RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

SC3S06520B

650V/20A Silicon Carbide Power Schottky Barrier Diode

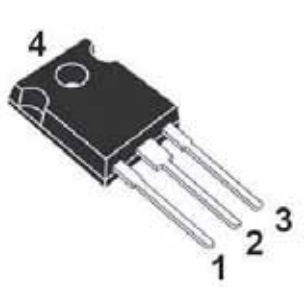
Features

- Rated to 650V at 20 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

Key Characteristics		
V_{RRM}	650	V
I_F, $T_c \leqslant 135℃$	15 (per leg)	A
Q_C	72	nC

Benefits

- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements



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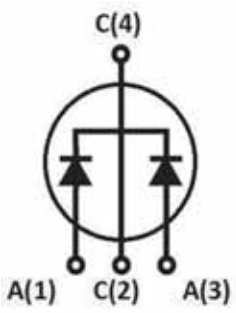


Applications

- SMPS, e.g., CCM PFC;
- Motor drives, Solar application, UPS, Wind turbine, Rail traction, EV/HEV

Part No.	Package Type	Marking
SC3S06520B	TO-247-3 pin	06520

2018-04/26
REV:A

Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		650	V
Surge Peak Reverse Voltage	V_{RSM}		650	
DC Blocking Voltage	V_{DC}		650	
Continuous Forward Current	I_F	T_C=25℃ T_C=135℃ T_C=155℃	33* 15* 10*	A
Repetitive Peak Forward Surge Current	I_{FRM}	T_C=25℃, tp=10ms， Half Sine Wave，D=0.3	50*	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	T_C=25℃, tp=10ms， Half Sine Wave	100*	A
Power Dissipation	P_{TOT}	T_C=25℃	109*	W
		T_C=110℃	48*	W
Operating Junction	T_j		-55℃ to 175℃	℃
Storage Temperature	T_{stg}		-55℃ to 175℃	℃
Mounting Torque		M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

* Per leg ; ** Per diode

Thermal Characteristics

Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{th\ JC}$		1.37* 0.69**	℃/W

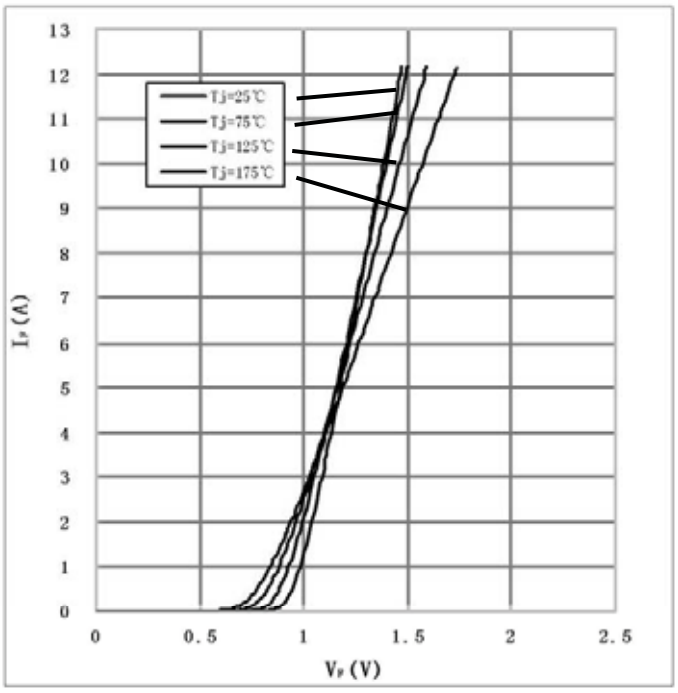
* Per leg ; ** Per diode

Electrical Characteristics

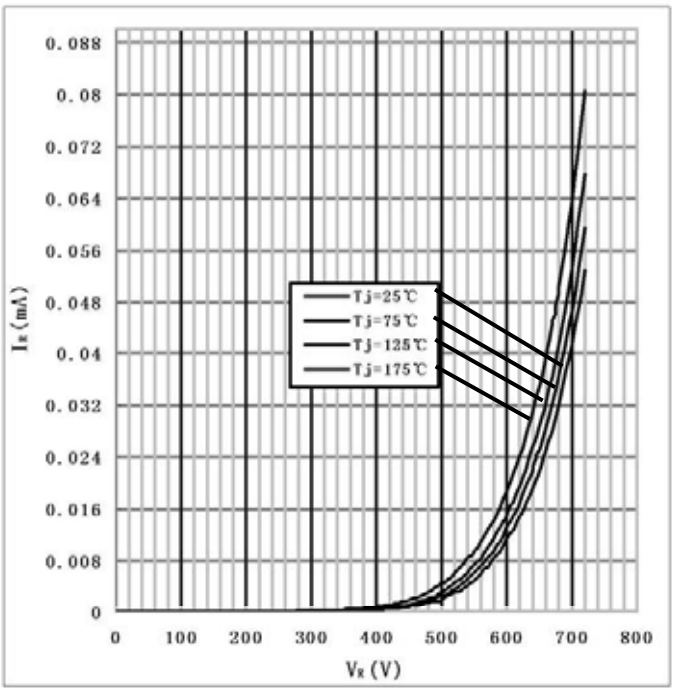
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	I_F=10A, T_j=25℃	1.5	1.7	V
		I_F=10A, T_j=175℃	1.7	2.5	
Reverse Current	I_R	V_R=650V, T_j=25℃	20	100	μA
		V_R=650V, T_j=175℃	30	200	
Total Capacitive Charge	Q_C	V_R=400V, T_j=150℃ $Qc = \int_0^{VR} C(V)dV$	36	-	nC
Total Capacitance	C	V_R=0V, T_j=25℃, f=1MHZ	690	730	pF
		V_R=200V, T_j=25℃, f=1MHZ	72	75	
		V_R=400V, T_j=25℃, f=1MHZ	71	74	

RATING AND CHARACTERISTICS CURVES (SC3S06520B)

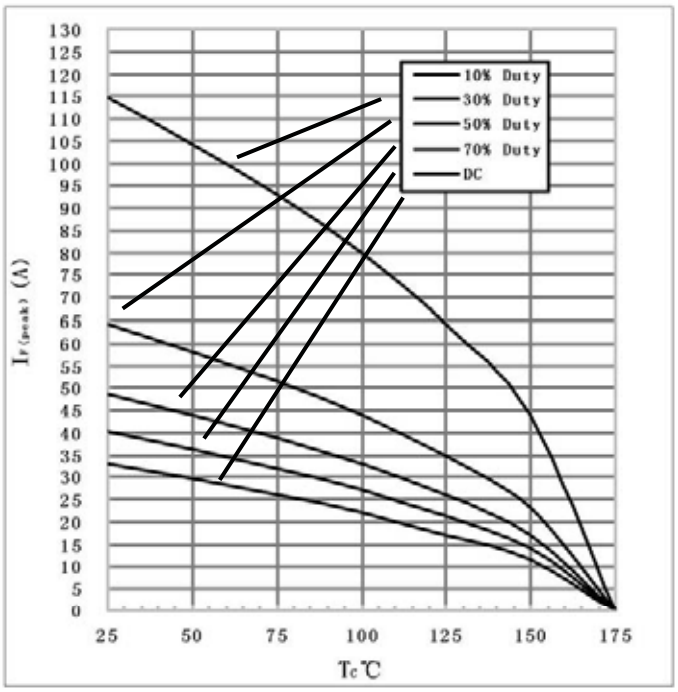
1) Forward IV characteristics as a function of Tj :



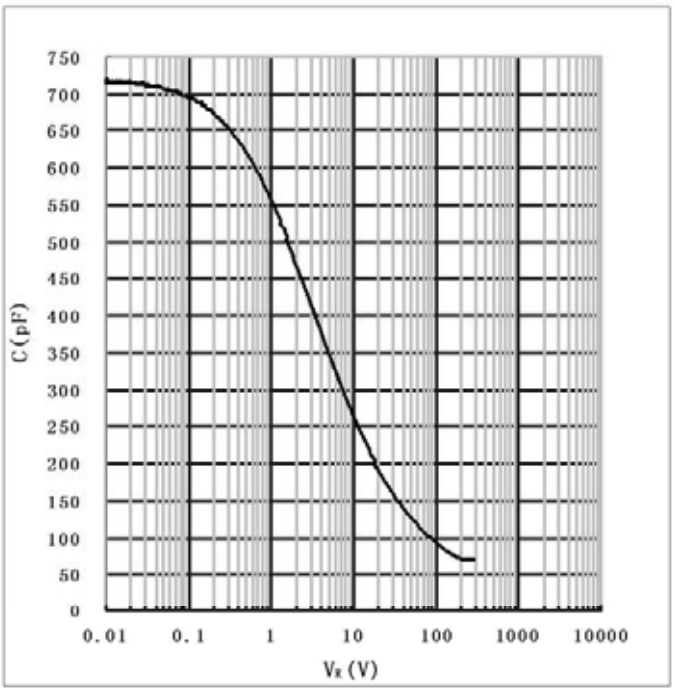
2) Reverse IV characteristics as a function of Tj :



3) Current Derating



4)Capacitance vs. reverse voltage :



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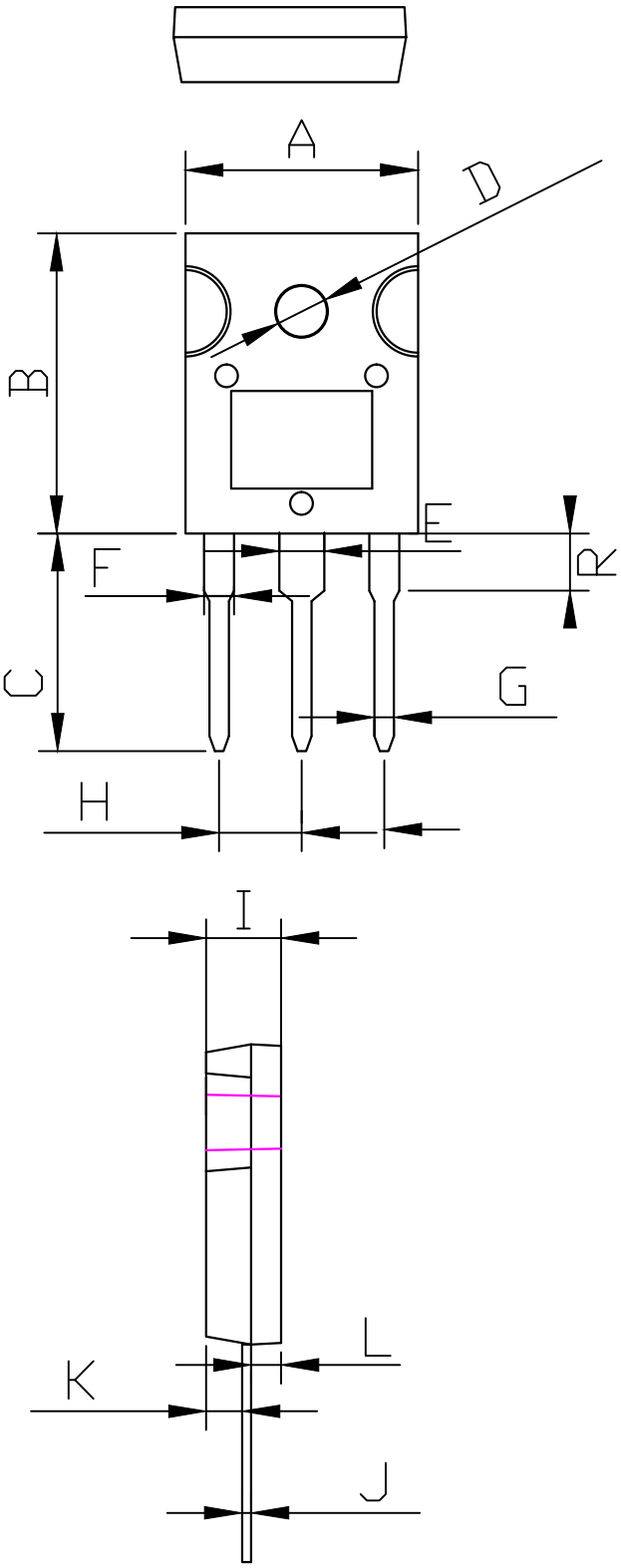

项目	mm		
	标准值	Min	Max
A	15.5	15.45	15.55
B	20	19.9	20.1
C	14.5	14.4	14.6
D	3.5	3.3	3.6
E	3	2.95	3.05
F	2	1.95	2.05
G	1.3	1.2	1.4
H	5.5	5.4	5.6
I	5	4.95	5.05
J	0.6	0.58	0.62
K	2.4	2.3	2.5
L	2	1.9	2.1
R	3.8	3.6	4

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