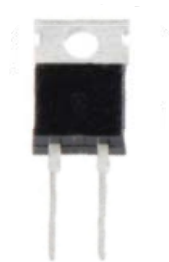




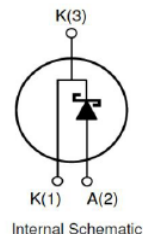
ESIC06065S



Silicon Carbide Power Schottky Barrier Diode



TO-220AC



Features

- Rated to 650V at 6 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behaviour
- High temperature operation
- High frequency operation
- Marking : ESIC06065S

Benefits

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

Ordering Information

Part No.	Package	Packing
ESIC06065S	TO-220AC	50 / Tube

Application

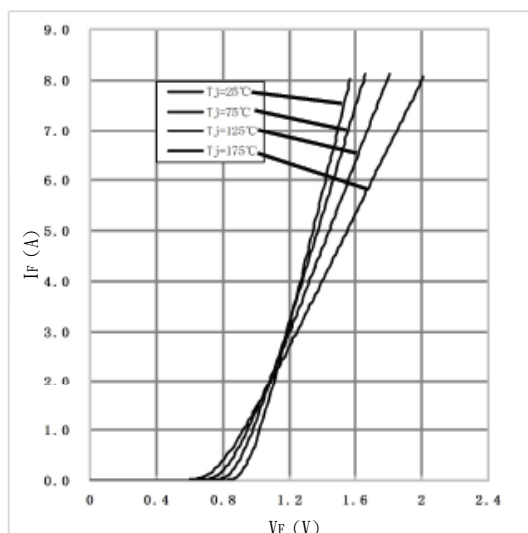
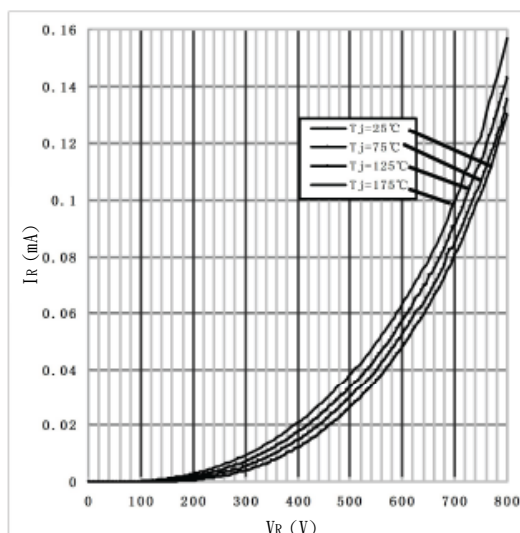
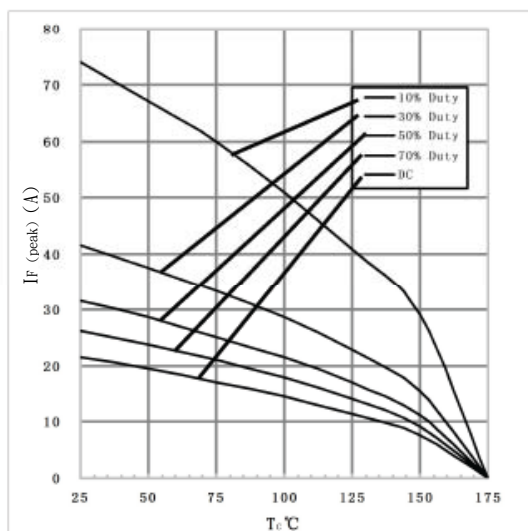
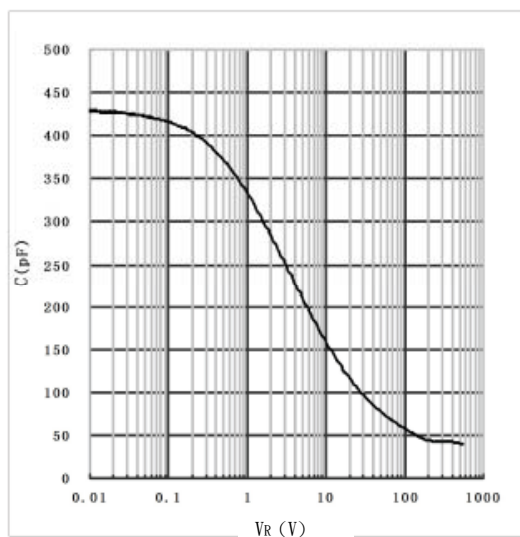
- SMPS, e.g., CCM PFC
- Motor drives, Solar application, UPS, Wind turbine, Rail traction, EV/HEV

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Limit	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	$T_J=25^{\circ}\text{C}$	650	V
Surge Peak Reverse Voltage	V_{RSM}	$T_J=25^{\circ}\text{C}$	650	V
DC Blocking Voltage	V_{DC}	$T_J=25^{\circ}\text{C}$	650	V
Continuous Forward Current	I_F	$T_J=25^{\circ}\text{C}$ $T_J=135^{\circ}\text{C}$ $T_J=152^{\circ}\text{C}$	21.5 10 6	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave, $D=0.3$	30	A
Non-Repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	42	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}\text{C}$	85.8	W
		$T_C=110^{\circ}\text{C}$	39	W
Operating Junction and Storage Temperature	T_J , T_{stg}		-55~+175	$^{\circ}\text{C}$
Typical Thermal Resistance from Junction to Case	$R_{\theta JC}$		1.748	$^{\circ}\text{C/W}$

**Silicon Carbide Power Schottky Barrier Diode****Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)**

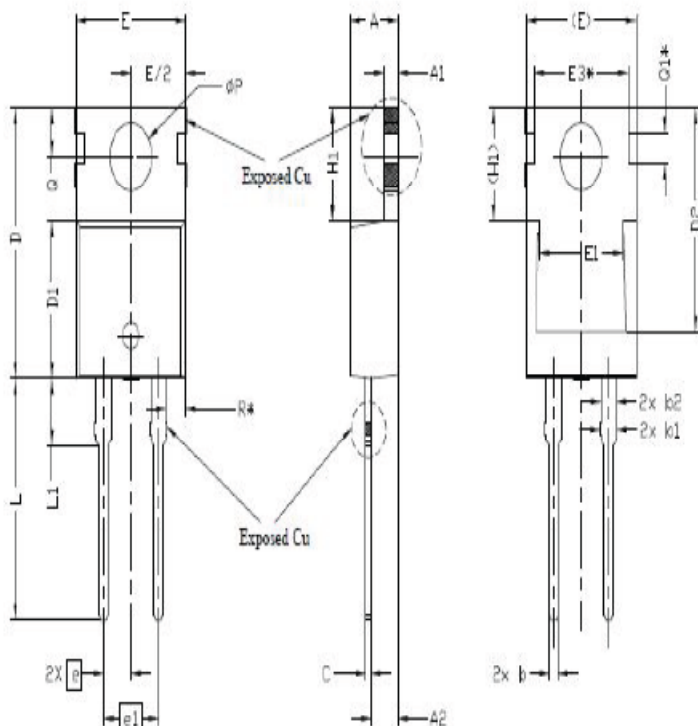
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage	$I_F=6\text{A}, T_J=25^\circ\text{C}$	V_F	-	1.44	1.8	V
	$I_F=6\text{A}, T_J=175^\circ\text{C}$		-	1.73	2.5	
Reverse Current	$V_R=650\text{V}, T_J=25^\circ\text{C}$	I_R	-	10	100	μA
	$V_R=650\text{V}, T_J=175^\circ\text{C}$		-	15	200	
Total Capacitive Charge	$V_R=400\text{V}, T_J=150^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V) dV$	Q_C	-	23	-	nC
Total Capacitive Charge	$V_R=0\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$	C	-	424	434	pF
	$V_R=200\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$		-	44	45	
	$V_R=400\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$		-	42.5	43	

Rating and Characteristics Curves**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 :**



Silicon Carbide Power Schottky Barrier Diode

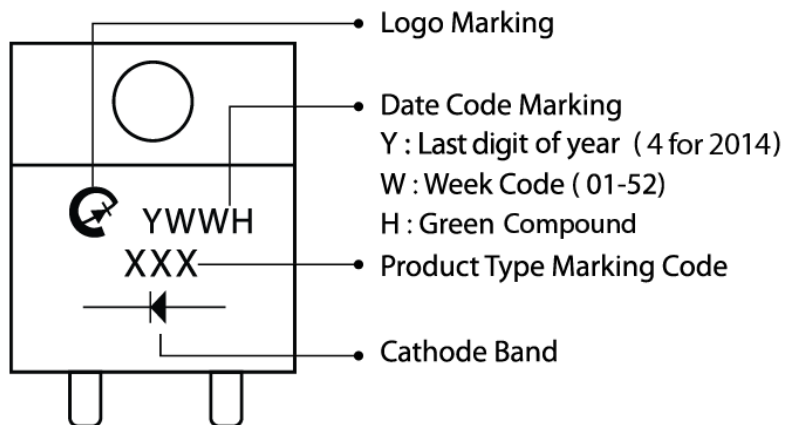
Package Outline Dimensions



TO-220AC

SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.24	4.44	4.64	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.70	
b	0.70	0.80	0.90	
b1	1.20	1.55	1.75	
b2	1.20	1.45	1.70	
c	0.40	0.50	0.60	
D	14.70	15.37	16.00	4
D1	8.82	8.92	9.02	
D2	12.63	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.86	7.77	8.89	5
E3*	8.70REF.			
e	2.54BSC			
e1	5.08BSC			
H1	6.30	6.45	6.60	5,6
L	13.47	13.72	13.97	
L1	3.60	3.80	4.00	
QP	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

Marking Information



Bulk Packing

Package	Inner Pack	Inner Box (EA)	Inner Box (mm)	Carton (EA)	Carton Size (mm)	Gross Weight (Kg)-Approx.
TO-220AC	Tube	2000	539x184x79	4000	558x180x200	11.9



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