


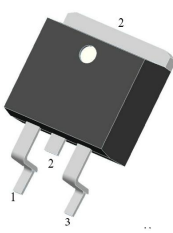

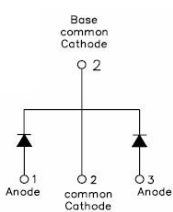
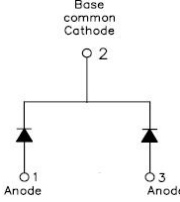
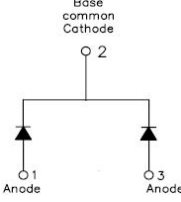
ST10120C/STB10120C/STD10120C SCHOTTKY RECTIFIER

Applications

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

Features

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

ST10120C	STB10120C	STD10120C
		
		
TO-220AB	D ² PAK	DPAK

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

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	V _{RRM}	-	120	V
Working Peak Reverse Voltage	V _{RWM}	-		
DC Blocking Voltage	V _R	-		
Average Rectified Forward Current	I _{F(AV)}	T _c =137°C(TO-220AB, D2PAK) T _c =139°C(DPAK), In DC	5(Per Leg) 10(Per Device)	A
Peak One Cycle Non-Repetitive Surge Current(Per Leg)	I _{FSM}	8.3ms, Half Sine pulse	120	A

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop(Per Leg)*	V_{F1}	@ 5A, Pulse, $T_J = 25^\circ\text{C}$	0.78	0.88	V
	V_{F2}	@ 5A, Pulse, $T_J = 125^\circ\text{C}$	0.60	0.71	V
Reverse Current(Per Leg)*	I_{R1}	@ $V_R = \text{rated } V_R$ $T_J = 25^\circ\text{C}$	0.003	0.5	mA
	I_{R2}	@ $V_R = \text{rated } V_R$ $T_J = 125^\circ\text{C}$	2	35	mA
Junction Capacitance	C_T	@ $V_R = 5\text{V}$, $T_C = 25^\circ\text{C}$, $f_{\text{SIG}} = 1\text{MHz}$	200	-	pF

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

Thermal-Mechanical Specifications:

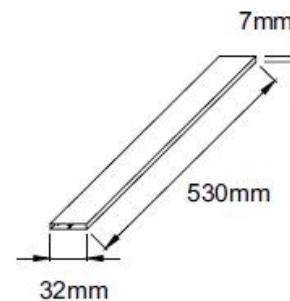
Characteristics	Symbol	ST10120C	STB10120C	STD10120C	Units
Junction Temperature	T_J	-55 to +150			$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150			$^\circ\text{C}$
Typical Thermal Resistance Junction to Case(Per Leg)	$R_{\theta\text{JC}}$	3.0	3.0	2.4	$^\circ\text{C/W}$

Tube Specification

Device	Package	Weight	Shipping
ST10120C	TO-220AB	2.0	50pcs / tube
STB10120C	D ² PAK	1.85	800pcs / reel
STD10120C	DPAK	0.39	2500pcs / 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-220AB)



Ratings and Characteristics Curves

Figure 1 Typical Forward Characteristics

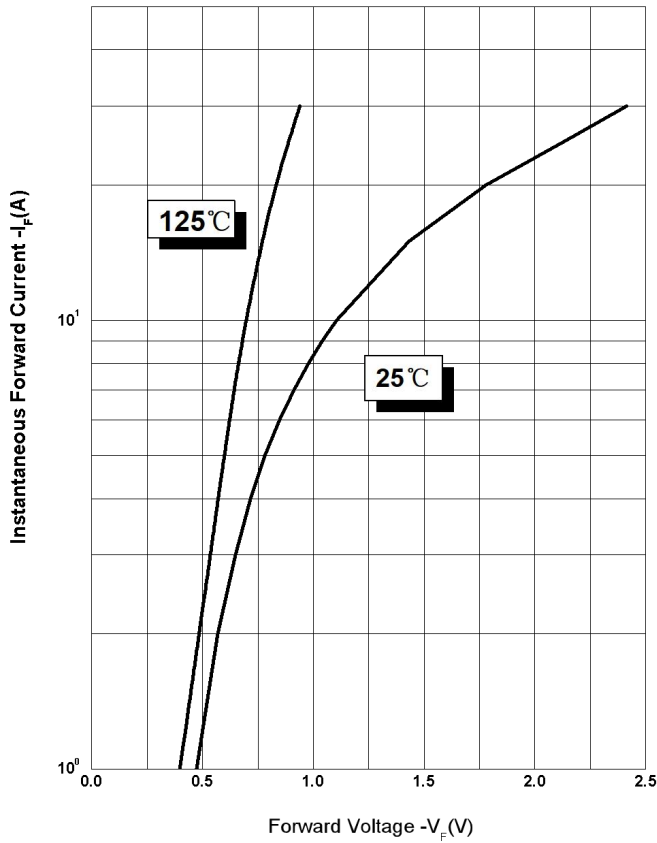


Figure 2 Typical Reverse Characteristics

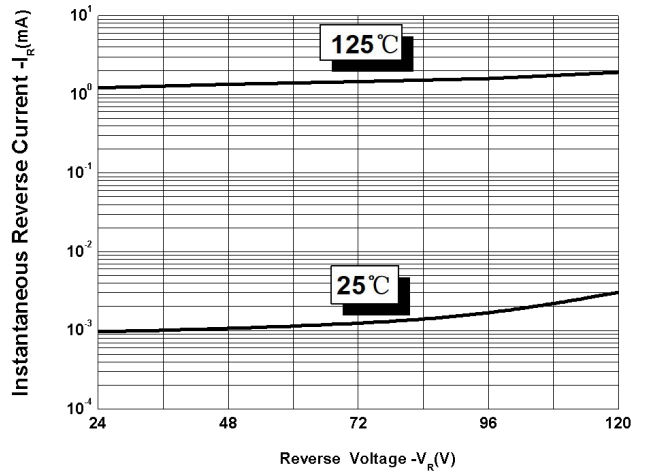
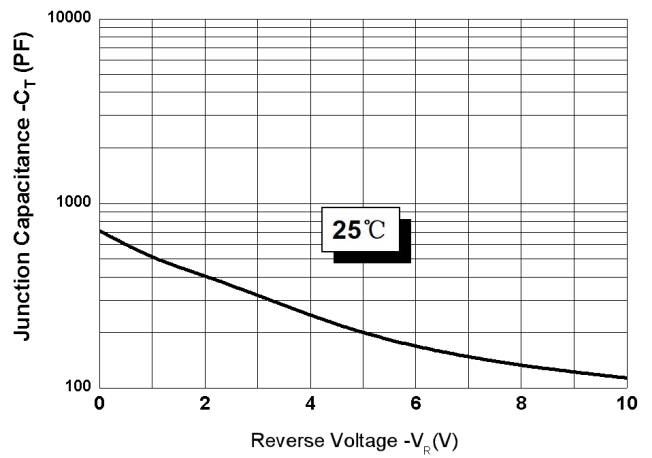
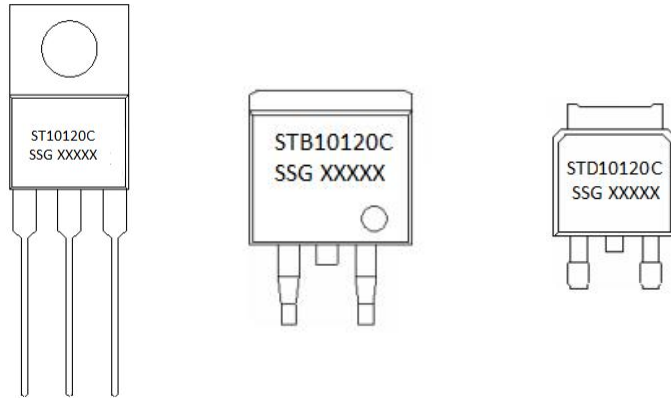


Figure 3 Typical Junction Capacitance



Marking Diagram

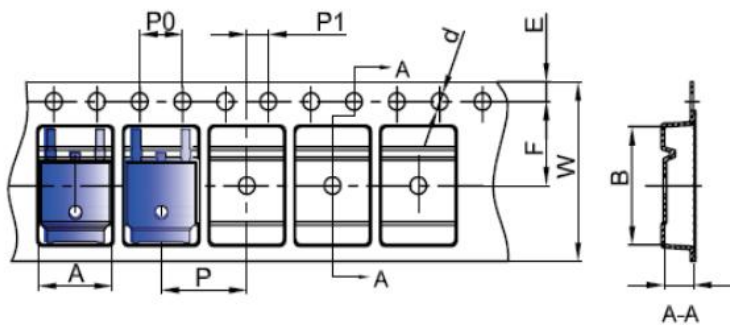


Where XXXXX is YYWWL

ST = Device Type
B/D = Package type
10 = Forward Current (10A)
120 = Reverse Voltage (120V)
C = Configuration
SSG = SSG
YY = Year
WW = Week
L = Lot Number

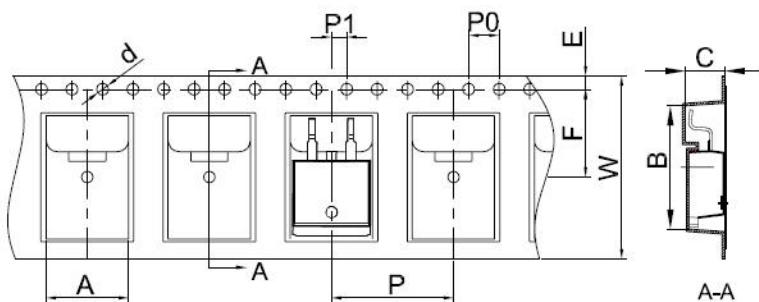
Cautions: Molding resin
Epoxy resin UL:94V-0

Carrier Tape Specification DPAK



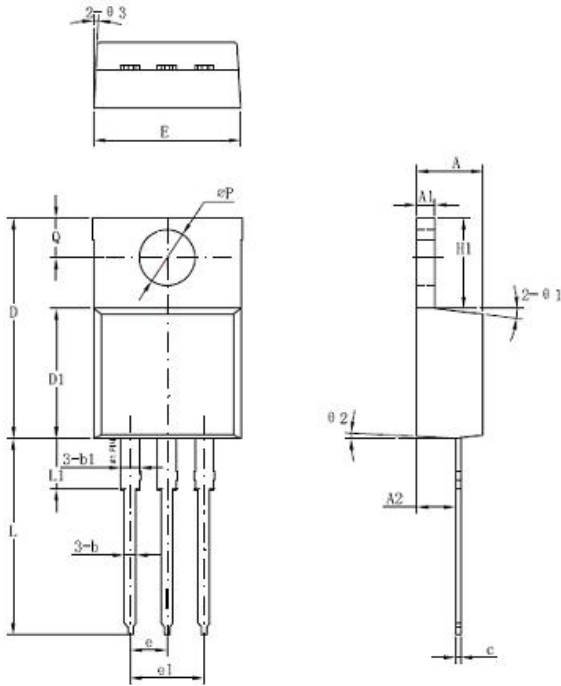
SYMBOL	Millimeters	
	Min.	Max.
A	6.80	7.00
B	10.40	10.60
C	2.60	2.80
d	Φ1.45	Φ1.65
E	1.65	1.85
F	7.40	7.60
P0	3.90	4.10
P	7.90	8.10
P1	1.90	2.10
W	15.90	16.30

Carrier Tape Specification D2PAK



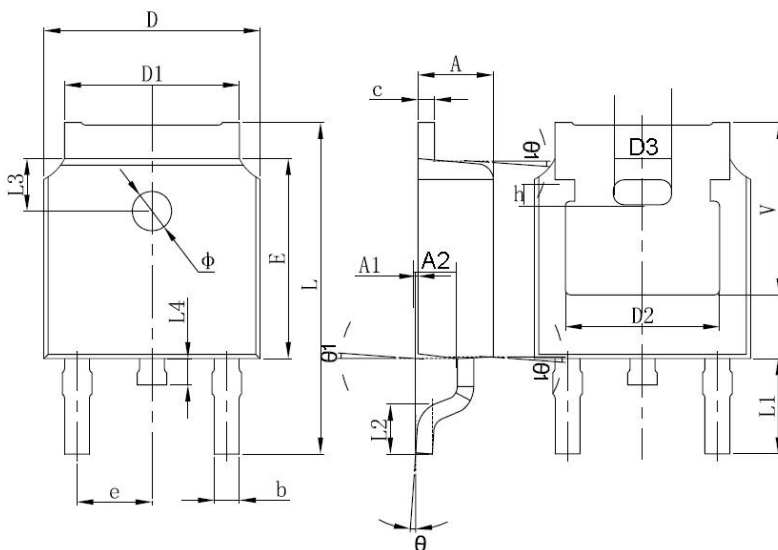
SYMBOL	Millimeters	
	Min.	Max.
A	10.70	10.90
B	16.03	16.23
C	5.11	5.31
d	1.45	1.65
E	1.65	1.85
F	11.40	11.60
P0	3.90	4.10
P	15.90	16.10
P1	1.90	2.10
W	23.90	24.30

Mechanical Dimensions TO-220AB



Symbol	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	9.65	-	10.67
e	-	2.54	-
e1	-	5.08	-
H1	5.84	-	6.86
L	12.7	-	14.73
L1	-	-	6.35
ΦP	-	3.56	-
Q	2.54	-	3.43

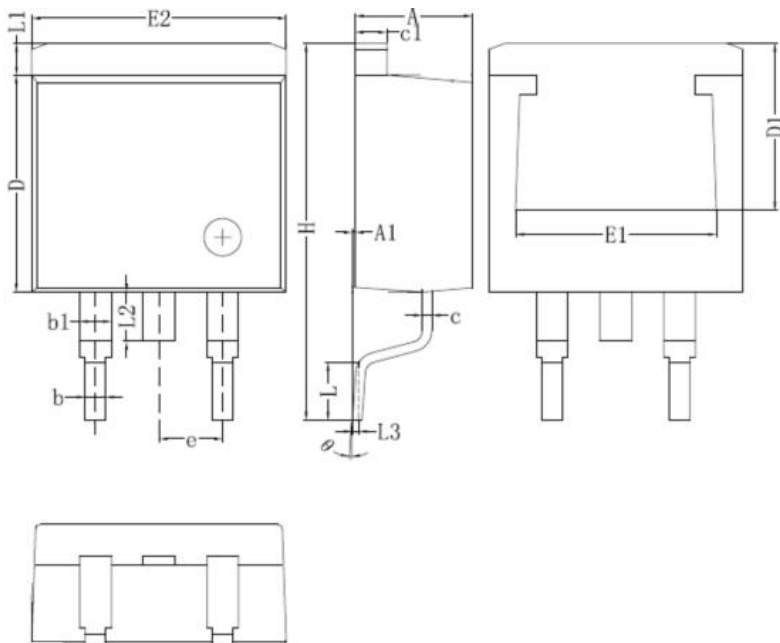
Mechanical Dimensions DPAK



The outline from different package houses may have slight differences. So the outline above is just schematic. The dimensions are controlled per specifications.

Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	2.18	-	2.39
A1	-	-	0.13
b	0.64	-	0.89
c	0.46	-	0.89
D	6.35	-	6.73
D1	4.95	-	5.46
D2	4.32	-	-
E	5.97	6.1	6.22
e	2.29BSC		
L	9.4	-	10.41
L1	2.90 REF.		
L2	1.4	1.52	1.78
L3	1.60 REF.		
L4	-	-	1.02
Φ	1.1	-	1.3
θ	0°	-	10°
V	5.21	-	-

Mechanical Dimensions D²PAK



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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