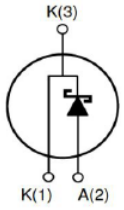
ESIC06065S

Silicon Carbide Power Schottky Barrier Diode

TO-220AC



Internal Schematic

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°C unless otherwise specified)

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

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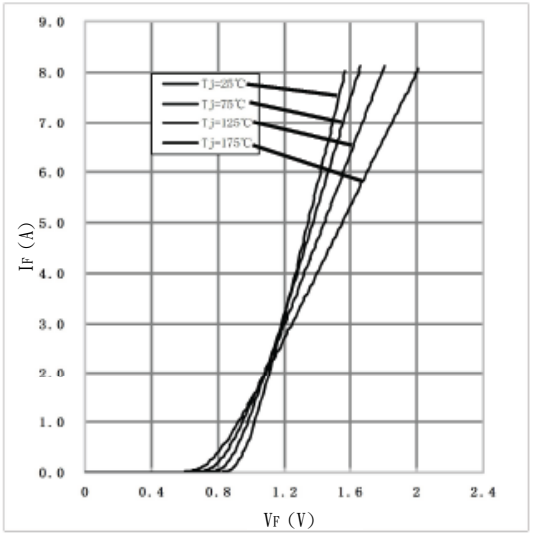
Electrical Characteristics (T_A = 25 °C unless otherwise specified)

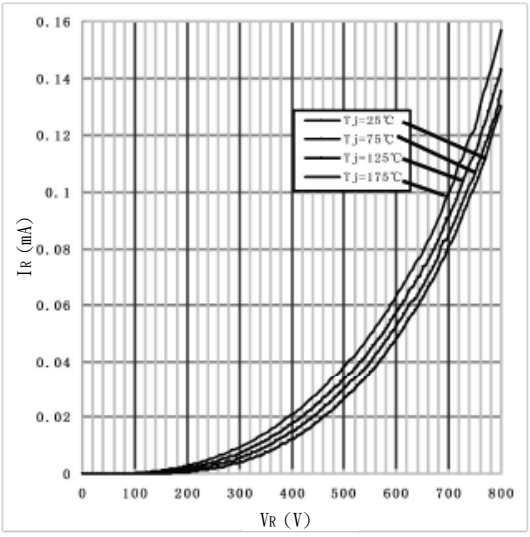
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage	I_F=6A, T_j=25℃	V_F	-	1.44	1.8	V
	I_F=6A, T_j=175℃		-	1.73	2.5	
Reverse Current	V_R=650V, T_j=25℃	I_R	-	10	100	μA
	V_R=650V, T_j=175℃		-	15	200	
Total Capacitive Charge	V_R=400V, T_j=150℃ $Qc = \int_0^{VR} C(V)\,dV$	Q_C	-	23	-	nC
Total Capacitive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

Rating and Characteristics Curves

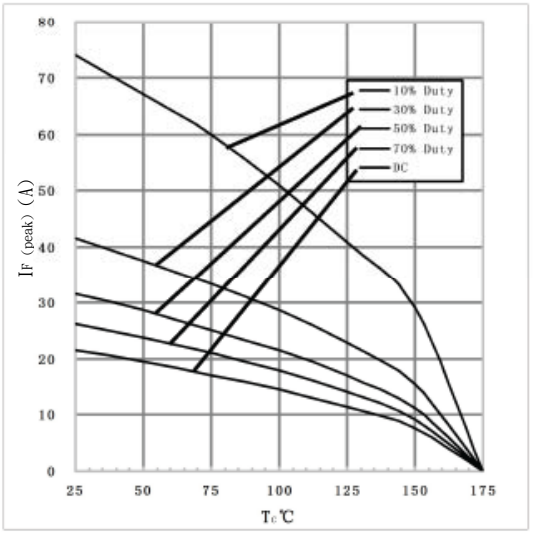
1) Forward IV characteristics as a function of Tj :



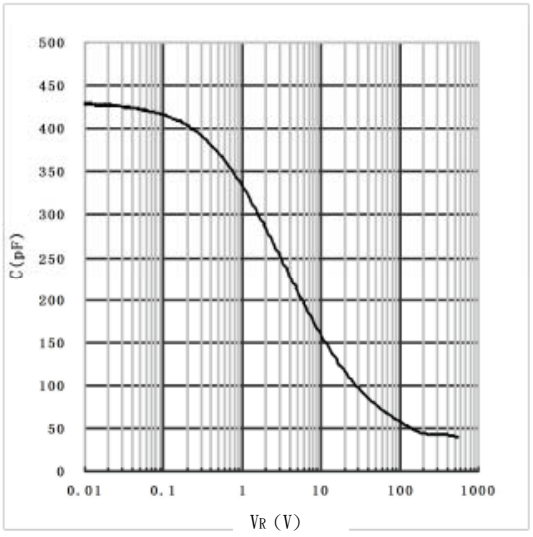
2) Reverse IV characteristics as a function of Tj :



3) Current Derating



4)Capacitance vs. reverse voltage :



RoHS Pb

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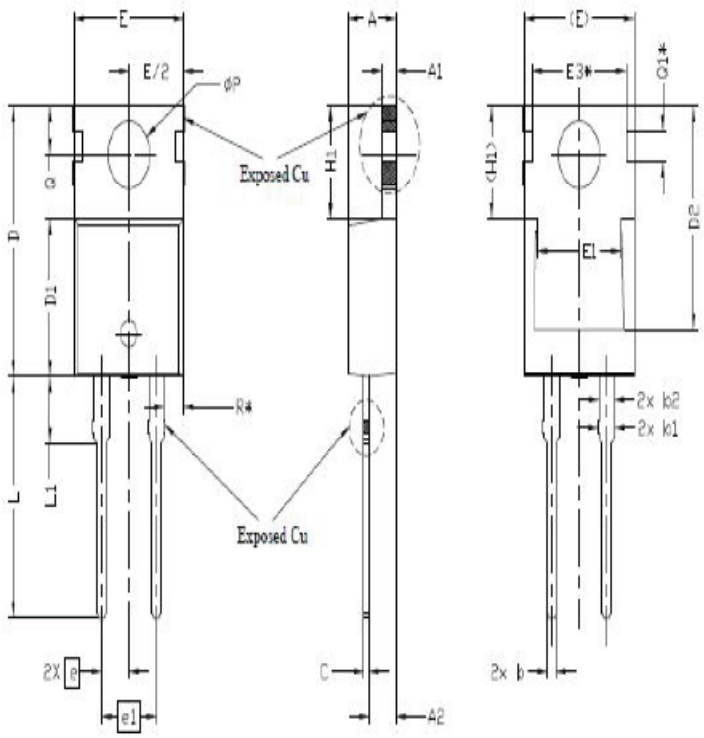
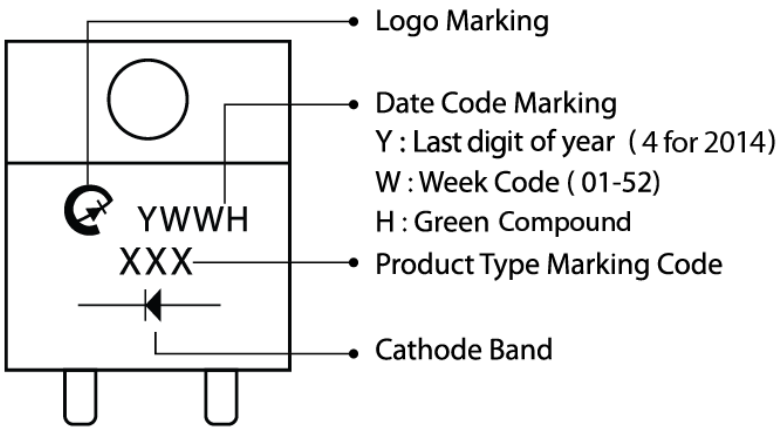
Package Outline Dimensions



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	
ØP	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

TO-220AC

Marking Information



Bulk Packing

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

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