



SANGDEST
MICROELECTRONICS

ST20100C
STB20100C
STD20100C
STF20100C

Technical Data
Data Sheet N1045, Rev. B

Green Products

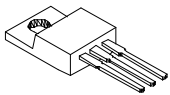
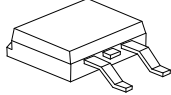
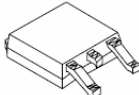
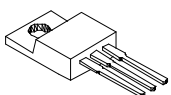
ST20100C/STB20100C/STD20100C/STF20100C SCHOTTKY RECTIFIER

Applications:

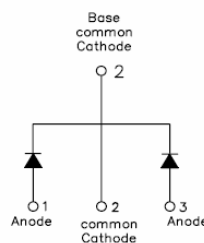
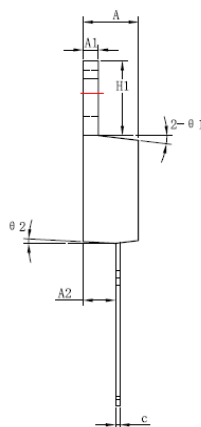
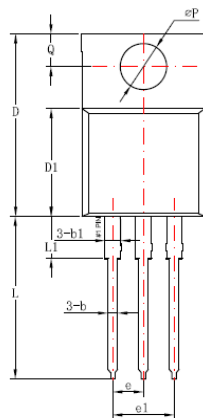
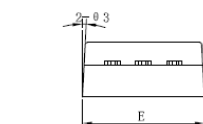
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Features:

- 150 °C T_J operation
- Center tap configuration
- Ultralow 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
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

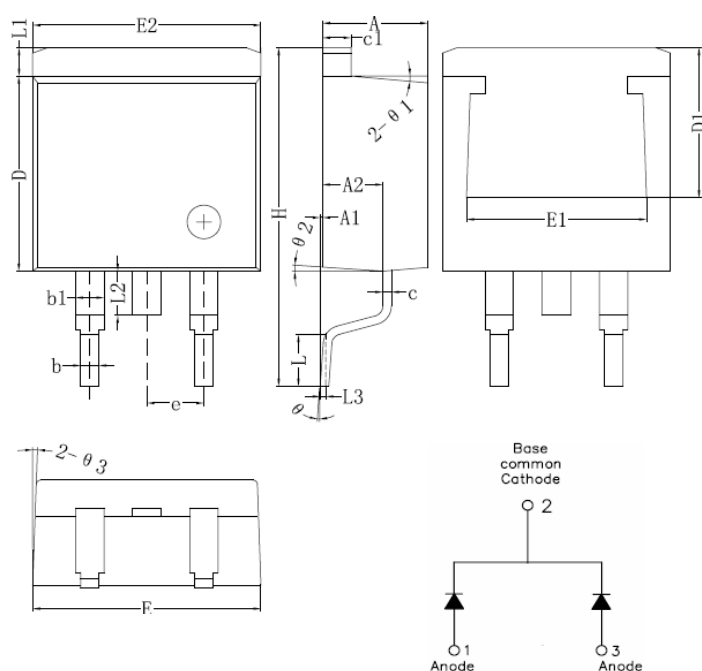
Case styles			
ST20100C	STB20100C	STD20100C	STF20100C
			
TO-220AB	D²PAK	DPAK	ITO-220AB

Mechanical Dimensions: In Inches / mm



Symbol	Dimensions in millimeters		
	Min	Typical	Max
A	4.42	4.57	4.72
A1	1.17	1.27	1.37
A2	2.59	2.69	2.89
b	0.71	0.81	0.96
b1		1.27	
c	0.36	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		5.06	
H1	6.04	6.24	6.44
L	12.7	13.56	13.78
L1		3.5	
ΦP	3.74	3.84	4.04
Q	2.54	2.74	2.94
Θ1		7°	
Θ2		3°	
Θ3		4°	

TO-220AB



Symbol	Dimensions in 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°	

D²PAK

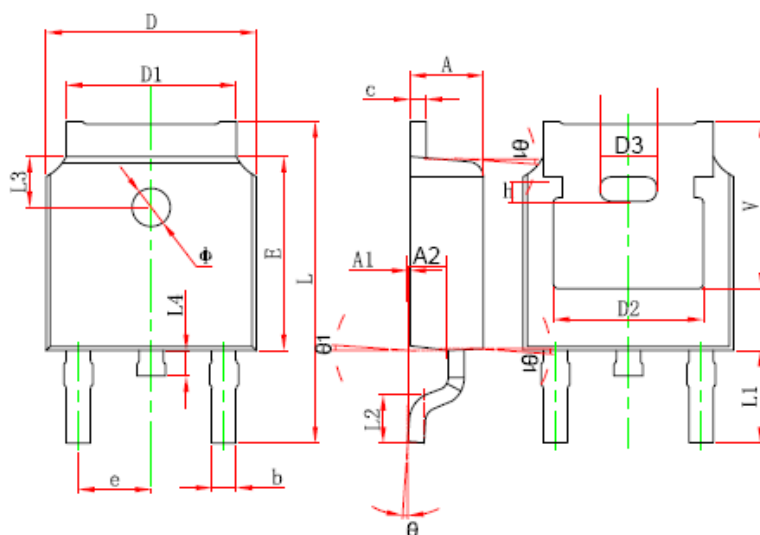


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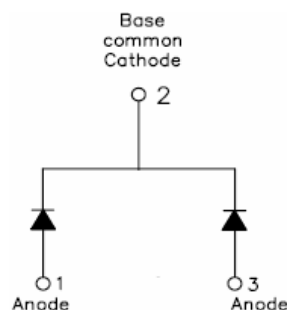
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Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
A2	0.910	1.110	0.036	0.044
V	5.350 REF.		0.211 REF.	
D3	1.778 REF.		0.070 REF.	
h	0.762 REF.		0.030 REF.	
θ1	7°		7°	



DPAK

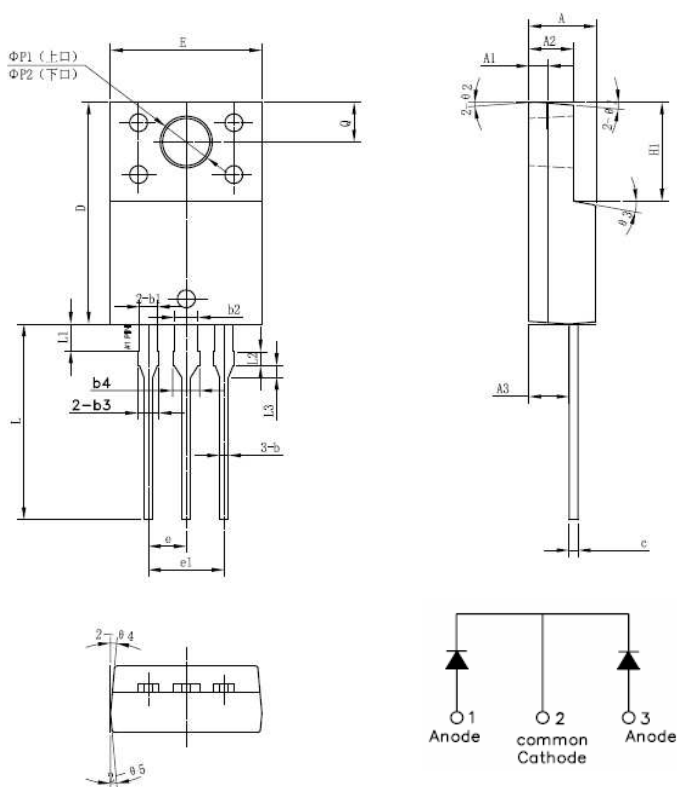


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SYMBOL	MIN.	TYP.	MAX.
A	4.30	4.50	4.70
A1	1.10	1.30	1.50
A2	2.80	3.00	3.20
A3	2.50	2.70	2.90
b	0.50	0.60	0.75
b1	1.10	1.20	1.35
b2	1.50	1.60	1.75
b3	1.20	1.30	1.45
b4	1.60	1.70	1.85
c	0.55	0.60	0.75
D	14.80	15.00	15.20
E	9.96	10.16	10.36
e		2.55	
e1		5.10	
H1	6.50	6.70	6.90
L	12.70	13.20	13.70
L1	1.60	1.80	2.00
L2	0.80	1.00	1.20
L3	0.60	0.80	1.00
ΦP1(上□)	3.30	3.50	3.70
ΦP2(下□)	2.99	3.19	3.39
Q	2.50	2.70	2.90
Θ1		5°	
Θ2		4°	
Θ3		10°	
Θ4		5°	
Θ5		5°	

ITO-220AB



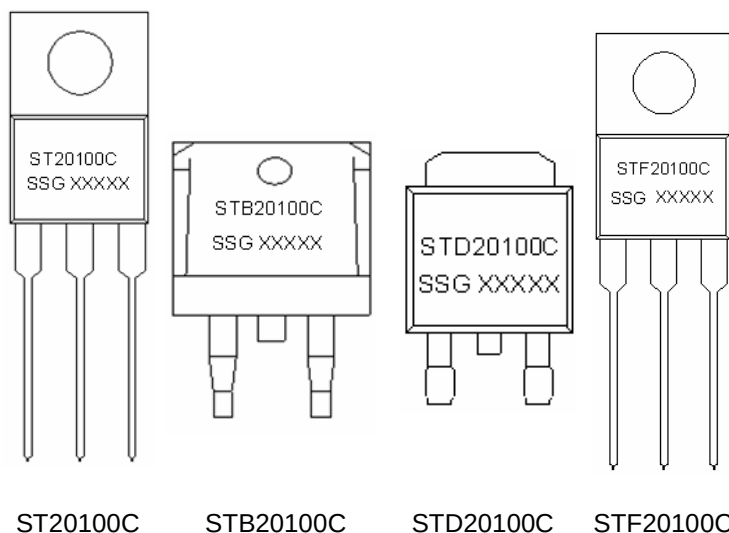
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Marking Diagram:



Where XXXXX is YYWWL

ST	= Device Type
B/D/F	= Package type
20	= Forward Current (20A)
100	= Reverse Voltage (100V)
C	= Configuration
SSG	= SSG
YY	= Year
WW	= Week
L	= Lot Number

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

Ordering Information:

Device	Package	Shipping
ST20100C	TO-220AB(Pb-Free)	50pcs / tube
STB20100C	D ² PAK(Pb-Free)	800pcs / reel
STD20100C	DPAK(Pb-Free)	2500pcs / reel
STF20100C	ITO-220AB(Pb-Free)	50pcs / tube

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	V_{RWM}	-	100	V
Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C = 95^\circ\text{C}$, rectangular wave form	20	A
Peak One Cycle Non-Repetitive Surge Current (per leg)	I_{FSM}	8.3 ms, half Sine pulse	150	A



Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop *	V_{F1}	@ 5A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$ @ 10A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$	0.54 0.69	0.55 0.75	V
	V_{F2}	@ 5A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$ @ 10A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$	0.48 0.59	0.53 0.70	V
Reverse Current (per leg)	I_{R1}	@ $V_R = \text{rated } V_R$ $T_J = 25\text{ }^{\circ}\text{C}$	18	300	μA
	I_{R2}	@ $V_R = \text{rated } V_R$ $T_J = 100\text{ }^{\circ}\text{C}$	-	12	mA
	I_{R3}	@ $V_R = \text{rated } V_R$ $T_J = 125\text{ }^{\circ}\text{C}$	7.8	36	mA
Junction Capacitance (per leg)	C_T	@ $V_R = 5\text{V}$, $T_C = 25\text{ }^{\circ}\text{C}$ $f_{\text{SIG}} = 1\text{MHz}$	462	550	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/ μs

* Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications:

Characteristics	Symbol	ST20100C	STB20100C	STD20100C	STF20100C	Units
Junction Temperature	T_J	-55 to +150				$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to +150				$^{\circ}\text{C}$
Maximum Thermal Resistance Junction to Case(per leg)*	$R_{\theta\text{JC}}$	2.8	2.8	2.0	5.5	$^{\circ}\text{C/W}$
Approximate Weight	wt	2	1.85	0.39	2	g
Case Style	TO-220AB/ D ² PAK/ DPAK/ ITO-220AB					

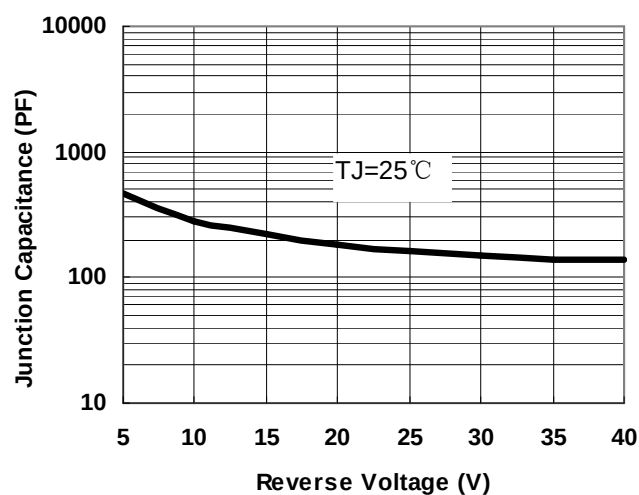


Fig.1-Typical Junction Capacitance

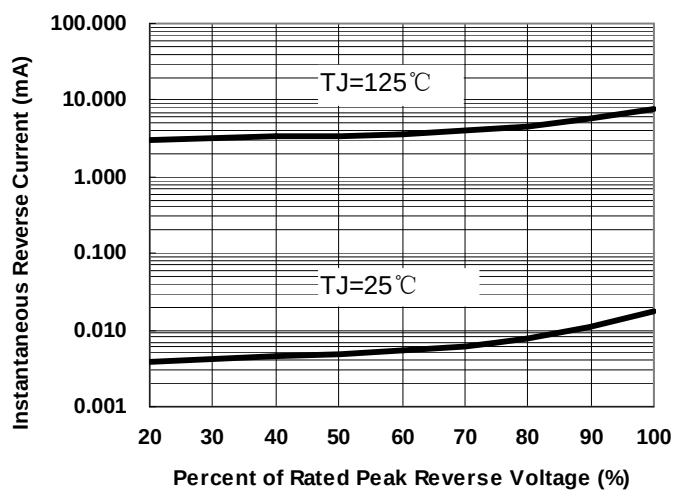


Fig.2-Typical Reverse Characteristics

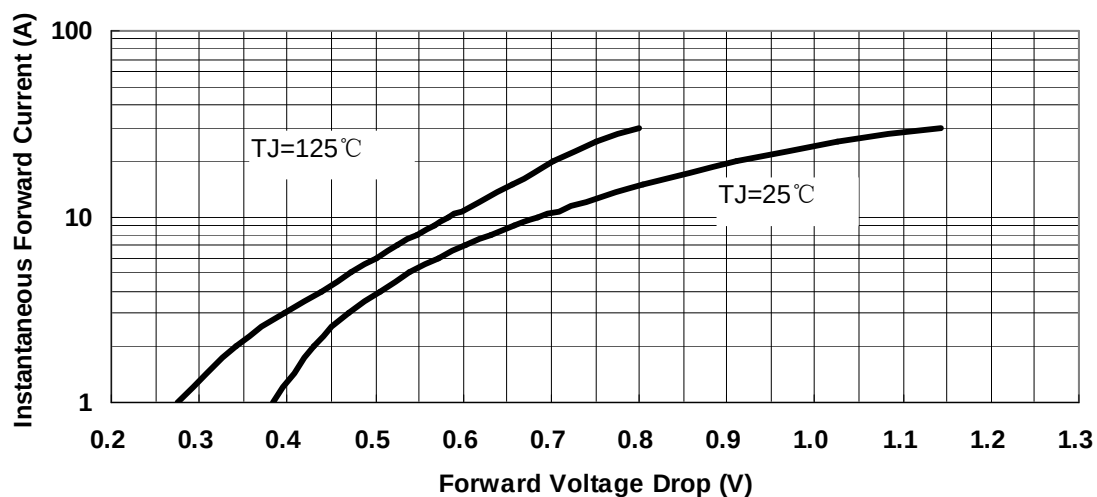


Fig.3-Typical Instantaneous Forward Voltage Characteristics



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