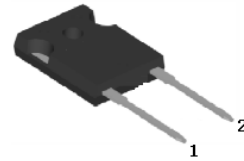


**SMDU20C120K****Automotive 1200V,20A,Silicon Carbide Power Schottky Diode****FEATURE**

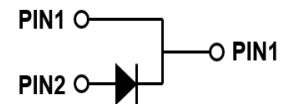
- . 1200V Schottky Diode,100% avalanche tested*
- . Zero Reverse Recovery/Zero Forward Recovery
- . High Efficiency Operation
- . Extremely Fast Switching
- . Temperature Independent Switching Behavior
- . AEC-Q101 qualified

TYPICAL APPLICATIONS

- . Switch mode power supply
- . Power factor correction Solar Invertor
- . Solar inverter
- . Uninterruptible power supply



TO-247-2L



*20% rating current,5 mH inductance.

MAXIMUM RATINGS ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1200	V
DC peak blocking Voltage	V_{DC}	1200	V
Maximum Average Forward Rectified Current at $T_C=150^{\circ}\text{C}$	$I_{F(AV)}$	20	A
Non-Repetitive Peak Forward Surge Current $T_C=25^{\circ}\text{C}$, $t_p=10\text{ ms}$, Half Sine Pulse	I_{FSM}	150	A
Total power dissipation $T_C=25^{\circ}\text{C}$	P_D	231	W
Operation Junction Temperature and Storage Temperature	T_J, T_{STG}	-40 to +175	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Units
DC blocking voltage	$I_R = 250\mu\text{A}, T_j = 25^{\circ}\text{C}$ V_{DC}	1200			V
Forward voltage	$I_F = 20\text{A}, T_j = 25^{\circ}\text{C}$ V_F		1.5	1.75	V
	$I_F = 20\text{A}, T_j = 175^{\circ}\text{C}$ V_F		2.2		
Reverse current	$V_R = 1200\text{V}, T_j = 25^{\circ}\text{C}$ I_R		1.5	100	μA
	$V_R = 1200\text{V}, T_j = 175^{\circ}\text{C}$ I_R		20		
Total capacitive charge	$V_R = 800\text{V}$ Q_C		77	---	nC
Total capacitance	$V_R = 0\text{V}, T_j = 25^{\circ}\text{C}, f = 1\text{MHz}$ C		1140	---	pF
	$V_R = 400\text{V}, T_j = 25^{\circ}\text{C}, f = 1\text{MHz}$ C		76	---	
	$V_R = 800\text{V}, T_j = 25^{\circ}\text{C}, f = 1\text{MHz}$ C		56	---	

THERMAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Typ	Max	Units
Typical Thermal Resistance Junction to Case	$R_{(JC)}$	0.65	---	$^{\circ}\text{C/W}$



RATING AND CHARACTERISTIC CURVES

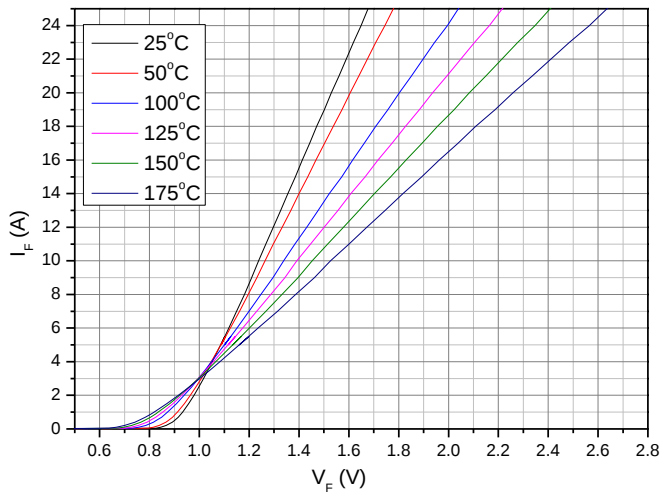


Figure 1. Forward Characteristics

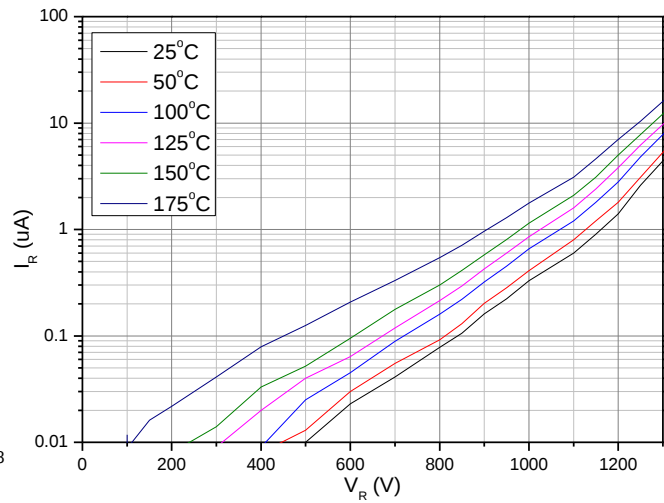


Figure 2. Reverse Characteristics

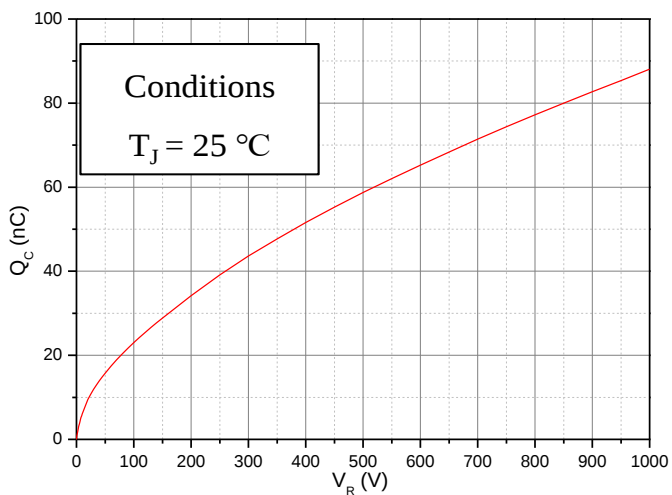


Figure 3. Total Capacitance Charge vs. Reverse Voltage

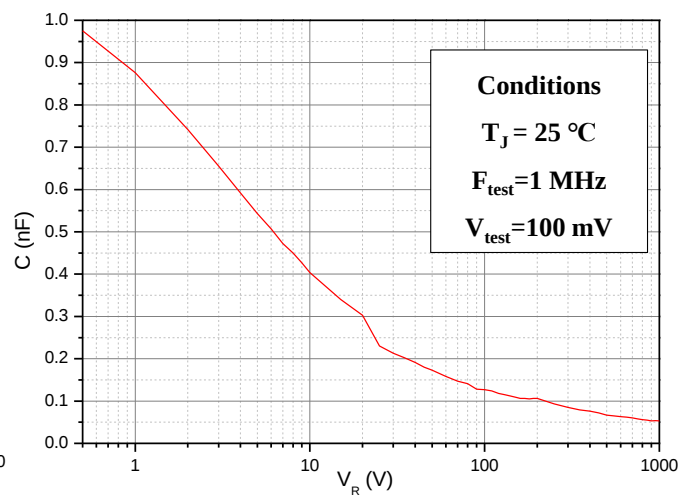
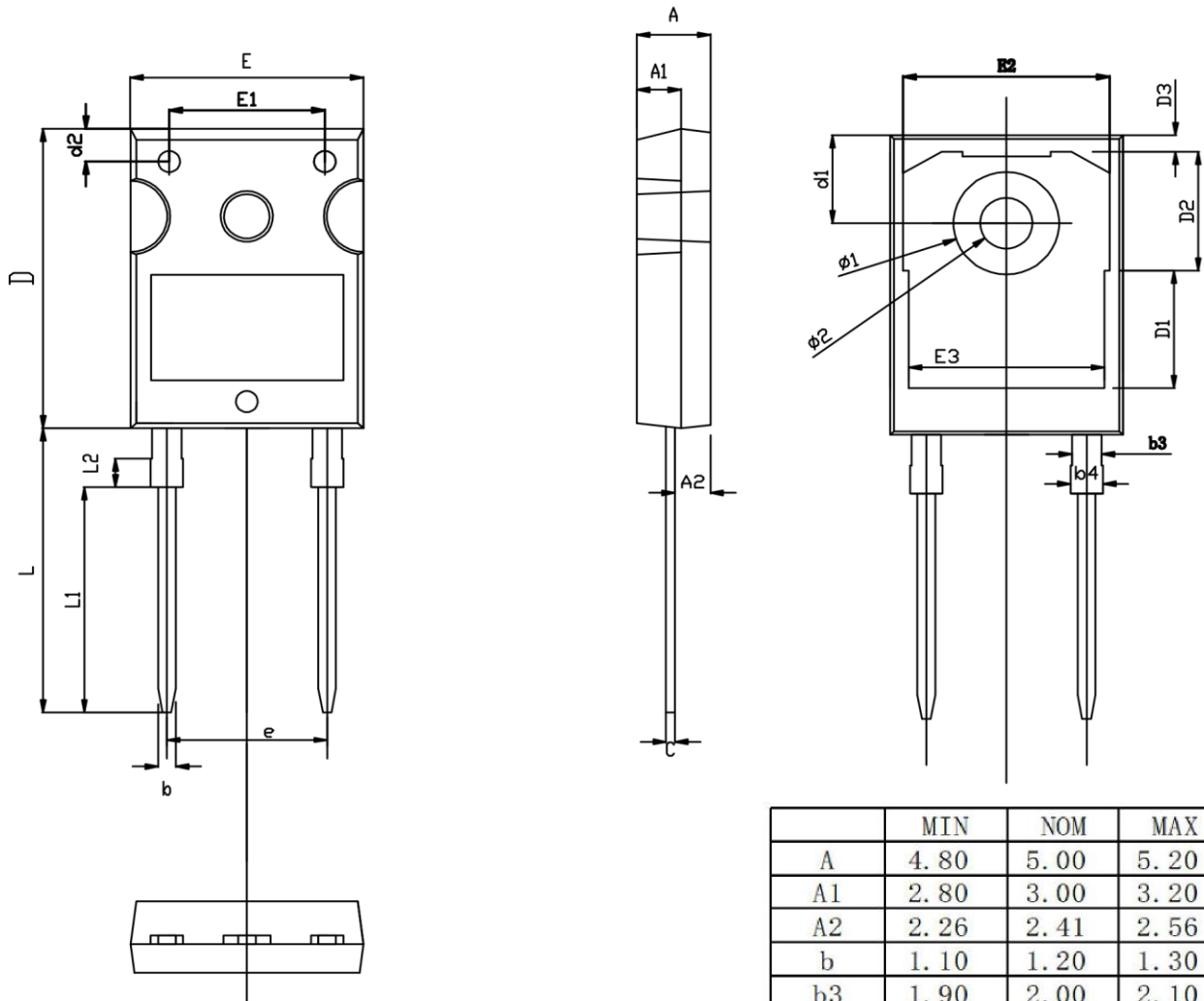


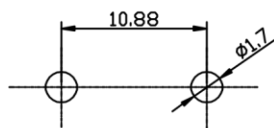
Figure 4. Capacitance vs. Reverse Voltage



TO-247-2L PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



UNIT: mm

	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.80	3.00	3.20
A2	2.26	2.41	2.56
b	1.10	1.20	1.30
b3	1.90	2.00	2.10
b4	2.00	-	2.20
c	0.50	0.60	0.70
D	20.80	21.00	21.20
D1		8.23	
D2		8.32	
D3		1.17	
d1	6.00	6.15	6.30
d2	2.20	2.30	2.40
E	15.60	15.80	16.00
E1		10.50	
E2		14.02	
E3		13.50	
e		10.88	
L	19.72	19.92	20.12
L1		15.79	
L2		1.98	
phi1	7.10	7.19	7.30
phi2	3.50	3.60	3.70