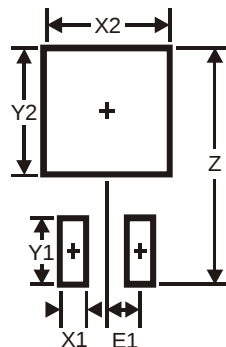


ITO-220AB			
Dim	Min	Typ	Max
A	4.50	4.70	4.90
A1	3.04	3.24	3.44
A2	2.56	2.76	2.96
b	0.50	0.60	0.75
b1	1.10	1.20	1.35
c	0.50	0.60	0.70
D	15.67	15.87	16.07
D1	8.99	9.19	9.39
e	2.54		
E	9.91	10.11	10.31
L	9.45	9.75	10.05
L1	15.80	16.00	16.20
P	2.98	3.18	3.38
Q	3.10	3.30	3.50
All Dimensions in mm			



ITO-220AB ALTERNATE		
DIM.	MIN.	MAX.
A	4.30	4.70
A1	1.3	
b	0.50	0.75
b1	1.10	1.35
b2	1.50	1.75
c	0.50	0.75
D	14.80	15.20
E	9.96	10.36
e	2.54 typ	
F	2.80	3.20
J1	2.50	2.90
L	12.80	13.60
L1	1.70	1.90
L2	1.90	2.10
ØP	3.50 typ	
Q	2.70 typ	
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	16.9
X1	1.1
X2	10.8
Y1	3.5
Y2	7.01
E1	2.5

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