



SC20J120A

产品特性 (Feature)

- 零反向恢复电流

No reverse recovery current

- 正温度系数

Positive temperature coefficient

- 不受温度影响的开关特性

Temperature independent switching behavior

- 低压降、高工作温度

Low forward voltage and high operating temperature

- 优异的浪涌电流能力

Excellent surge current capability

V_{RRM}	1200	V
$I_F, T_C \leq 137^\circ\text{C}$	20	A
$Q_C \text{ Typ}$	95	nC

产品优点 (Benefits)

- 降低电磁干扰

Reduce EMI

- 高功率密度，可用于更高的工作频率

High power density, enable higher frequency

- 降低散热要求，节约系统成本和尺寸

Reduce cooling requirements, save system cost and size

- 极大提升系统效率

Significantly improve system efficiency

TO-247L



应用领域 (Applications)

- 光伏逆变器

Solar inverters

- 功率因数校正

Power Factor Correction

- 不间断电源

Uninterruptable power supplies

- 电机驱动

Motor drives

订货型号 (Order Message)

订货型号Order codes		印记 Marking	封装 Package
有卤-条管 Halogen-Tube	无卤-条管 Halogen Free-Tube		
SC20J120A-GE-B	SC20J120A-GE-BR	SC20J120A	TO-247-2





额定值 Maximum ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	反向重复峰值电压 Repetitive Peak Reverse Voltage	1200	V		
V_{RSM}	反向浪涌峰值电压 Surge Peak Reverse Voltage	1200	V		
V_{DC}	反向直流电压 DC Blocking Voltage	1200	V		
I_F	正向平均电流 Continuous Forward Current	20	A	$T_C=150^{\circ}\text{C}$	Fig. 7
I_{FRM}	正向重复浪涌电流 Repetitive Peak Forward Surge Current	100	A	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ ms}$, Half Sine Wave,	
I_{FSM}	正向非重复浪涌电流 Non-Repetitive Peak Forward Surge Current	140	A	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	
$I_{F,Max}$	正向非重复浪涌电流 Non-Repetitive Peak Forward Surge Current	1200	A	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ }\mu\text{s}$, Pulse	
P_{tot}	耗散功率 Power Dissipation	272 118	W	$T_C=25^{\circ}\text{C}$ $T_C=110^{\circ}\text{C}$	Fig. 6
T_J, T_{stg}	工作温度和存储温度 Operating Junction and Storage Temperature	-55 to +175	$^{\circ}\text{C}$		

电学特性（单管芯） Electrical Characteristics, (Per Leg)

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	正向电压 Forward Voltage	1.5 2.2	1.8 3.0	V	$I_F = 20\text{ A}$ $T_J=25^{\circ}\text{C}$ $I_F = 20\text{ A}$ $T_J=175^{\circ}\text{C}$	Fig. 1
I_R	反向电流 Reverse Current	10 20	50 100	μA	$V_R = 1200\text{ V}$ $T_J=25^{\circ}\text{C}$ $V_R = 1200\text{ V}$ $T_J=175^{\circ}\text{C}$	Fig. 2
Q_C	总储存电荷 Total Capacitive Charge	95		nC	$V_R = 800\text{V}$, $T_J = 25^{\circ}\text{C}$ $Q_C = \int_0^{V_R} C(V) dV$	Fig. 4
C	总电容 Total Capacitance	1430 89 65		pF	$V_R = 0\text{ V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 400\text{ V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 800\text{ V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$	Fig. 3
E_C	电容储存能量 Capacitance Stored Energy	50		μJ	$V_R = 800\text{ V}$	Fig. 5



热性能(Thermal Characteristics)

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.55	$^{\circ}\text{C}/\text{W}$	Fig. 8

性能曲线图 Performance curve

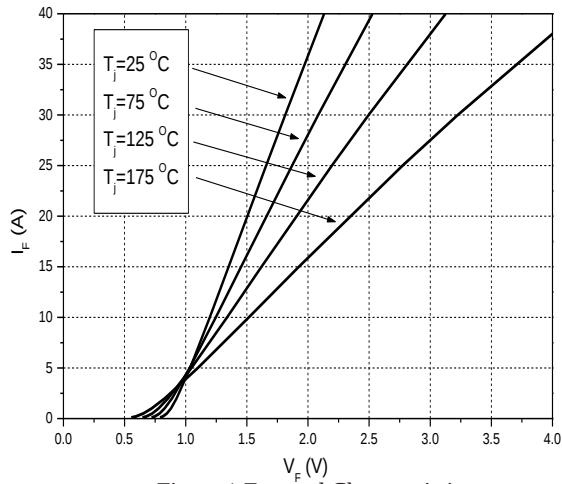


Figure 1. Forward Characteristics

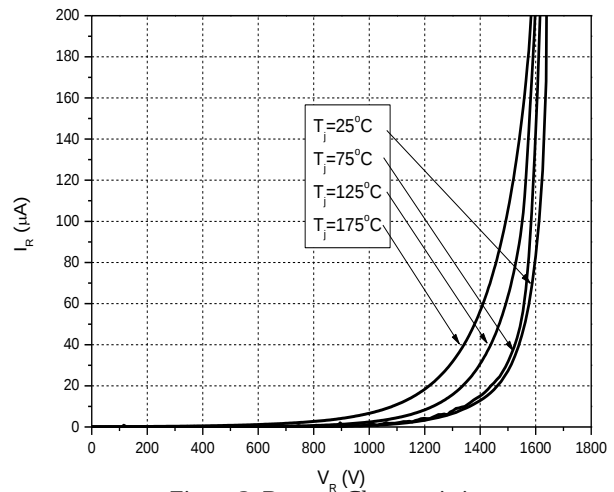


Figure 2. Reverse Characteristics

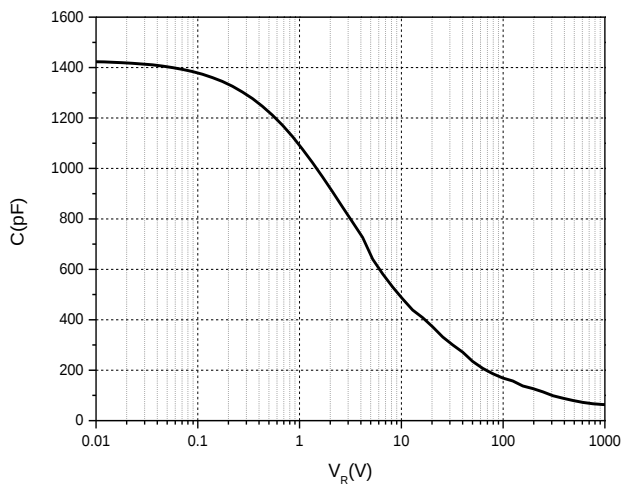


Figure 3. Capacitance vs. Reverse Voltage

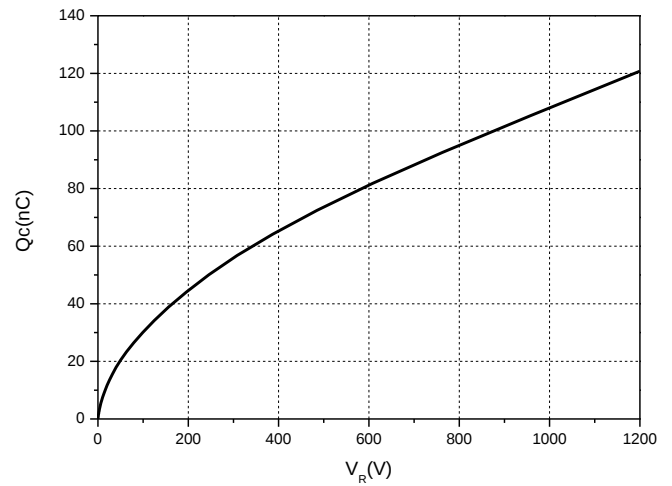


Figure 4. Capacitance Charge vs. Reverse Voltage

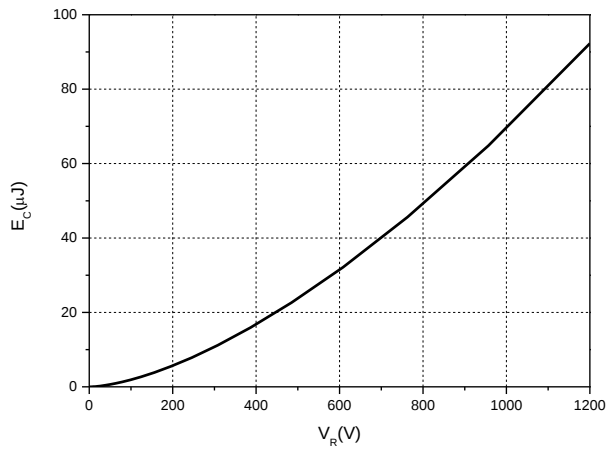


Figure 5. Capacitance Stored Energy

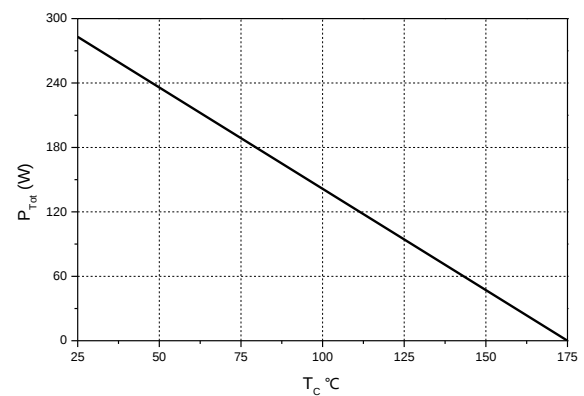


Figure 6. Power Derating

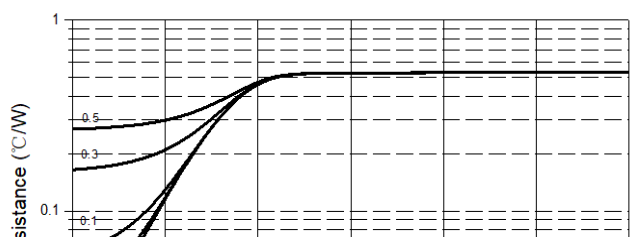
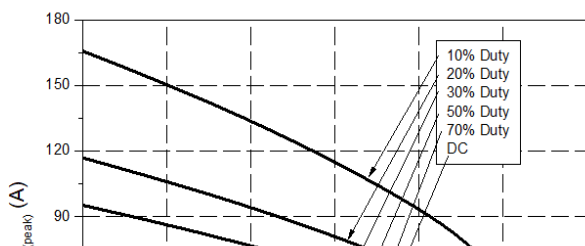
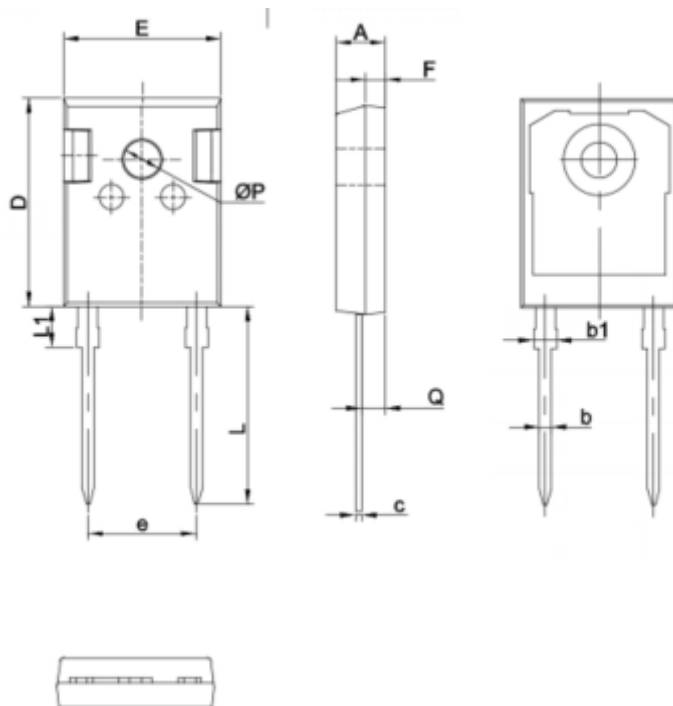


Figure 7. Current Derating

Figure 8. Transient Thermal Impedance

Package Dimensions: TO-247-2



SYMBOL	MM	
	MIN	MAX
A	4.80	5.20
b	1.10	1.30
b1	1.95	2.25
c	0.50	0.70
D	20.80	21.20
E	15.60	16.00
F	1.85	2.15
e	10.73	11.03
L	19.62	20.22
L1	3.93	4.33
ØP	3.40	3.80
Q	2.26	2.56

注意事项



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3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
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