

## 1200V/10A Silicon Carbide Power Schottky Barrier Diode

### Features

- Rated to 1200V at 10 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- High temperature operation
- High frequency operation

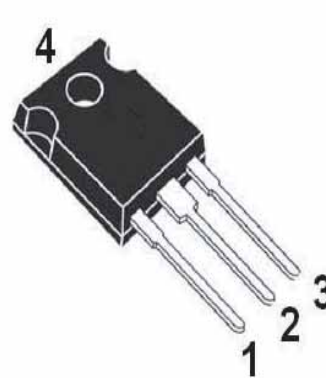
Key Characteristics		
$V_{RRM}$	<b>1200</b>	<b>V</b>
$I_F, T_c \leq 135^\circ\text{C}$	<b>8</b> (per leg)	<b>A</b>
$Q_c$	<b>72</b>	<b>nC</b>

### Benefits

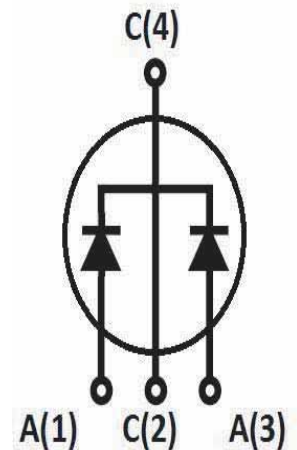
- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

### Applications

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



Package:  
TO-247



Part No.	Package Type	Marking
SC3S12010B	TO-247-3 pin	12010

## Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$		1200	V
Surge Peak Reverse Voltage	$V_{RSM}$		1200	
DC Blocking Voltage	$V_{DC}$		1200	
Continuous Forward Current	$I_F$	$T_C=25^{\circ}C$ $T_C=135^{\circ}C$ $T_C=155^{\circ}C$	18* 8* 5*	A
Repetitive Peak Forward Surge Current	$I_{FRM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave, $D=0.3$	25*	A
Non-repetitive Peak Forward Surge Current	$I_{FSM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave	50*	A
Power Dissipation	$P_{TOT}$	$T_C=25^{\circ}C$	109.5*	W
		$T_C=110^{\circ}C$	47*	W
Operating Junction	$T_j$		-55 $^{\circ}C$ to 175 $^{\circ}C$	$^{\circ}C$
Storage Temperature	$T_{stg}$		-55 $^{\circ}C$ to 175 $^{\circ}C$	$^{\circ}C$
Mounting Torque		M3 Screw	1	Nm
		6-32 Screw	8.8	lbf-in

\* Per leg ; \*\* Per diode

## Thermal Characteristics

Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{thJC}$		1.37* 0.69**	$^{\circ}C/W$

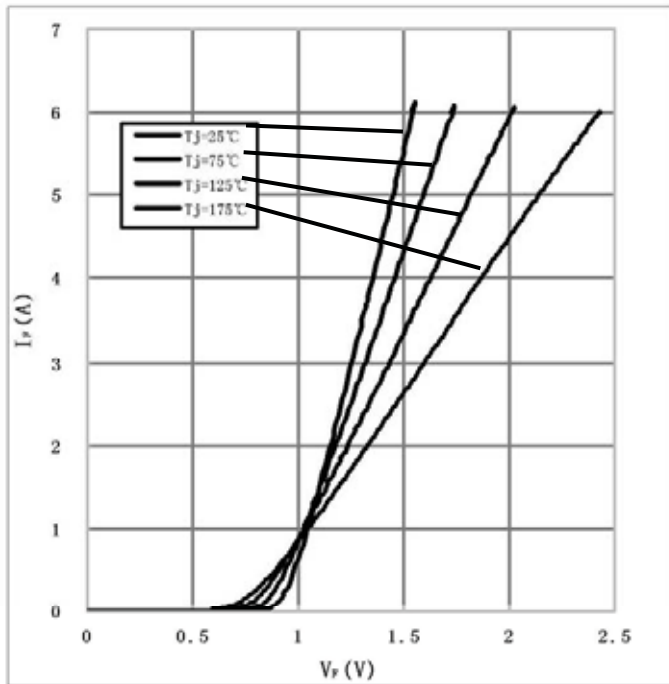
\* Per leg ; \*\* Per diode

## Electrical Characteristics

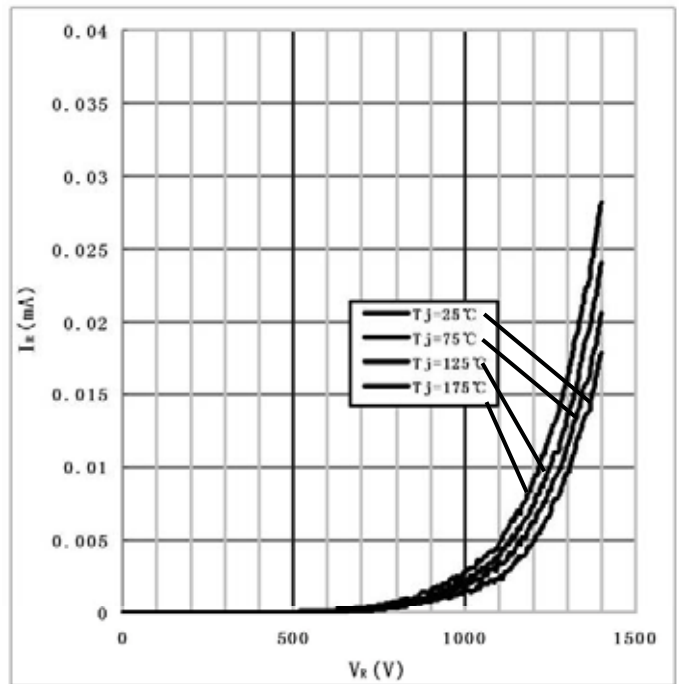
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	$V_F$	$I_F=5A$ , $T_j=25^{\circ}C$	1.45	1.7	V
		$I_F=5A$ , $T_j=175^{\circ}C$	2.05	2.5	
Reverse Current	$I_R$	$V_R=1200V$ , $T_j=25^{\circ}C$	20	100	$\mu A$
		$V_R=1200V$ , $T_j=175^{\circ}C$	50	200	
Total Capacitive Charge	$Q_C$	$V_R=800V$ , $T_j=150^{\circ}C$ $Q_C = \int_b^R C(V)dV$	36	-	nC
Total Capacitance	C	$V_R=0V$ , $T_j=25^{\circ}C$ , $f=1MHz$	475	510	pF
		$V_R=400V$ , $T_j=25^{\circ}C$ , $f=1MHz$	34	44	
		$V_R=800V$ , $T_j=25^{\circ}C$ , $f=1MHz$	33	40	

## RATING AND CHARACTERISTICS CURVES (SC3S12010B)

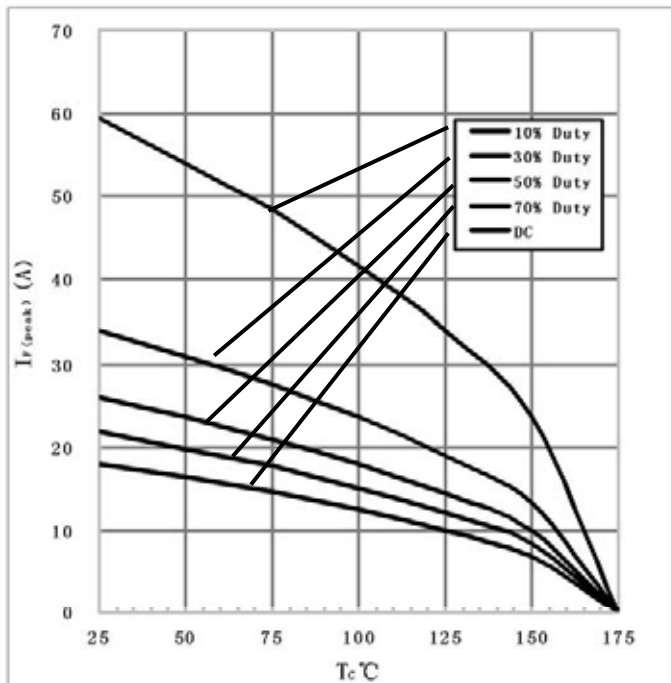
1) Forward IV characteristics as a function of  $T_j$  :



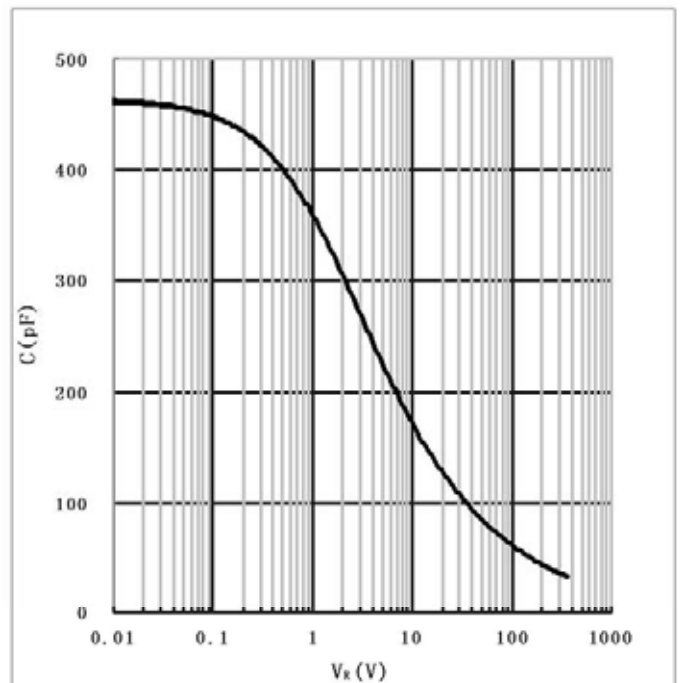
2) Reverse IV characteristics as a function of  $T_j$  :



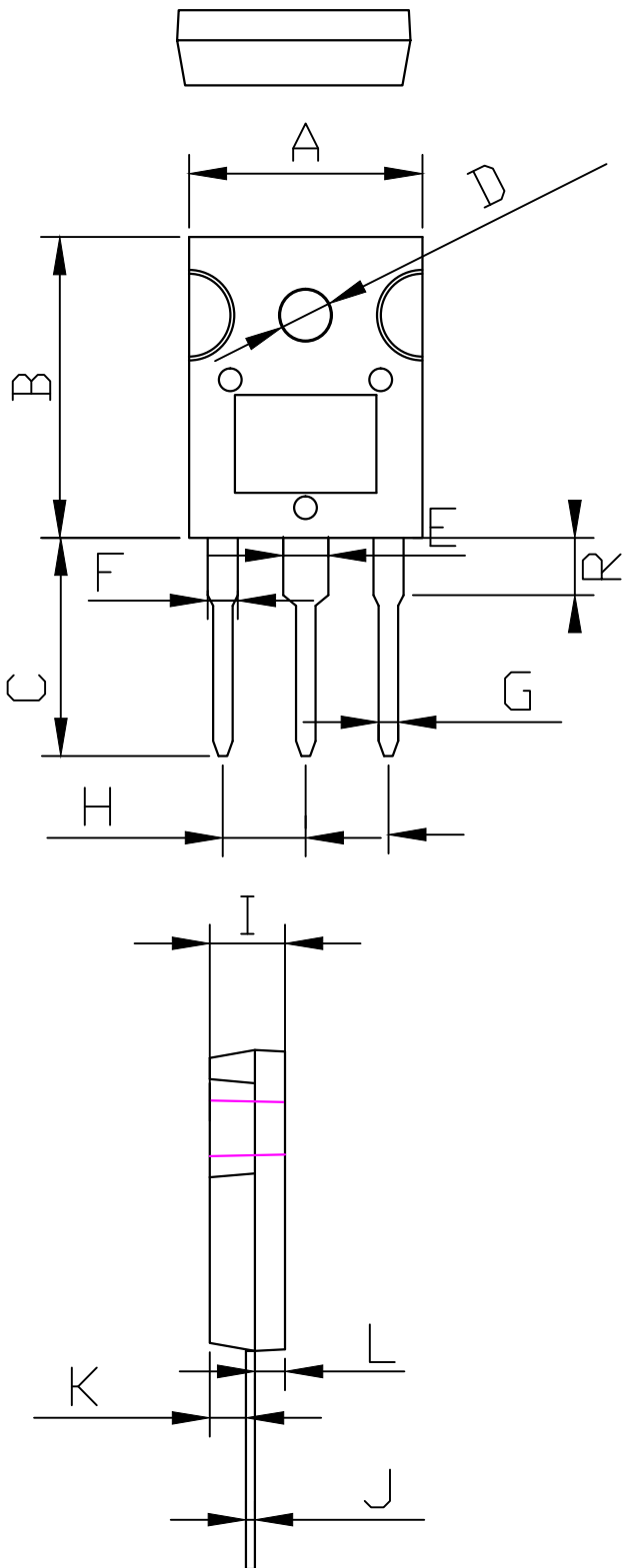
3) Current Derating



4) Capacitance vs. reverse voltage :



TO-247



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

## DISCLAIMER NOTICE

Rectron Inc reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Rectron Inc or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on RECTRON data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Rectron Inc does not assume any liability arising out of the application or use of any product or circuit.

Rectron products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Rectron Inc. Customers using or selling Rectron components for use in such applications do so at their own risk and shall agree to fully indemnify Rectron Inc and its subsidiaries harmless against all claims, damages and expenditures.