

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.

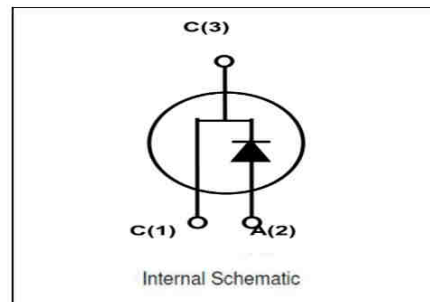
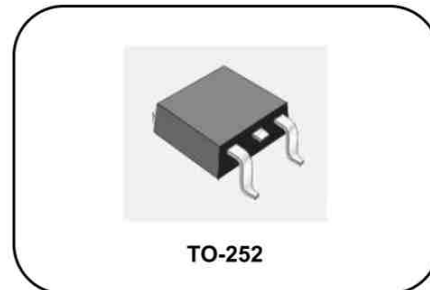
Benefits:

- ✦ 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}	1200	V
$I_F, T_c \leq 135^\circ\text{C}$	8.5	A
Q_C	30	nC



Maximum Ratings:

Parameter	Symbol	Value	Unit	Test Condition
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V	$T_j = 25^\circ\text{C}$
Surge Peak Reverse Voltage	V_{RSM}	1200	V	$T_j = 25^\circ\text{C}$
DC Blocking Voltage	V_{DC}	1200	V	$T_j = 25^\circ\text{C}$
Continuous Forward Current	I_F	18	A	$T_c = 25^\circ\text{C}$
		8.5		$T_c = 135^\circ\text{C}$
		5		$T_c = 158^\circ\text{C}$
Repetitive Peak Forward Surge Current	I_{FRM}	25	A	$T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Wave, $D = 0.3$
Non-repetitive Peak Forward Surge Current	I_{FSM}	35	A	$T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Wave
Power Dissipation	P_{TOT}	109.5	W	$T_c = 25^\circ\text{C}$
		47		$T_c = 110^\circ\text{C}$
Operating Junction Temperature	T_j	-55°C to 175°C	°C	
Storage Temperature	T_{stg}	-55°C to 175°C	°C	

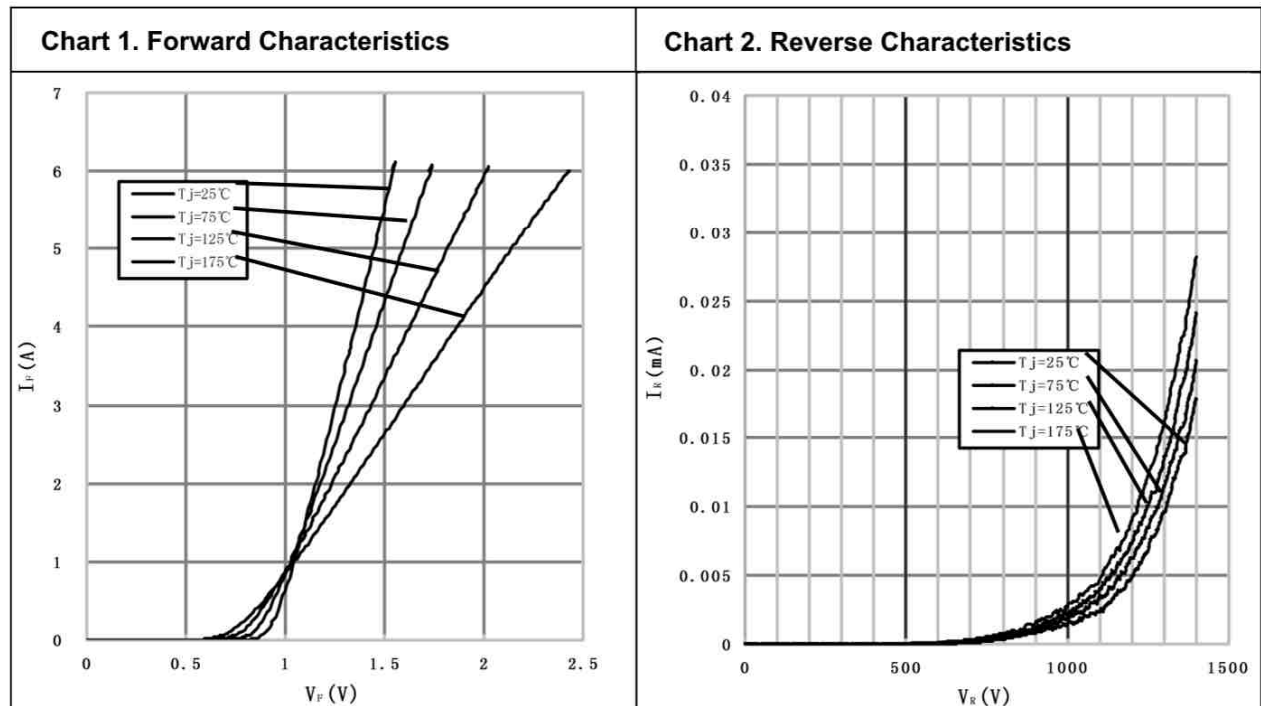
Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$		1.37		$^{\circ}\text{C}/\text{W}$

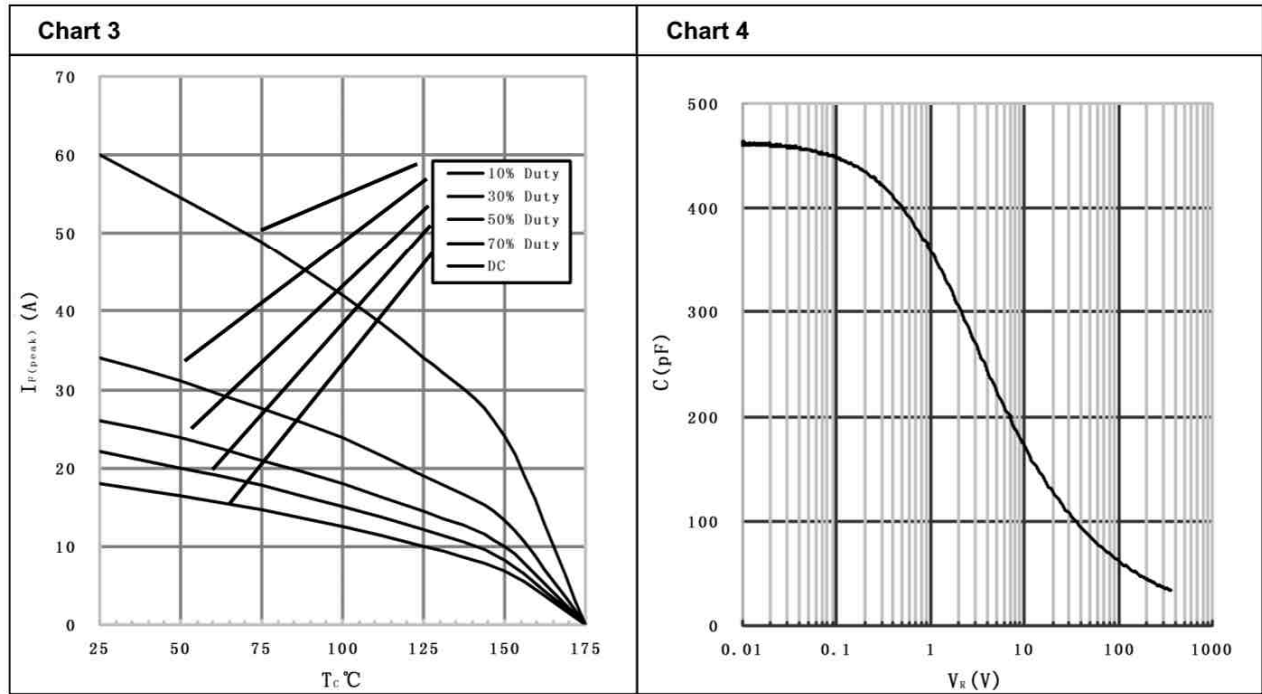
Electrical Characteristics

Parameter	Symbol	Typ.	Max.	Unit	Test Condition
Forward Voltage	V_F	1.45 2.05	1.7 2.3	V	$I_F=5\text{A}, T_j=25^{\circ}\text{C}$ $I_F=5\text{A}, T_j=175^{\circ}\text{C}$
Reverse Current	I_R	20 50	100 200	μA	$V_R=1200\text{V}, T_j=25^{\circ}\text{C}$ $V_R=1200\text{V}, T_j=175^{\circ}\text{C}$
Total Capacitance Charge	Q_C	30	-	nC	$V_R=800\text{V}, I_F=5\text{A},$ $di/dt=200\text{A}/\mu\text{s}, T_j=25^{\circ}\text{C}$
Total Capacitance	C	475 34 33	510 44 40	pF	$V_R=0\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHz}$ $V_R=400\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHz}$ $V_R=800\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHz}$

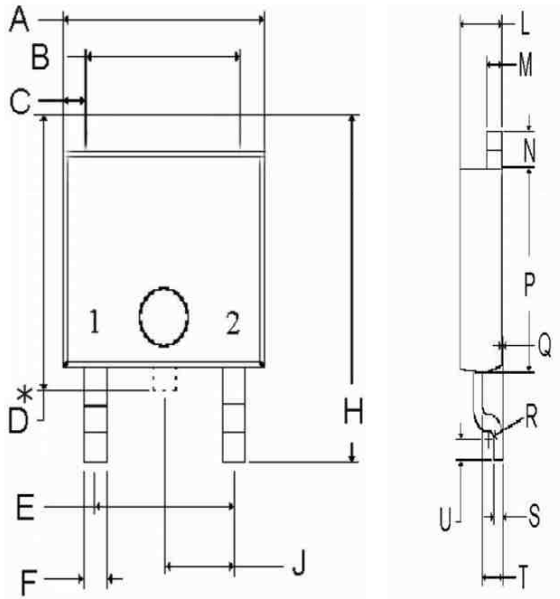
RATING AND CHARACTERISTICS CURVES (SC3S12005C)



RATING AND CHARACTERISTICS CURVES (SC2S12005C)



Package Outline: TO-252



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.477	6.731	0.255	0.265
B	5.004	5.207	0.197	0.205
C	0.686	0.838	0.027	0.033
D*	6.858	8.179	0.270	0.322
E	4.521	4.623	0.178	0.182
F	0.635	0.889	0.025	0.035
H	9.703	10.084	0.382	0.397
J	2.286		0.090	
L	2.184	2.388	0.086	0.094
M	0.762	0.864	0.030	0.034
N	1.016	1.118	0.040	0.044
P	5.969	6.223	0.235	0.245
Q	0.000	0.102	0.000	0.004
R	R0.31		R0.01	
S	0.428	0.588	0.017	0.023
T	1.016	1.118	0.040	0.044
U	0.534	1.118	0.021	0.027

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