

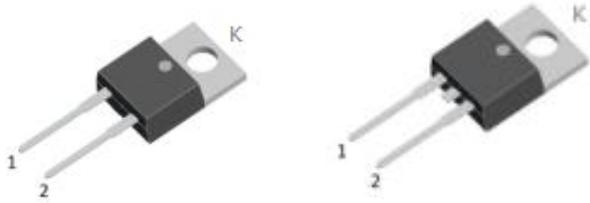
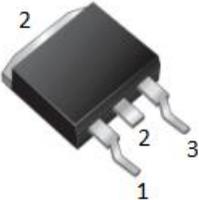
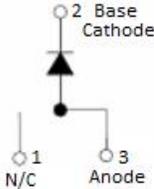
## ST20300/STB20300 SCHOTTKY RECTIFIER

### Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

### Features

- 150 °C T<sub>j</sub> operation
- Ultralow forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Trench MOS Schottky technology
- Terminals finish: Tin Lead-free plated
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

ST20300	STB20300
	
	
TO-220AC	D <sup>2</sup> PAK

### Maximum Ratings(limiting values, at 25 °C unless otherwise specified)

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	-	300	V
Average Rectified Forward Current	$I_{F(AV)}$	T <sub>c</sub> =122°C(TO-220AC, D2PAK)	20	A
Peak One Cycle Non-Repetitive Surge Current	$I_{FSM}$	8.3ms, Half Sine pulse	235	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	$V_{F1}$	@ 20A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.87	0.92	V
	$V_{F2}$	@ 20A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.74	0.82	V
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R$ $T_J = 25\text{ }^\circ\text{C}$	0.05	100	$\mu\text{A}$
	$I_{R2}$	@ $V_R = \text{rated } V_R$ $T_J = 125\text{ }^\circ\text{C}$	0.09	10	mA
Junction Capacitance	$C_T$	@ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$ , $f_{SIG} = 1\text{MHz}$	463	-	pF

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

**Thermal-Mechanical Specifications:**

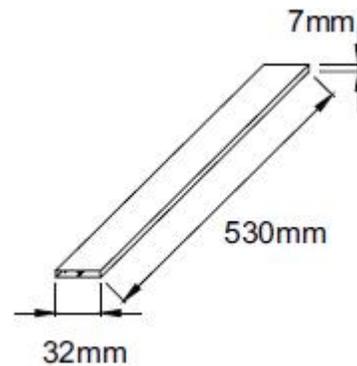
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	$T_J$	-	-55 to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-	-55 to +150	$^\circ\text{C}$
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	1.2	$^\circ\text{C/W}$

**Tube Specification**

Device	Package	Weight	Shipping
ST20300	TO-220AC	1.6g	50pcs / tube
STB20300	D <sup>2</sup> PAK	1.85g	800pcs / reel
STB20300TR	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

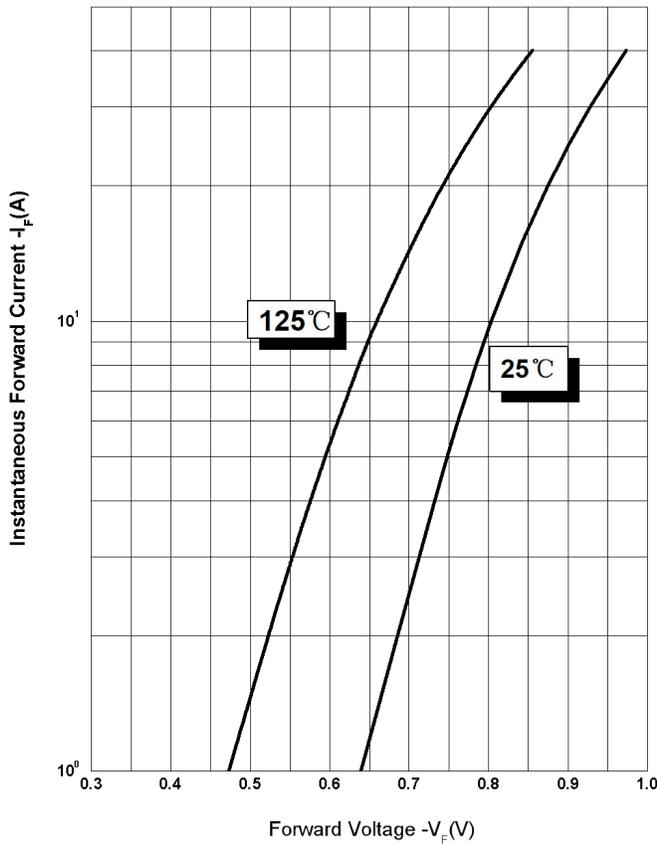


Figure 2 Typical Reverse Characteristics

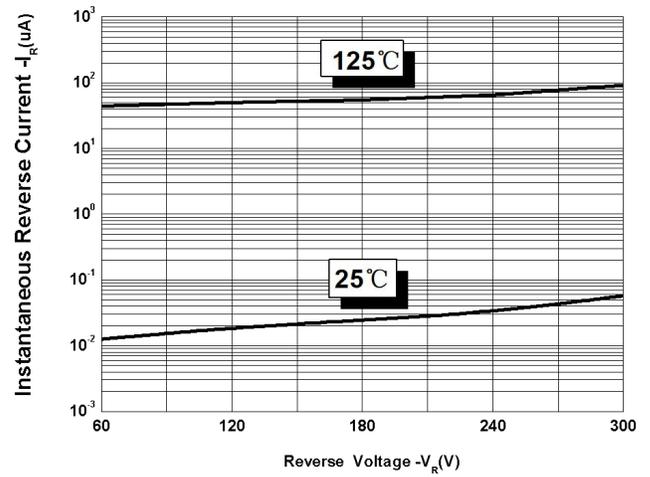
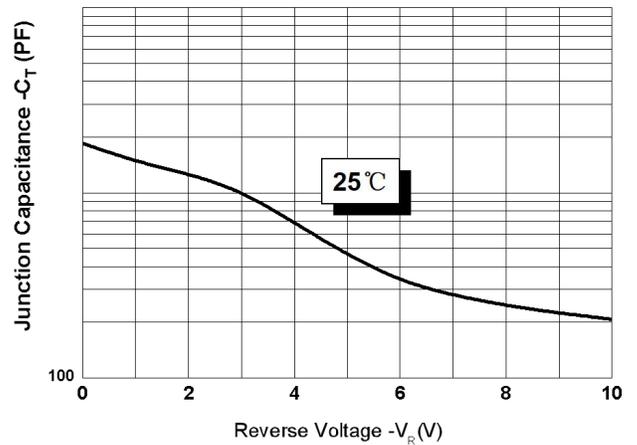
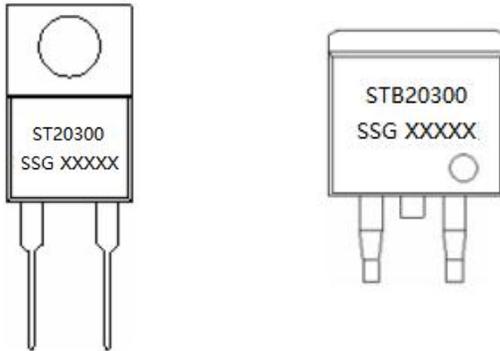


Figure 3 Typical Junction Capacitance



## Marking Diagram

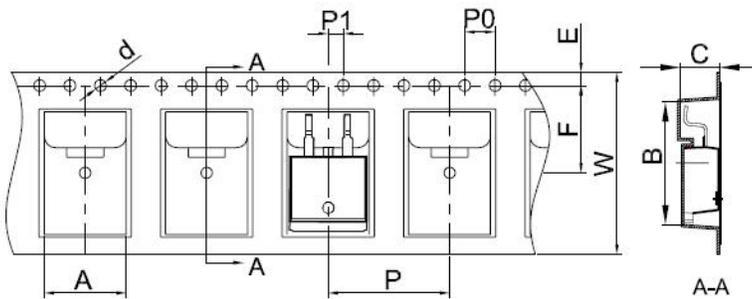


Where XXXXX is YYWWL

ST = Device Type  
B = Package type  
20 = Forward Current (20A)  
300 = Reverse Voltage (300V)  
SSG = SSC  
YY = Year  
WW = Week  
L = Lot Number

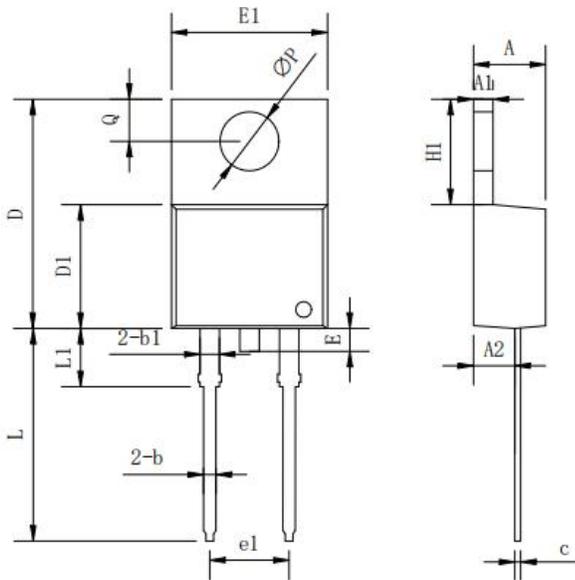
**Cautions:** Molding resin  
Epoxy resin UL94V-0

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



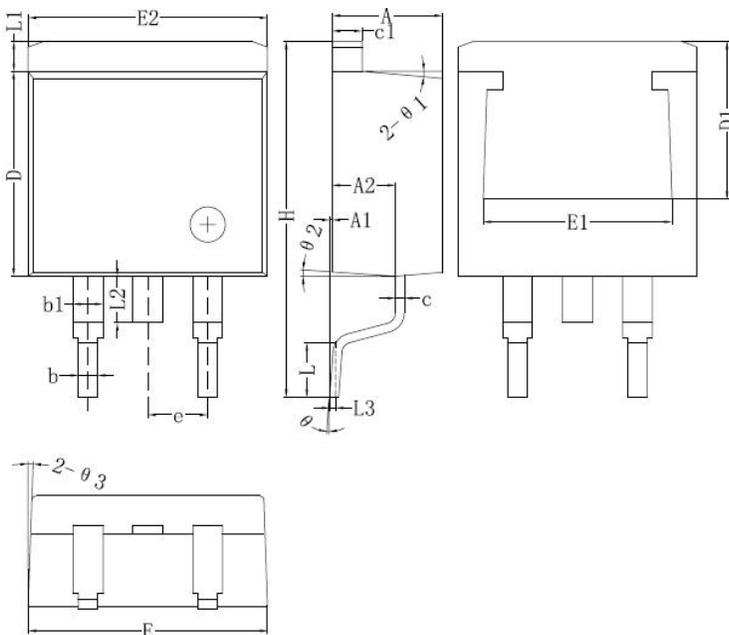
SYMBOL	Millimeters	
	Min.	Max.
A	10.70	10.90
B	16.03	16.23
C	5.11	5.31
d	1.45	1.65
E	1.65	1.85
F	11.40	11.60
P0	3.90	4.10
P	15.90	16.10
P1	1.90	2.10
W	23.90	24.30

**Mechanical Dimensions TO-220AC**



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	3.56	-	4.83
A1	0.51	-	1.4
A2	2.03	-	2.92
b	0.38	-	1.02
b1	1.14	-	1.78
c	0.31	-	0.61
D	14.22	-	16.51
D1	8.38	-	9.42
E	-	-	1.78
E1	9.65	10.16	10.67
e1	-	5.08	-
H1	5.84	-	6.86
L	12.7	-	14.73
L1	-	-	6.35
ØP	-	3.56	-
Q	2.54	-	3.43

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



Symbol	Dimensions in millimeters	
	Min.	Max.
A	4.06	4.83
A1	0	0.26
b	0.51	0.99
b1	1.14	1.78
c	0.31	0.74
c1	1.14	1.65
D	8.38	9.65
D1	6.4	
E1	6.22	
E2	9.65	10.67
e	2.54BSC	
H	14.6	15.88
L	1.78	2.8
L1	-	1.68
L2	-	2.2
L3	0.255BSC	
Ø	0	8°

Technical Data  
Data Sheet N2756, Rev. -



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