



SC04J065A

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
$I_F, T_C \leq 150^{\circ}C$	4.0	A
$Q_C \text{ Typ}$	9.5	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

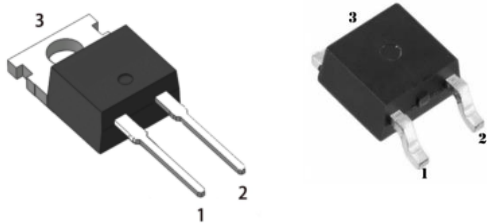
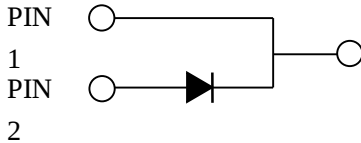
High power density , enable higher frequency

- 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 Marking	封装 Package
有卤-条管 Halogen-Tube	无卤-条管 HalogenFree-Tube		
SC04J065A-R-B	SC04J065A-R-BR	SC04J065A	DPAK
SC04J065A-CA-B	SC04J065A-CA-BR	SC04J065A	TO-220-2L





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	4.0	A	$T_C=150^{\circ}\text{C}$	Fig. 7
I_{FRM}	正向重复浪涌电流 Repetitive Peak Forward Surge Current	20	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	38	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	200	A	$T_C=25^{\circ}\text{C}$, $t_p=10\mu\text{s}$, Pulse	
P_{tot}	耗散功率 Power Dissipation	76.5 33.2	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 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	1.5 1.83	1.8 2.0	V	$I_F = 4\text{ A}$ $T_J=25^{\circ}\text{C}$ $I_F = 4\text{ A}$ $T_J=150^{\circ}\text{C}$	Fig. 1
I_R	反向电流 Reverse Current	1.5 30	20 100	μA	$V_R = 650\text{ V}$ $T_J=25^{\circ}\text{C}$ $V_R = 650\text{ V}$ $T_J=150^{\circ}\text{C}$	Fig. 2
Q_C	总储存电荷 Total Capacitive Charge	9.5		nC	$V_R = 400\text{ V}$, $T_J = 25^{\circ}\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$	Fig. 4
C	总电容 Total Capacitance	185 19.0 16.7		pF	$V_R = 0\text{ V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 200\text{ V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 400\text{ V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$	Fig. 3
E_C	电容储存能量 Capacitance Stored Energy	2.4		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	1.35	℃/W	Fig. 9
		1.96	℃/W	Fig. 8

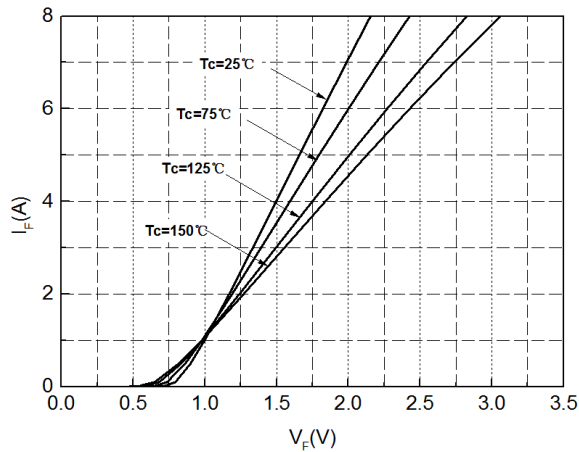
性能曲线图 Performance curve


Figure 1. Forward Characteristics

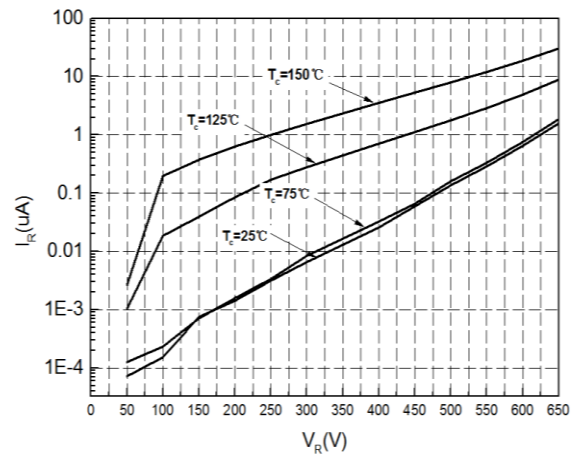


Figure 2. Reverse Characteristics

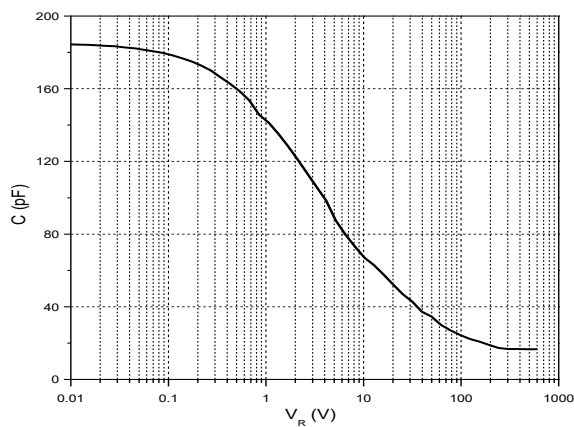


Figure 3. Capacitance vs. Reverse Voltage

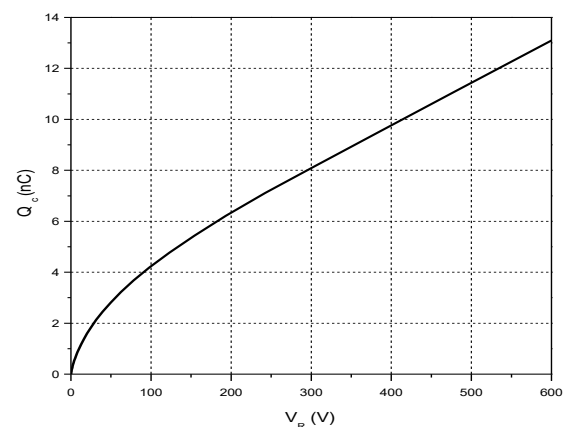


Figure 4. Capacitance Charge vs. Reverse Voltage

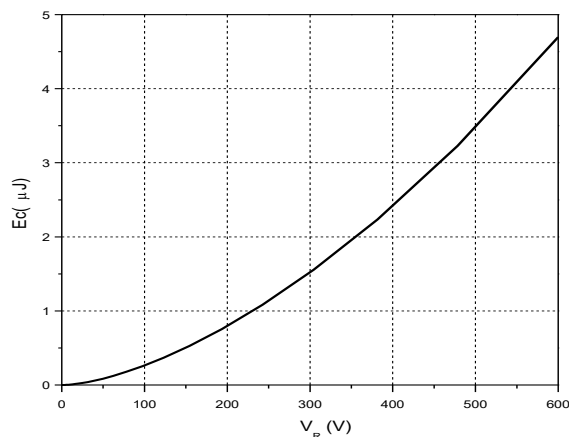


Figure 5. Capacitance Stored Energy

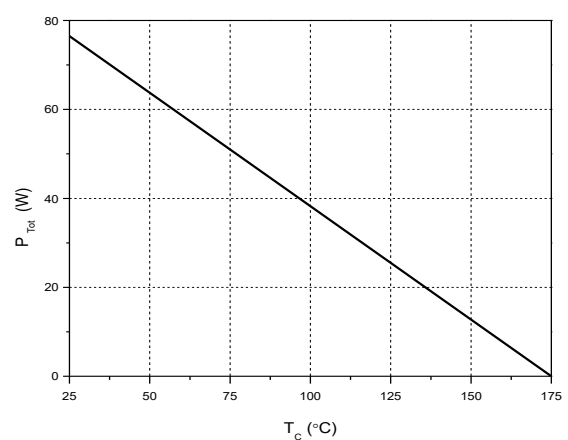


Figure 6. Power Derating

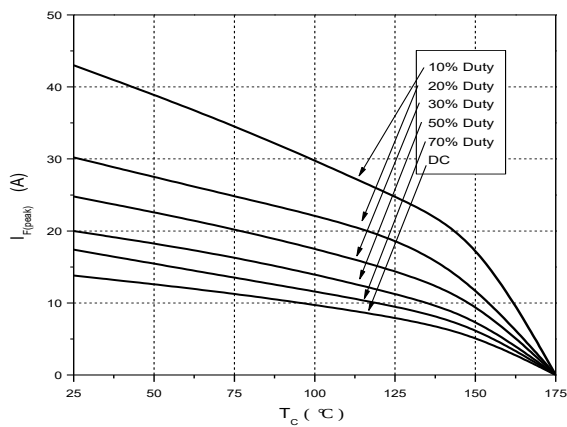


Figure 7. Current Derating

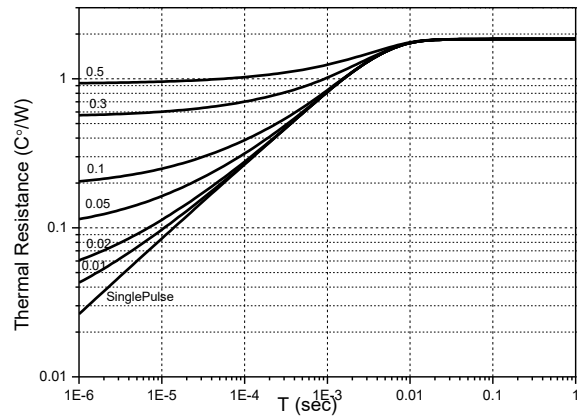


Figure 8. Transient Thermal Impedance(DPAK)

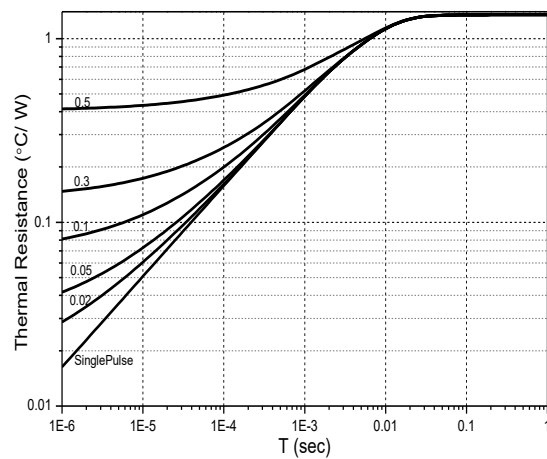
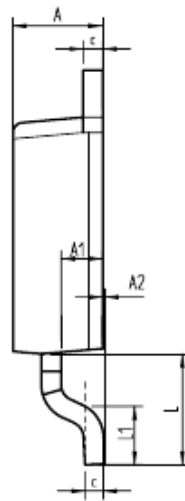
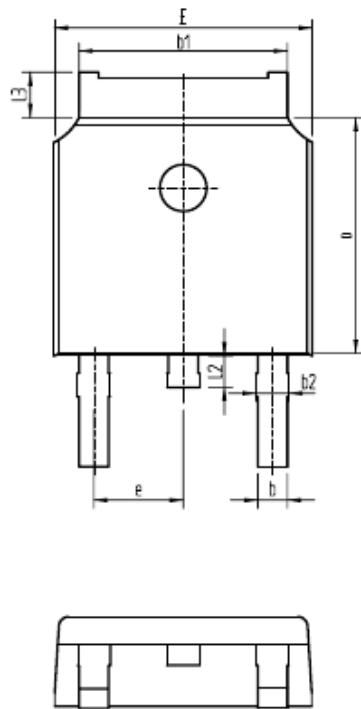
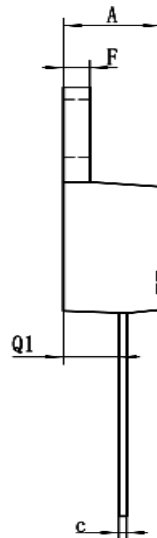
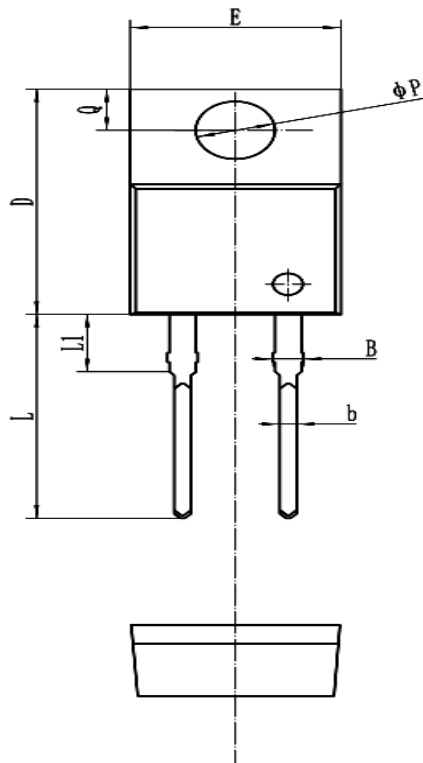


Figure 9. Transient Thermal Impedance(TO-220)

**Package Dimensions: DPAK**

SYMBOL	mm	
	MIN	MAX
A	2.16	2.41
A1	0.97	1.17
A2	0.00	0.15
b	0.63	0.93
b1	5.13	5.53
b2	0.66	0.96
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
L	2.50	3.30
L1	1.20	1.80
L2	0.60	1.00
L3	0.85	1.30

Package Dimensions: TO-220-2L

SYMBOL	mm	
	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



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