

SiC Schottky Diode

Features:

- ✦ Positive temperature coefficient, great for parallel connection.
- ✦ Switching is not affected by temperature.
- ✦ Max operational temperature: 175°C.
- ✦ 0 Reverse recovery current.
- ✦ 0 Forward recovery voltage.

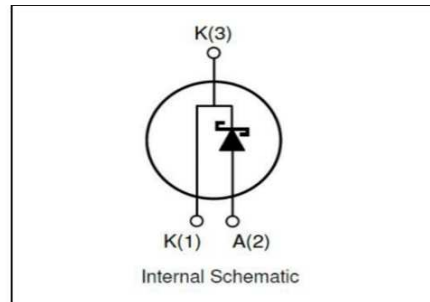
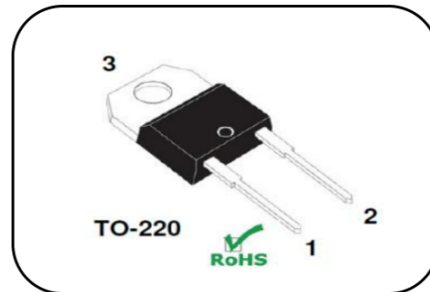
Benefits:

- ✦ Unipolar device.
- ✦ Greatly reduce switching loss.
- ✦ No thermal breakdown in parallel devices.
- ✦ Reduce system dependence on heat sink.

Applications:

- ✦ Switching Mode Power Supply (SMPS)
- ✦ Power Factor Correction (PFC)
- ✦ Motor drive, PV inverter, Uninterruptible power supply.
- ✦ Wind driven electricity generator, Train hauling system, Electric automobiles.

V_{RRM}	650	V
$I_F, T_c \leq 135^\circ\text{C}$	5	A
Q_c	7.4	nC



Maximum Ratings:

Parameter	Symbol	Value	Unit	Test Condition
Repetitive Peak Reverse Voltage	V_{RRM}	650	V	$T_j = 25^\circ\text{C}$
Surge Peak Reverse Voltage	V_{RSM}	650	V	$T_j = 25^\circ\text{C}$
DC Blocking Voltage	V_{DC}	650	V	$T_j = 25^\circ\text{C}$
Continuous Forward Current	I_F	11 5 3	A	$T_c = 25^\circ\text{C}$ $T_c = 135^\circ\text{C}$ $T_c = 156^\circ\text{C}$
Repetitive Peak Forward Surge Current	I_{FRM}	15	A	$T_c = 25^\circ\text{C}$, $tp = 10\text{ms}$, Half Sine Wave, $D = 0.3$
Non-repetitive Peak Forward Surge Current	I_{FSM}	21	A	$T_c = 25^\circ\text{C}$, $tp = 10\text{ms}$, Half Sine Wave
Power Dissipation	P_{TOT}	53.2 23	W	$T_c = 25^\circ\text{C}$ $T_c = 110^\circ\text{C}$
Operating Junction Temperature	T_j	-55°C to 175°C	°C	
Storage Temperature	T_{stg}	-55°C to 175°C	°C	

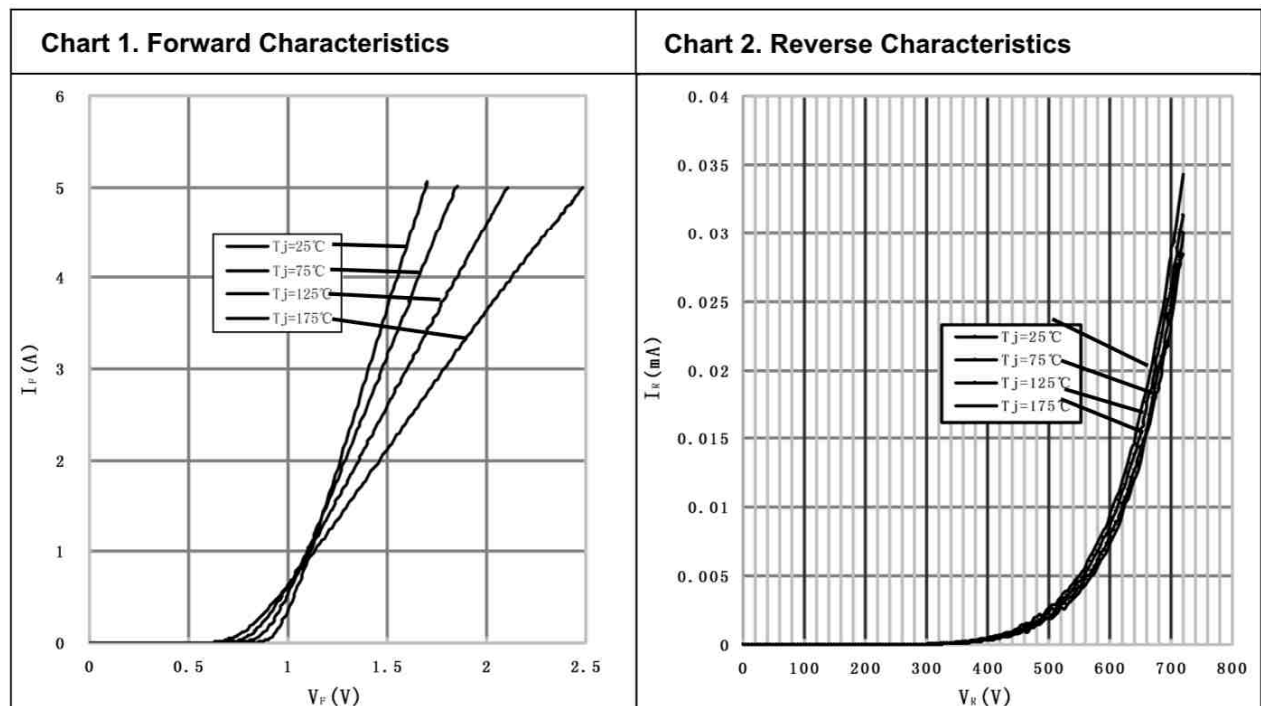
Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$		2.82		$^{\circ}\text{C}/\text{W}$

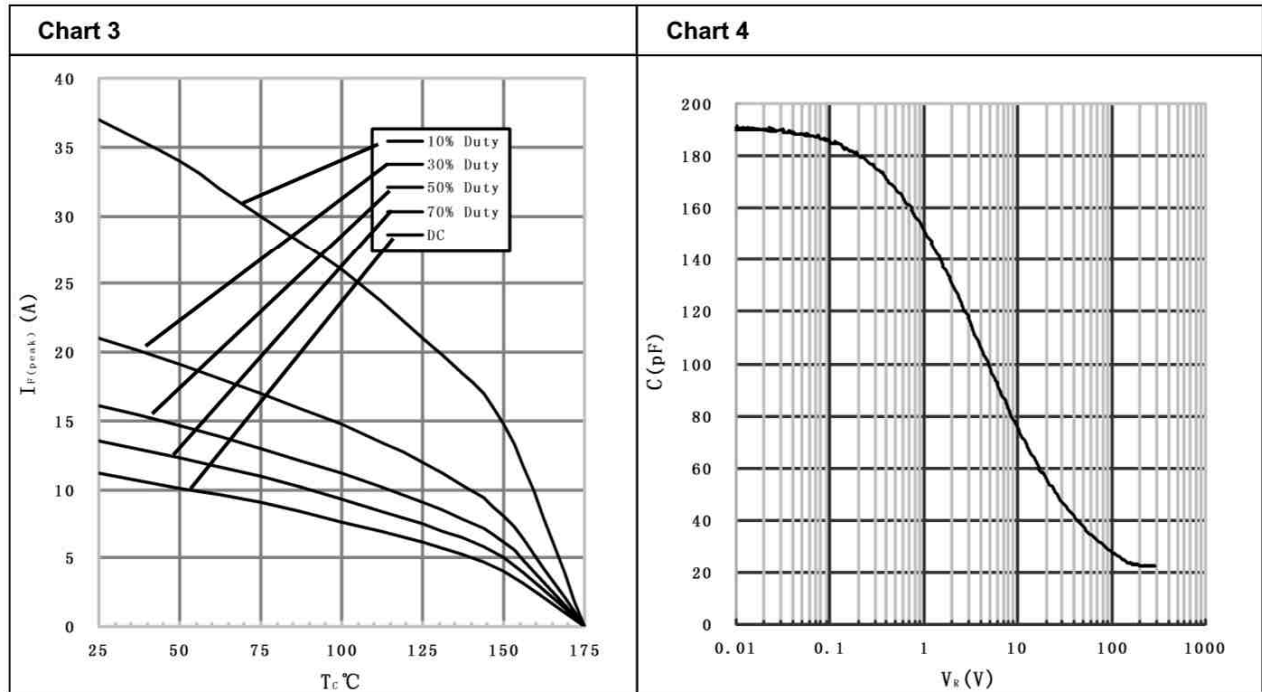
Electrical Characteristics

Parameter	Symbol	Typ.	Max.	Unit	Test Condition
Forward Voltage	V_F	1.41 1.8	1.7 2.2	V	$I_F=3\text{A}$, $T_J=25^{\circ}\text{C}$ $I_F=3\text{A}$, $T_J=175^{\circ}\text{C}$
Reverse Current	I_R	100 200	200 500	μA	$V_R=650\text{V}$, $T_J=25^{\circ}\text{C}$ $V_R=650\text{V}$, $T_J=175^{\circ}\text{C}$
Total Capacitance Charge	Q_C	7.4	-	nC	$V_R=650\text{V}$, $I_F=3\text{A}$, $di/dt=500\text{A}/\mu\text{s}$, $T_J=25^{\circ}\text{C}$
Total Capacitance	C	181 22.5 20.5	220 25 21	pF	$V_R=0\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$ $V_R=200\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$ $V_R=400\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$

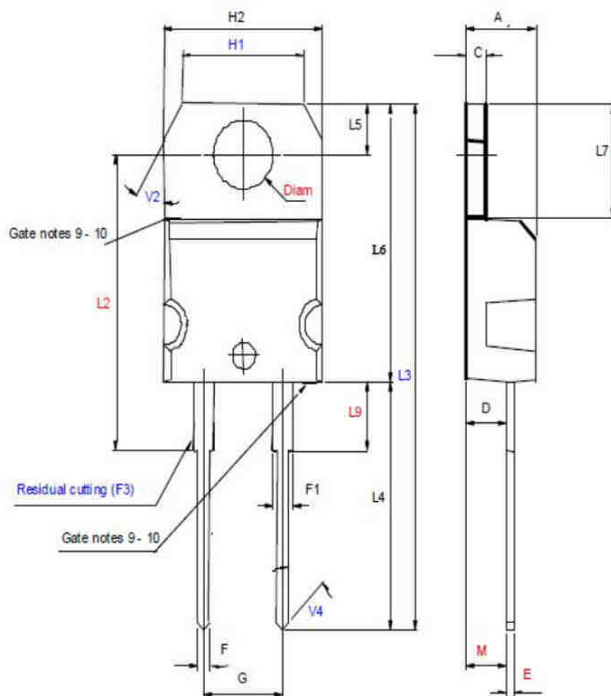
RATING AND CHARACTERISTICS CURVES (SC2S06503A)



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Package Outline: TO-220



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
C	1.23	1.32	0.048	0.052
D	2.4	2.72	0.094	0.107
E	0.49	0.7	0.019	0.028
F	0.61	0.88	0.024	0.035
F1	1.14	1.7	0.045	0.067
F3		1		0.039
G	4.95	5.15	0.195	0.203
H1	7.7	7.9	0.303	0.311
H2	10	10.4	0.394	0.409
L2	16.4		0.646	
L3	28.9		1.138	
L4	13	14	0.512	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.2	6.6	0.244	0.260
L9	3.5	3.93	0.138	0.155
M	2.6			
V	5°			
V2	30°			
V4	45°			
diam	3.75	3.85	0.148	0.152

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