

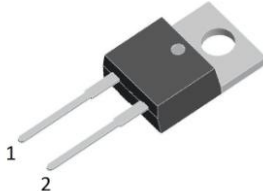
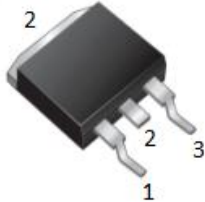
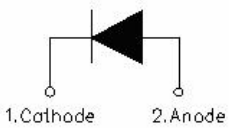
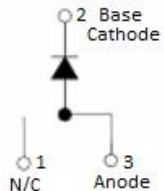
## SDUR2020/SDURB2020 ULTRAFAST RECTIFIER

### Applications

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

### Features

- Ultra-Fast Switching
- High Current Capability
- Low Reverse Leakage Current
- High Surge Current Capability
- Plastic Material has UL Flammability Classification 94V-0
- “-A” is an AEC-Q101 qualified device
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

SDUR2020	SDURB2020
	
	
TO-220AC	D <sup>2</sup> PAK

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	$V_{RRM}$	-	200	V
Working Peak Reverse Voltage	$V_{RWM}$			
DC Blocking Voltage	$V_R$			
Average Rectified Forward Current	$I_F(AV)$	50% duty cycle @ $T_c=75^{\circ}C$ , rectangular wave form	20	A
Peak One Cycle Non-Repetitive Surge Current	$I_{FSM}$	8.3ms, Half Sine pulse	160	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	$V_{F1}$	@ 20A, Pulse, $T_J = 25^\circ\text{C}$	0.90	1.15	V
	$V_{F2}$	@ 20A, Pulse, $T_J = 150^\circ\text{C}$	-	0.95	V
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	0.4	15	$\mu\text{A}$
	$I_{R2}$	@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	0.03	1.0	mA
Reverse Recovery Time	$t_{rr}$	$I_F=500\text{mA}, I_R=1\text{A}, \text{and } I_{rm}=250\text{mA}$	31	35	ns

\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

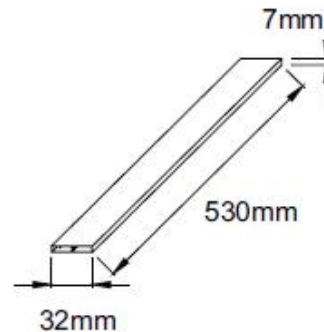
**Thermal-Mechanical Specifications:**

Characteristics	Symbol	SDUR2020	SDURB2020	Units
Junction Temperature	$T_J$	-55 to +150		$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150		$^\circ\text{C}$
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	2.3	2.3	$^\circ\text{C/W}$
Case Style	TO-220AC/ D <sup>2</sup> PAK			

**Tube Specification**

Device	Package	Weight	Shipping
SDUR2020	TO-220AC	1.6g	50pcs / tube
SDURB2020	D <sup>2</sup> PAK	1.85g	800pcs / reel
SDURB2020TR	D <sup>2</sup> PAK	1.85g	800pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Tube Specification(TO-220AC)**


**Ratings and Characteristics Curves**

Figure 1  
Typical Forward Characteristics

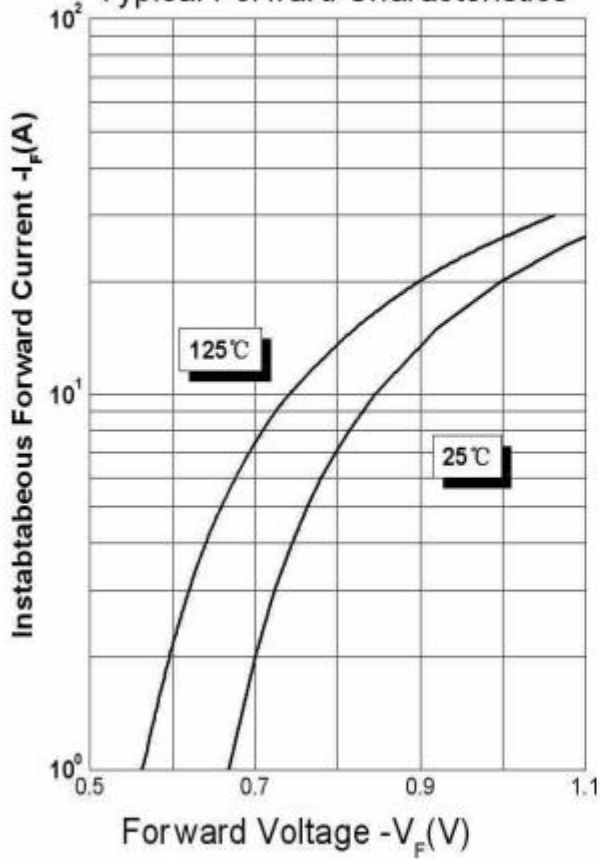


Figure 2  
Typical Reverse Characteristics

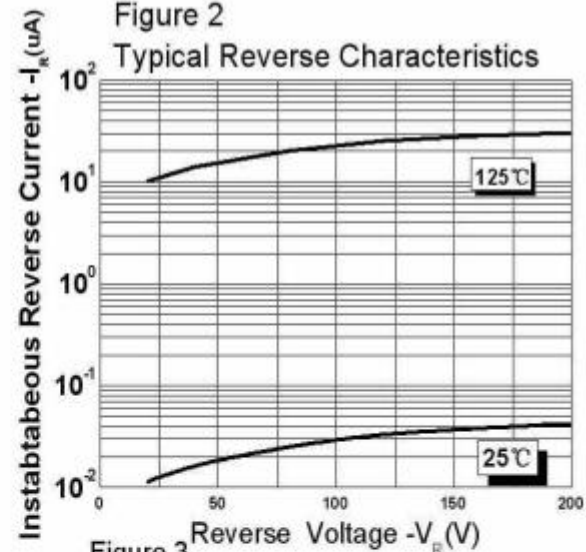
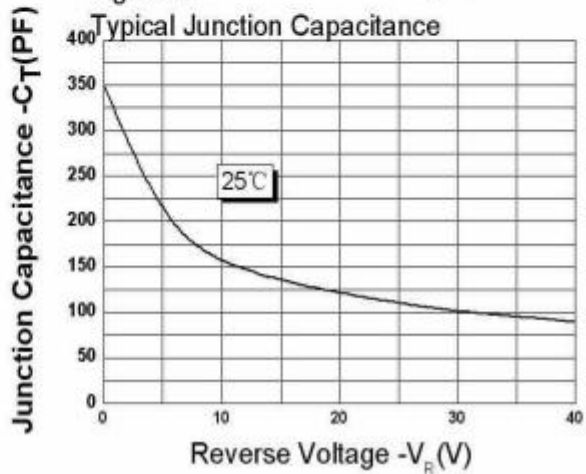
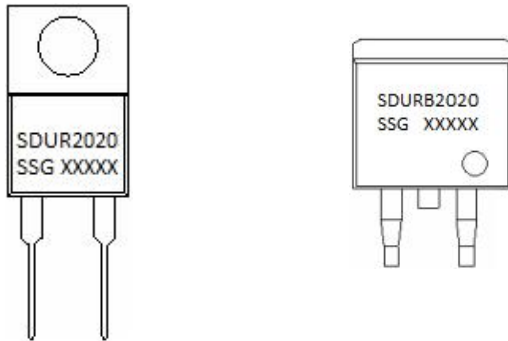


Figure 3  
Typical Junction Capacitance



## Marking Diagram

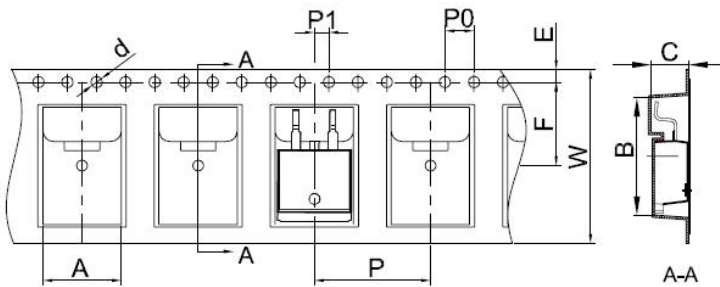


Where XXXXX is YYWWL

SDUR = Device Type  
B = Package type  
20 = Forward Current (20A)  
20 = Reverse Voltage (200V)  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

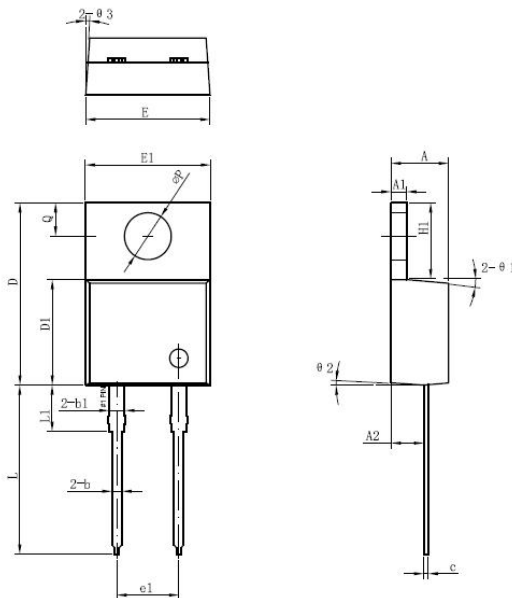
**Cautions:** Molding resin  
Epoxy resin UL:94V-0

## Carrier Tape & Reel Specification D<sup>2</sup>PAK



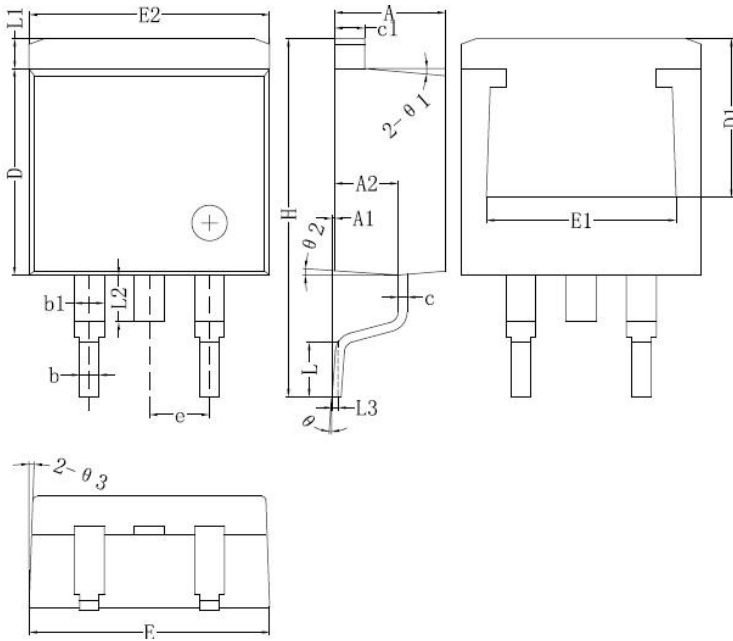
SYMBOL	Millimeters	
	Min.	Max.
A	10.70	10.90
B	16.03	16.23
C	5.11	5.31
d	1.45	1.65
E	1.65	1.85
F	11.40	11.60
P0	3.90	4.10
P	15.90	16.10
P1	1.90	2.10
W	23.90	24.30

## Mechanical Dimensions TO-220AC



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	4.47	4.70	4.85
A1	1.17	1.27	1.37
A2	2.52	2.69	2.89
b	0.71	0.81	0.96
b1	1.17	1.27	1.37
c	0.31	0.38	0.61
D	14.64	14.94	15.24
D1	8.50	8.07	8.90
E	10.01	10.16	10.31
E1	9.98	10.18	10.38
e1	4.98	5.08	5.18
H1	6.04	6.24	6.44
L	13.00	13.86	14.08
L1	3.56	3.80	3.96
ΦP	3.74	3.84	4.04
Q	2.54	2.74	2.94
Θ1		5°	
Θ2		4°	
Θ3		4°	

**Mechanical Dimensions D<sup>2</sup>PAK**



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	4.47	4.70	4.85
A1	0	0.10	0.25
A2	2.59	2.69	2.89
b	0.71	0.81	0.96
b1	1.17	1.27	1.37
c	0.31	0.38	0.61
c1	1.17	1.27	1.37
D	8.50	8.70	8.90
D1	6.40		
E	10.01	10.16	10.31
E1	7.6		
E2	9.98	10.08	10.31
e		2.54	
H	14.6	15.1	15.6
L	2.00	2.30	2.74
L1	1.12	1.27	1.42
L2	1.30		2.20
L3		0.25BSC	
e	0	-	8°
e1		5°	
e2		4°	
e3		4°	

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