



SC20J065A

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}	650	V
$I_F, T_C \leq 150^{\circ}C$	20	A
$Q_C \text{ Typ}$	65	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

应用领域 (Applications)

- 光伏逆变器

Solar inverters

- 功率因数校正

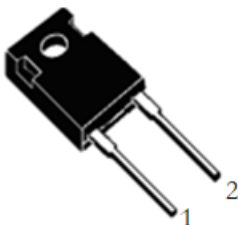
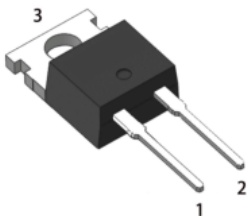
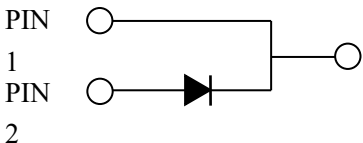
Power Factor Correction

- 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	封装
有卤-条管 Halogen-Tube	无卤-条管 Halogen Free-Tube	Marking	Package
SC20J065A-CA-B	SC20J065A-CA-BR	SC20J065A	TO-220-2L
SC20J065A-GL-B	SC20J065A-GL-BR	SC20J065A	TO-247-2L



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	650	V		
V_{RSM}	反向浪涌峰值电压 Surge Peak Reverse Voltage	650	V		
V_{DC}	反向直流电压 DC Blocking Voltage	650	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	140	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	160	A	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	
$I_{F,Max}$	非重复正向峰值电流 Non-Repetitive Peak Forward Current	1360	A	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ }\mu\text{s}$, Pulse	
P_{tot}	耗散功率 Power Dissipation	300 130	W	$T_C=25^{\circ}\text{C}$ $T_C=110^{\circ}\text{C}$	
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 Electrical Characteristics, $T_C = 25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	正向电压 Forward Voltage	1.40	1.8	V	$I_F = 20\text{ A}$ $T_J=25^{\circ}\text{C}$	Fig. 1
		1.70	3.0		$I_F = 20\text{ A}$ $T_J=175^{\circ}\text{C}$	
I_R	反向电流 Reverse Current	1 20	20 200	μA	$V_R = 650\text{ V}$ $T_J=25^{\circ}\text{C}$ $V_R = 650\text{ V}$ $T_J=175^{\circ}\text{C}$	Fig. 2
Q_C	总储存电荷 Total Capacitive Charge	65		nC	$V_R = 400$, $T_J = 25^{\circ}\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$	Fig. 4
C	总电容 Total Capacitance	1340		pF	$V_R = 0\text{ V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$	Fig. 3
		120			$V_R = 200$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$	
		109			$V_R = 400\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$	
E_C	电容储存能量 Capacitance Stored Energy	16		μJ	$V_R = 400\text{ V}$	Fig. 5

热性能(Thermal Characteristics)

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.5	$^{\circ}\text{C}/\text{W}$	Fig. 8
		0.53	$^{\circ}\text{C}/\text{W}$	Fig. 9

性能曲线图 Performance curve

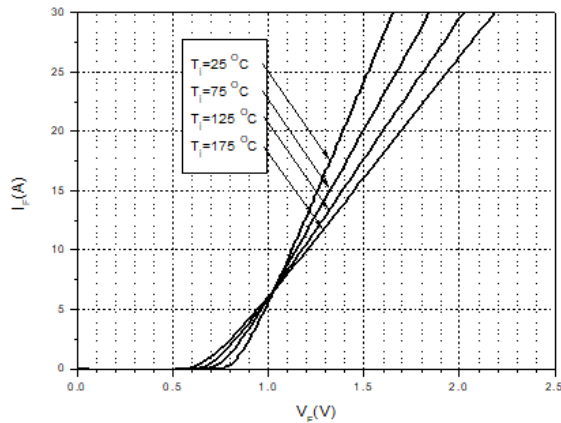


Figure 1. Forward Characteristics

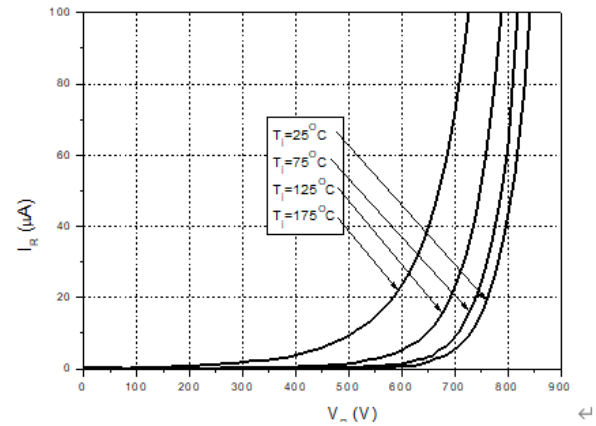


Figure 2. Reverse Characteristics

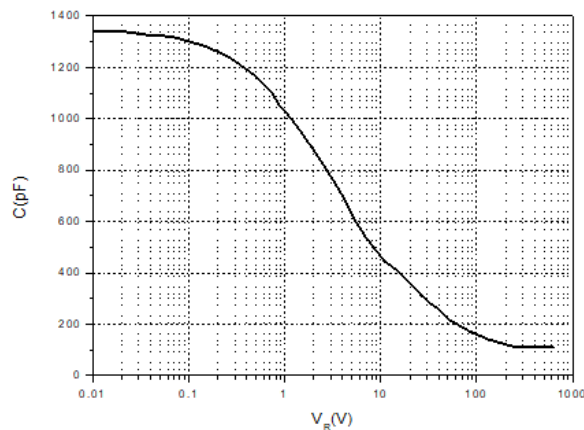


Figure 3. Capacitance vs. Reverse Voltage

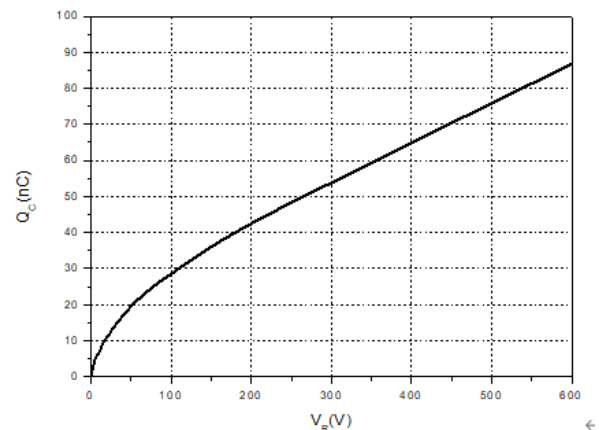


Figure 4. Capacitance Charge vs. Reverse Voltage

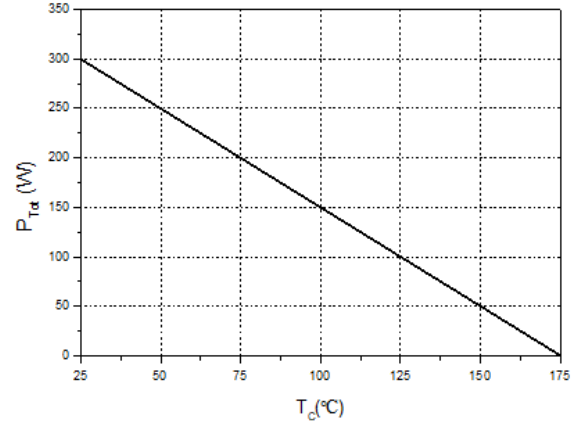
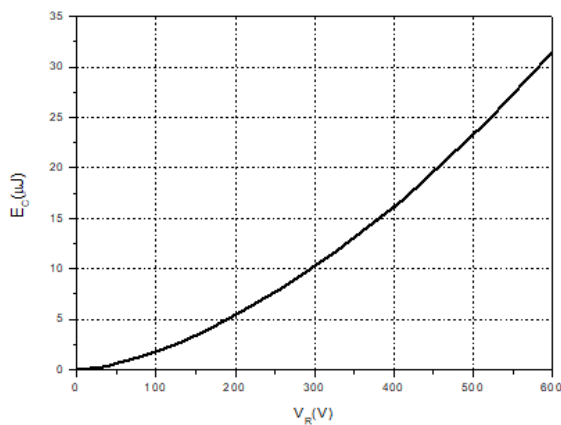




Figure 5. Capacitance Stored Energy

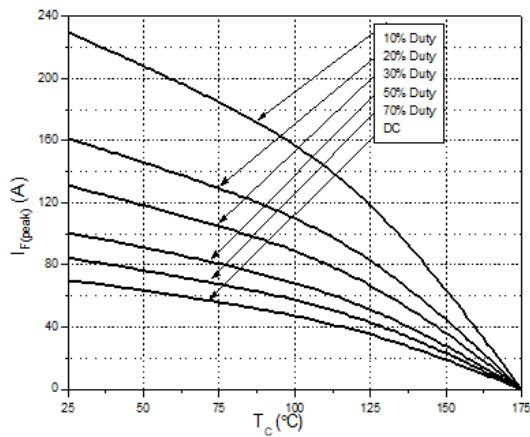


Figure 7. Current Derating

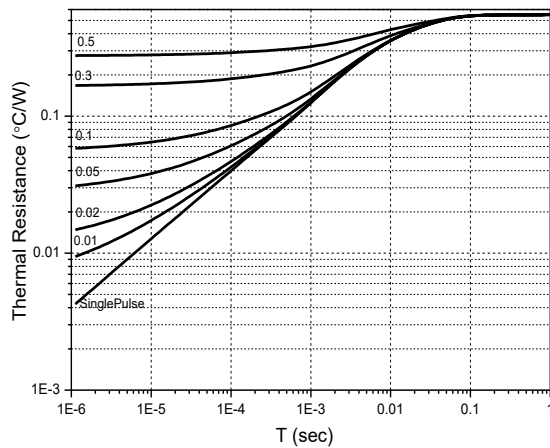


Figure 9. Transient Thermal Impedance(TO-247)

Figure 6. Power Deratin

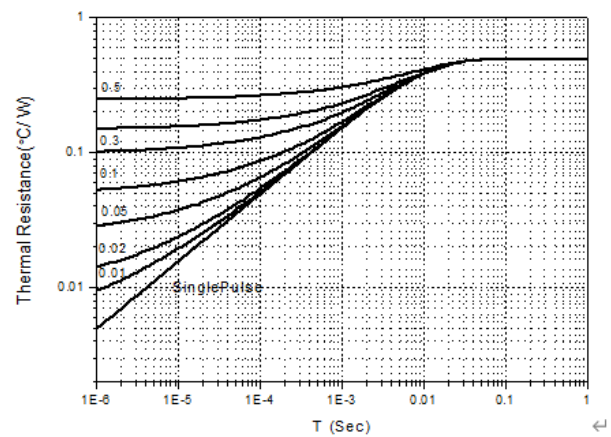
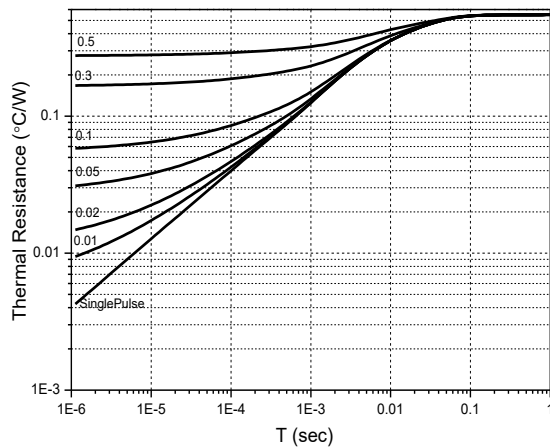
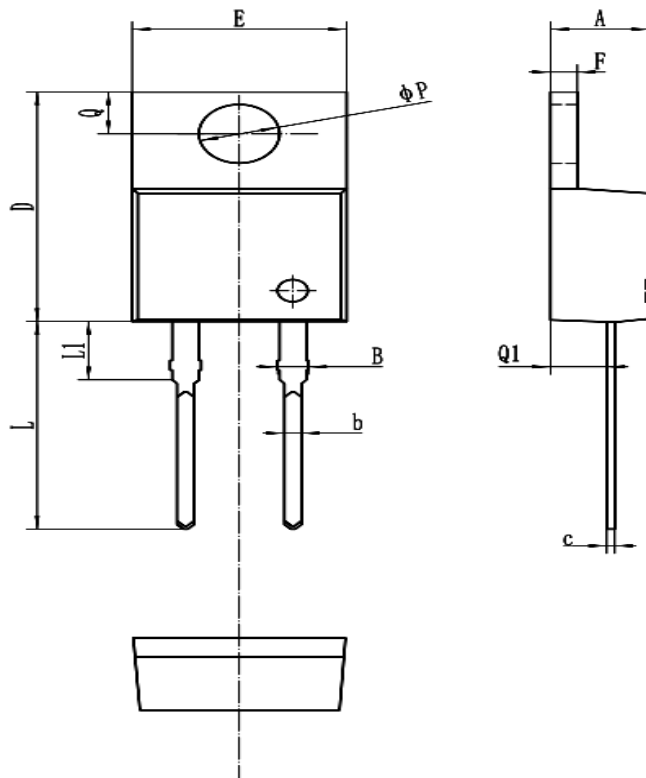
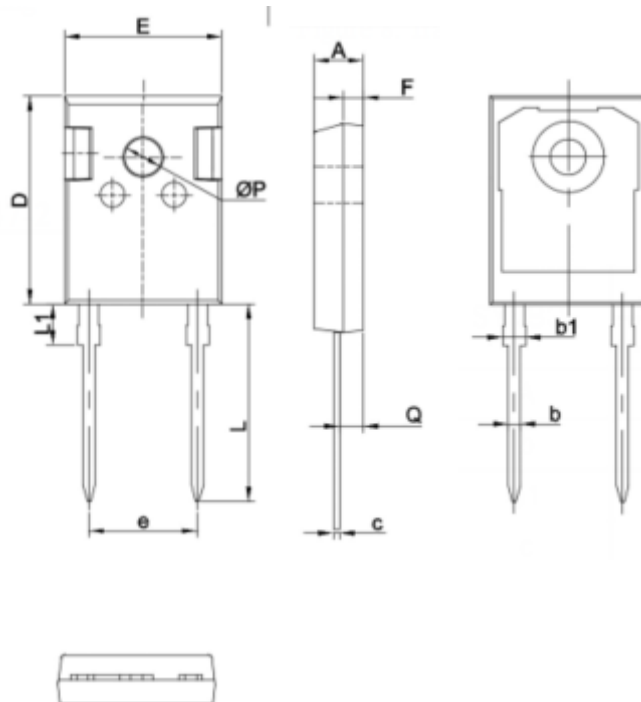


Figure 8. Transient Thermal Impedance(TO-220)



**Package Dimensions: TO-220-2L**

mm		
SYMBOL	MIN	MAX
A	4.50	4.90
B	1.10	1.40
b	0.70	0.95
c	0.28	0.70
D	14.50	16.00
E	9.60	10.40
e	5.08TYP	
F	1.15	1.40
L	13.00	14.10
L1	3.60	4.00
ΦP	3.50	4.05
Q	2.40	3.00
Q1	2.50	2.90

Package Dimensions: TO-247-2L

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
ΦP	3.40	3.80
Q	2.26	2.56



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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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3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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