




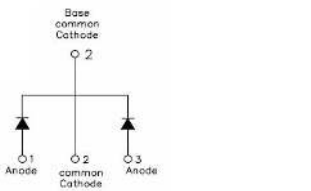
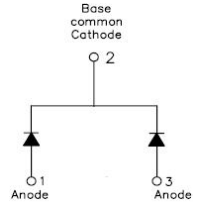
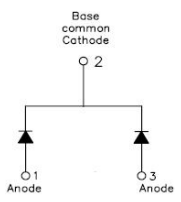
## 20CTQ.../20CTQ...S /20CTQ...-1 SCHOTTKY RECTIFIER

### Features

- 150°C T<sub>J</sub> operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Terminals finish: 100% Pure Tin
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Applications

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

20CTQ...	20CTQ...S	20CTQ...-1
		
		
TO-220AB	D <sup>2</sup> PAK	TO-262

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	-	30(20CTQ030)	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		35(20CTQ035)	
DC Blocking Voltage	V <sub>R</sub>		40(20CTQ040) 45(20CTQ045)	
Average Rectified Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>c</sub> =105°C, rectangular wave form	10(Per Leg) 20(Per Device)	A
Peak One Cycle Non-Repetitive Surge Current(Per Leg)	I <sub>FSM</sub>	8.3ms, Half Sine pulse, T <sub>c</sub> = 25 °C	260	A

### Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop (Per Leg)*	V <sub>F1</sub>	@ 10A, Pulse, T <sub>J</sub> = 25 °C	0.57	0.70	V
		@ 20A, Pulse, T <sub>J</sub> = 25 °C	0.75	0.80	V
	V <sub>F2</sub>	@ 10A, Pulse, T <sub>J</sub> = 125 °C	0.55	0.60	V
		@ 20A, Pulse, T <sub>J</sub> = 125 °C	0.70	0.76	V
Reverse Current (Per Leg)*	I <sub>R1</sub>	@V <sub>R</sub> = rated V <sub>R</sub> T <sub>J</sub> = 25 °C	0.03	1.0	mA
	I <sub>R2</sub>	@V <sub>R</sub> = rated V <sub>R</sub> T <sub>J</sub> = 125 °C	9	15	mA
Junction Capacitance(Per Leg)	C <sub>T</sub>	@V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C f <sub>SIG</sub> = 1MHz	220	600	pF

\* Pulse width < 300 μs, duty cycle < 2%

### Thermal-Mechanical Specifications:

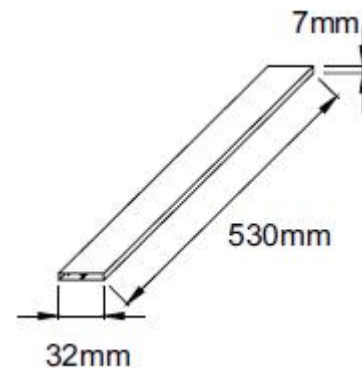
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T <sub>J</sub>	-	-55 to +150	°C
Storage Temperature	T <sub>stg</sub>	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case	R <sub>θJC</sub>	DC operation	3.25	°C/W
Typical Thermal Resistance, Case to Heat Sink	R <sub>θJL</sub>	DC operation	0.50	°C/W
Case Style	TO-220AB D <sup>2</sup> PAK TO-262			

### Tube Specification

Device	Package	Weight	Shipping
20CTQ...	TO-220AB	1.8g	50pcs / tube
20CTQ...S	D <sup>2</sup> PAK	1.85g	800pcs / reel
20CTQ...-1	TO-262	1.85g	50pcs / tube

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-220AB/TO-262)



**Ratings and Characteristics Curves**

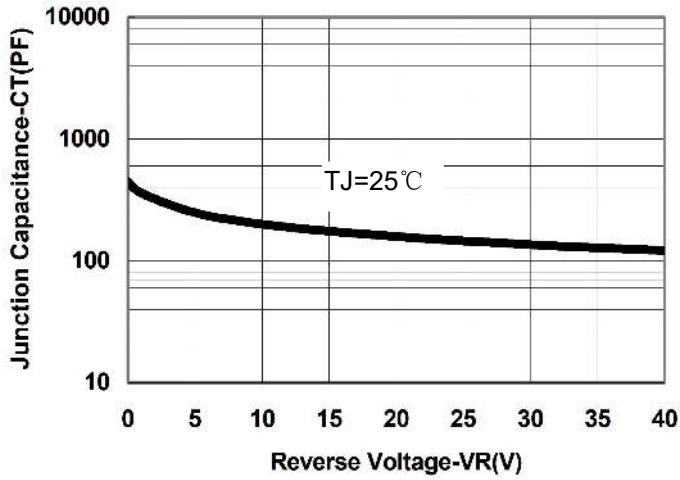


Fig.1-Typical Junction Capacitance

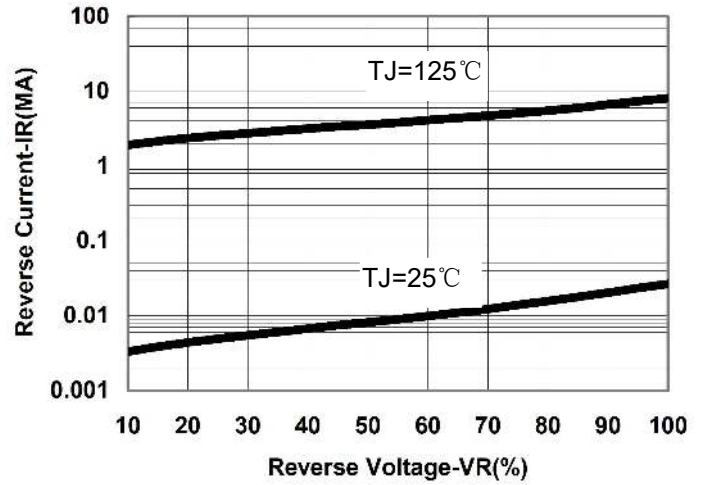


Fig.2-Typical Reverse Characteristics

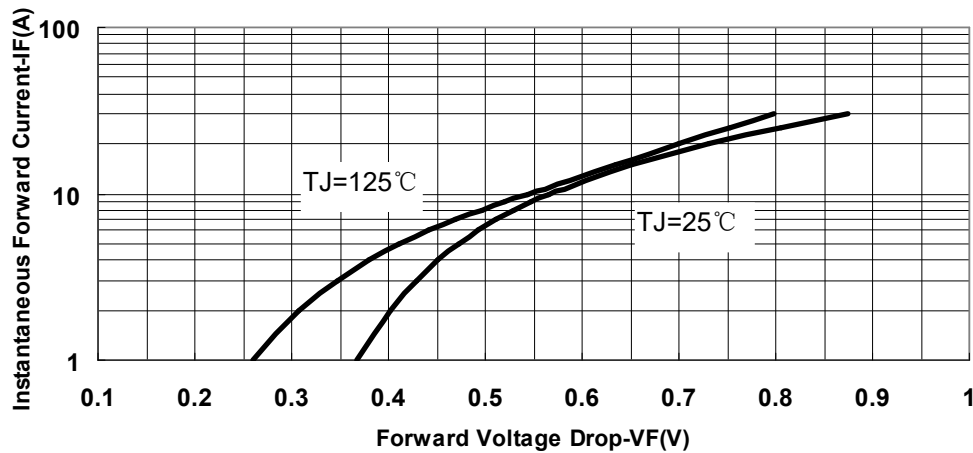
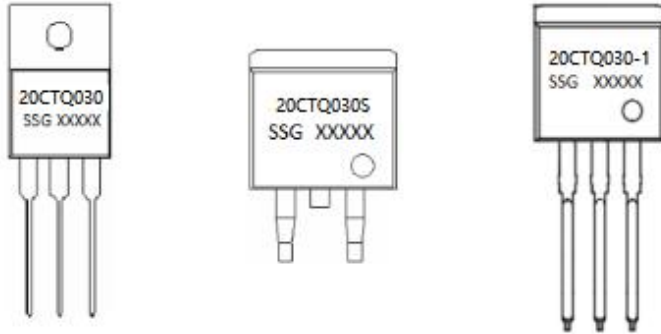


Fig.3-Typical Instantaneous Forward Voltage Characteristics

## Marking Diagram

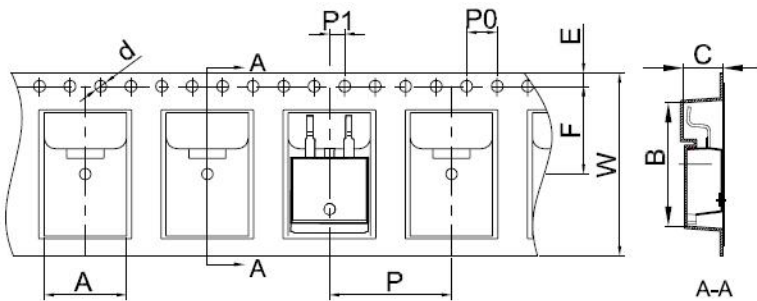


Where XXXXX is YYWWL

20 = Forward Current (20A)  
C = Configuration  
TQ = Device Type  
30/35/40/45 = Reverse Voltage (30V/35V/40V/45V)  
S/-1 = Package type  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

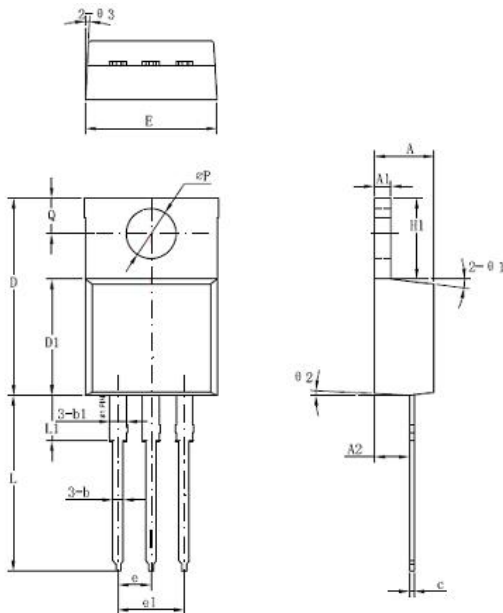
**Cautions:** Molding resin  
Epoxy resin UL:94V-0

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



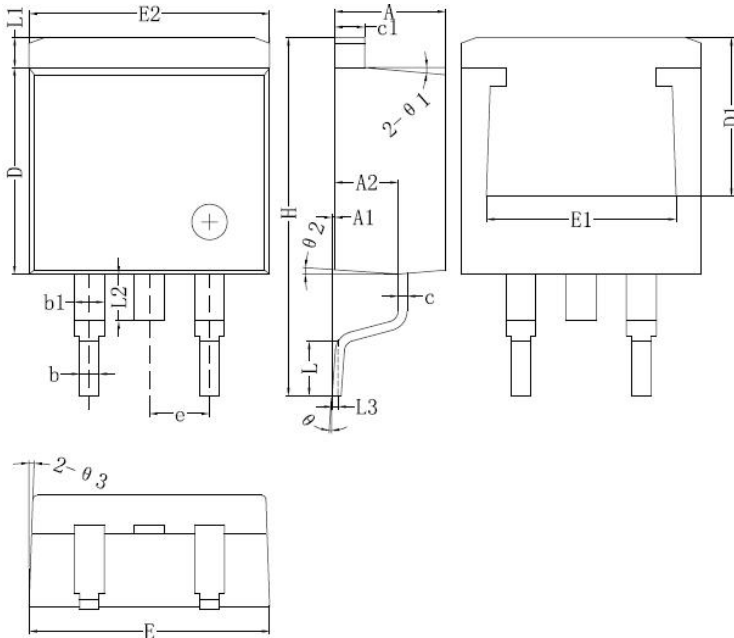
Symbol	Millimeters	
	Min.	Max.
A	10.70	10.90
B	16.03	16.23
C	5.11	5.31
d	1.45	1.65
E	1.65	1.85
F	11.40	11.60
P0	3.90	4.10
P	15.90	16.10
P1	1.90	2.10
W	23.90	24.30

## Mechanical Dimensions TO-220AB



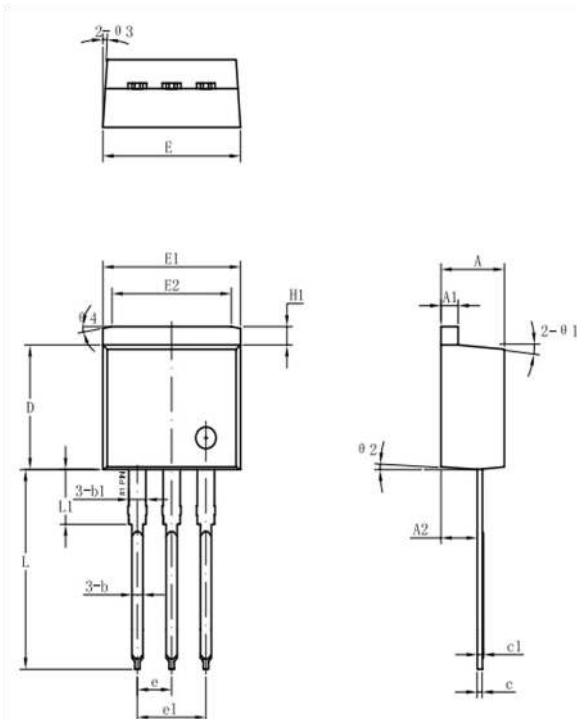
Symbol	Millimeters		
	Min.	Typical	Max.
A	4.42	4.57	4.72
A1	1.17	1.27	1.37
A2	2.52	2.69	2.89
b	0.71	0.81	0.96
b1	1.17	1.27	1.37
c	0.31	0.38	0.61
D	14.94	15.24	15.54
D1	8.85	9.00	9.15
E	10.01	10.16	10.31
e		2.54	
e1	4.98	5.06	5.18
H1	6.04	6.24	6.44
L	12.7	13.56	13.80
L1	3.56	3.5	3.96
ØP	3.74	3.84	4.04
Q	2.54	2.74	2.94
Ø1		7°	
Ø2		3°	
Ø3		4°	

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



Symbol	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°	

### Mechanical Dimensions TO-262



Symbol	Millimeters		
	Min.	Typical	Max.
A	4.55	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		1.27	
c	0.36	0.38	0.61
c1	1.17	1.27	1.37
D	8.55	8.70	8.85
D1	6.40		
E	10.01	10.16	10.31
E1	7.6		
E2	9.98	10.08	10.18
e		2.54	
H	14.6	15.1	15.6
L	2.00	2.30	2.70
L1	1.17	1.27	1.40
L2			2.20
L3		0.25BSC	
e	0	-	8°
e1		5°	
e2		4°	
e3		4°	

**Technical Data**  
**Data Sheet N2253, Rev. -**



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