

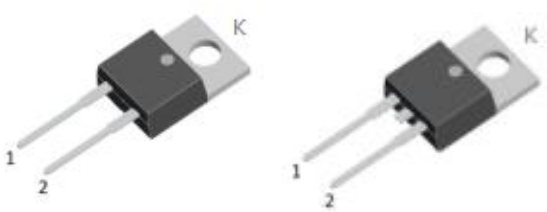
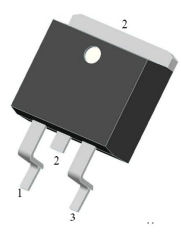

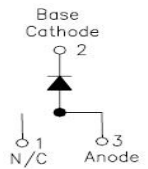
## 20TQ035/S 20TQ040/S 20TQ045/S SCHOTTKY RECTIFIER

### Features

- 150°C T<sub>J</sub> operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- 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

### Applications

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

20TQ...	20TQ...S
	
	
TO-220AC	D <sup>2</sup> PAK

### Maximum Ratings@T<sub>c</sub>=25°C unless otherwise specified

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	-	35	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		40	
DC Blocking Voltage	V <sub>R</sub>		45	
Average Rectified Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>c</sub> =116°C, rectangular wave form	20	A
Peak One Cycle Non-Repetitive Surge Current	I <sub>FSM</sub>	8.3ms, Half Sine pulse	400	A

### Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V <sub>F1</sub>	@ 20A, Pulse, T <sub>A</sub> = 25 °C @ 40A, Pulse, T <sub>A</sub> = 25 °C	0.51 -	0.57 0.73	V
	V <sub>F2</sub>	@ 20A, Pulse, T <sub>A</sub> = 125 °C @ 40A, Pulse, T <sub>A</sub> = 125 °C	0.45 -	0.51 0.67	V
Reverse Current *	I <sub>R1</sub>	@V <sub>R</sub> = rated V <sub>R</sub> T <sub>J</sub> = 25 °C	0.07	2.7	mA
	I <sub>R2</sub>	@V <sub>R</sub> = rated V <sub>R</sub> T <sub>J</sub> = 125 °C	18	105	mA
Junction Capacitance	C <sub>T</sub>	@V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C f <sub>sig</sub> = 1MHz	683	1650	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

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

### Thermal-Mechanical Specifications:

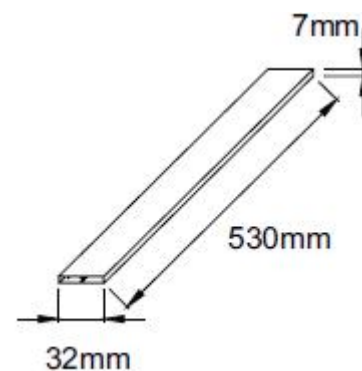
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T <sub>J</sub>	-	-55 to +150	°C
Storage Temperature	T <sub>stg</sub>	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case	R <sub>θJC</sub>	DC operation	1.5	°C/W
Case Style	TO-220AC D <sup>2</sup> PAK			

### Tube Specification

Device	Package	Weight	Shipping
20TQ...	TO-220AC	1.8g	50pcs / tube
20TQ...S	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**

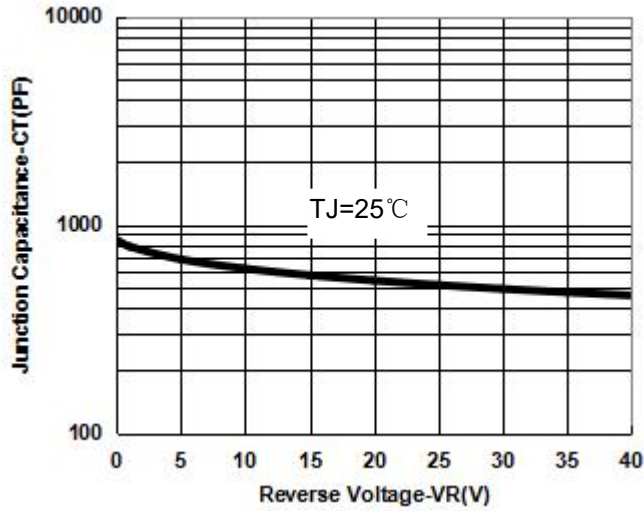


Fig.1-Typical Junction Capacitance

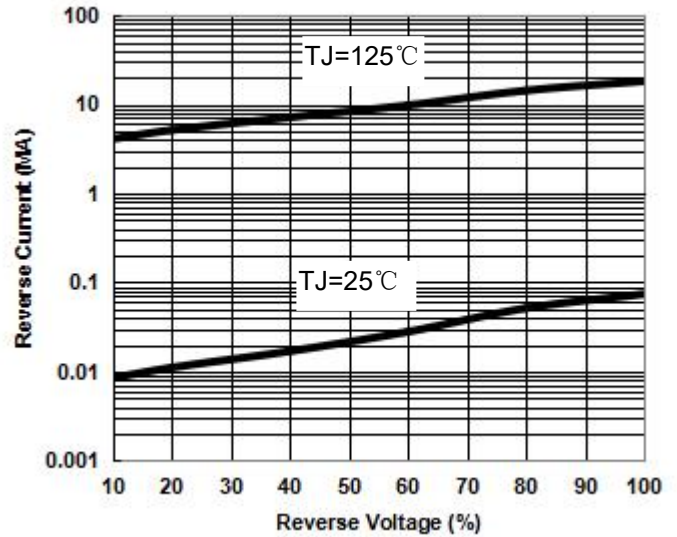


Fig.2-Typical Reverse Characteristics

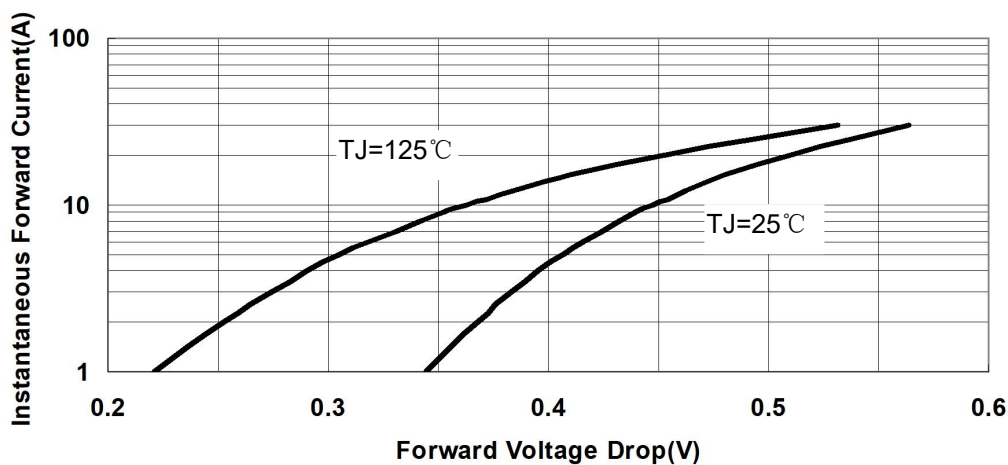
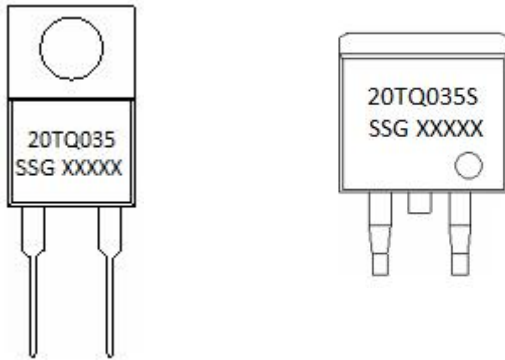


Fig.3-Typical Instantaneous Forward Voltage Characteristics

## Marking Diagram

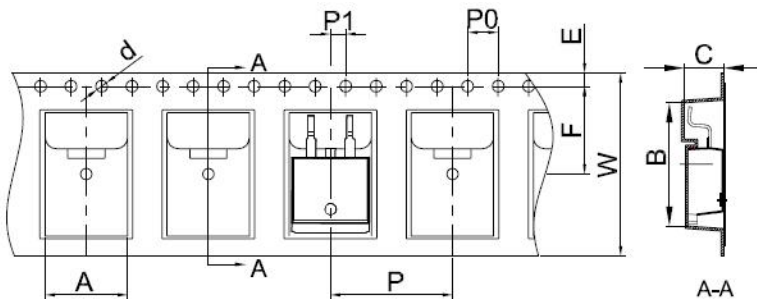


Where XXXXX is YYWWL

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

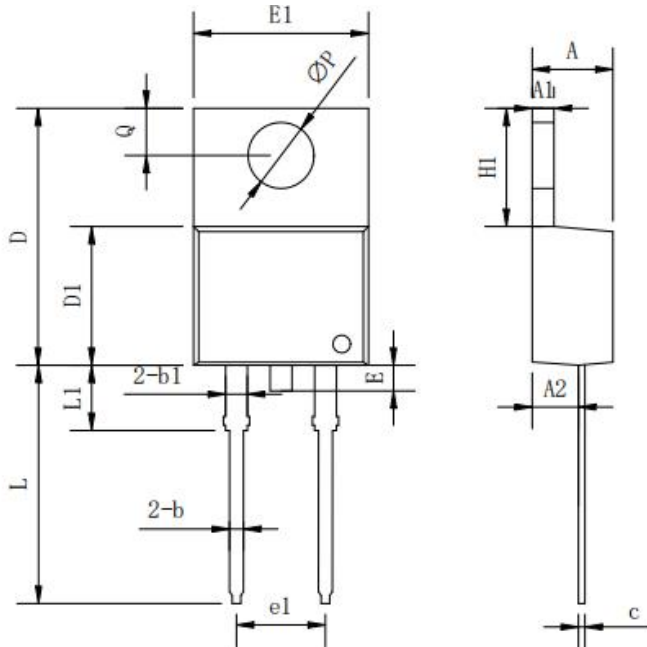
**Cautions:** Molding resin  
Epoxy resin UL:94V-0

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



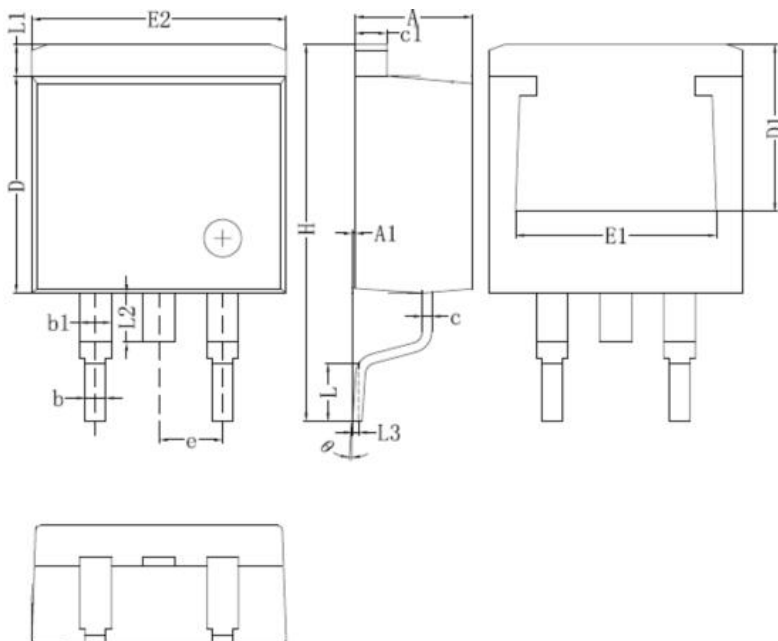
Symbol	Millimeters	
	Min.	Max.
A	10.70	10.90
B	16.03	16.23
C	5.11	5.31
d	1.45	1.65
E	1.65	1.85
F	11.40	11.60
P0	3.90	4.10
P	15.90	16.10
P1	1.90	2.10
W	23.90	24.30

**Mechanical Dimensions TO-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°

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