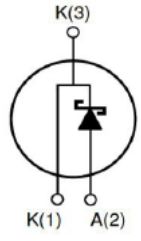
ESIC08065S

Silicon carbide power schottky diode

TO-220AC



Internal Schematic

Features

- Rated to 650V at 8 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behaviour
- High temperature operation
- High frequency operation
- Marking : ESIC08065S

Benefits

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

Application

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

Ordering Information

Part No.	Package	Packing
ESIC08065S	TO-220AC	50 / Tube

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=151℃	25.5 11 8	A
Repetitive Peak Forward Surge Current	I_{FRM}	T_C=25 ℃ , tp=10ms, Half Sine Wave, D=0.3	40	A
Non-Repetitive Peak Forward Surge Current	I_{FSM}	T_C=25 ℃ , tp=10ms, Half Sine Wave, D=0.3	56	A
Power Dissipation	P_{TOT}	T_C=25℃	102.4	W
		T_C=110℃	45	W
Maximum Case Temperature	T_C		135	^oC
Operating Junction and Storage Temperature	Tj、Tstg		-55~+175	^oC
Typical Thermal Resistance from Junction to Case	$R_{\theta JC}$		1.465	$^oC/W$

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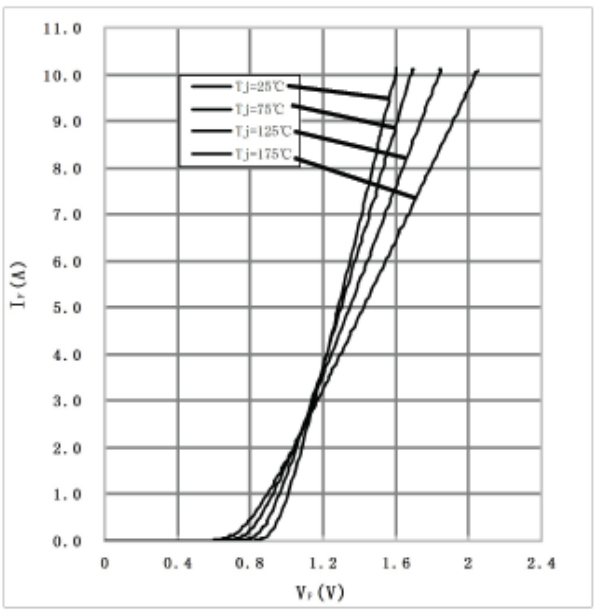
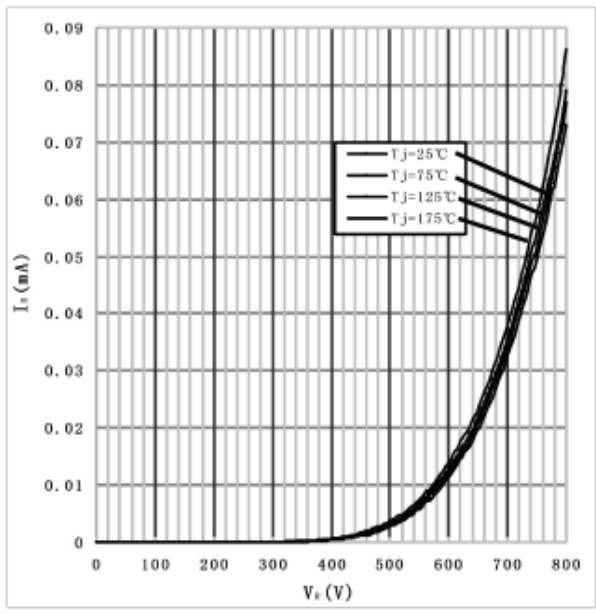
Electrical Characteristics (T_A = 25 °C unless otherwise specified)						
Parameter	**Conditions**	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
Forward Voltage	I_F=8A, T_j=25℃	V_F	-	1.47	1.8	V
	I_F=8A, T_j=175℃		-	1.78	2.5	
Reverse Current	V_R=650V, T_j=25℃	I_R	-	10	100	μA
	V_R=650V, T_j=175℃		-	15	200	
Total Capacitive Charge	V_R=400V, T_j=150℃ $Qc = \int_0^{VR} C(V)\,dV$	Q_C	-	30	-	nC
Total Capacitive Charge	V_R=0V, T_j=25℃, f=1MHZ	C	-	550	588	pF
	V_R=200V, T_j=25℃, f=1MHZ		-	56.5	57	
	V_R=400V, T_j=25℃, f=1MHZ		-	54	54.5	

Rating and Characteristics Curves

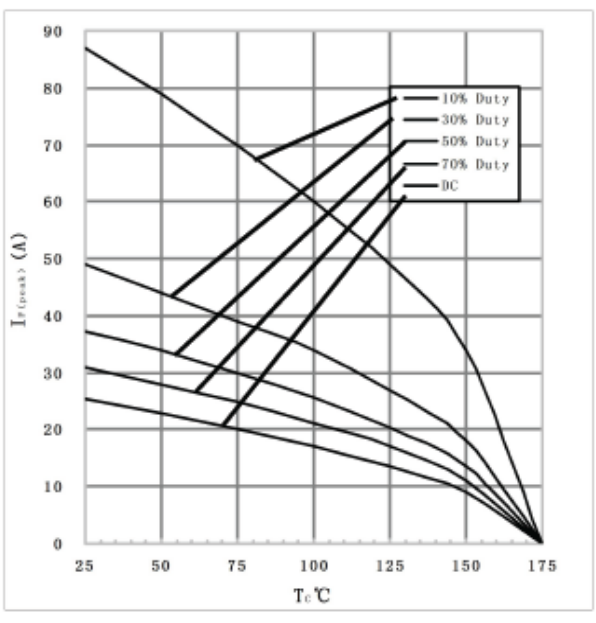
1) Forward IV characteristics as a function of Tj :



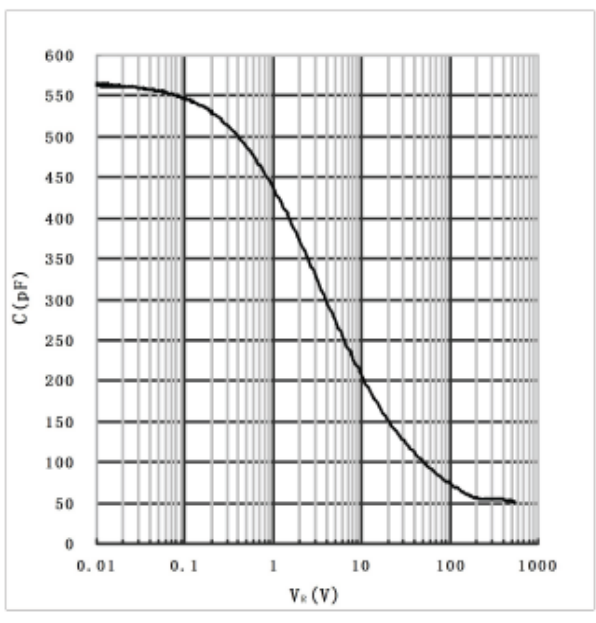
2) Reverse IV characteristics as a function of Tj :



3) Current Derating



4)Capacitance vs. reverse voltage :



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RoHS Pb

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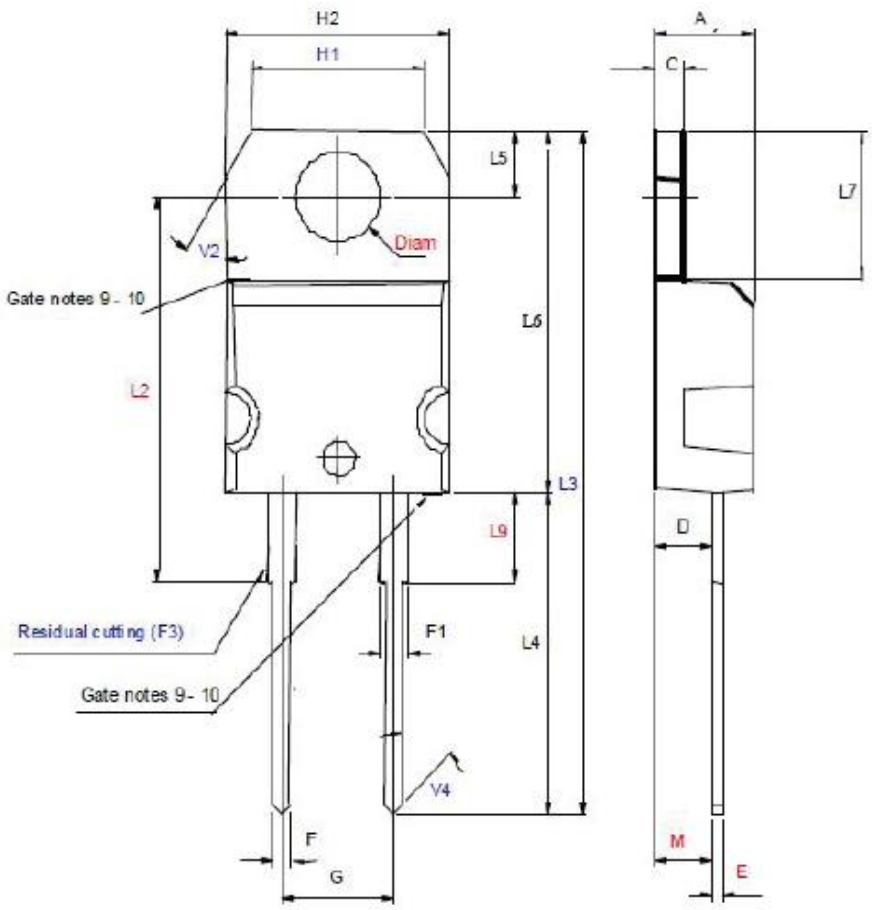
Package Outline Dimensions

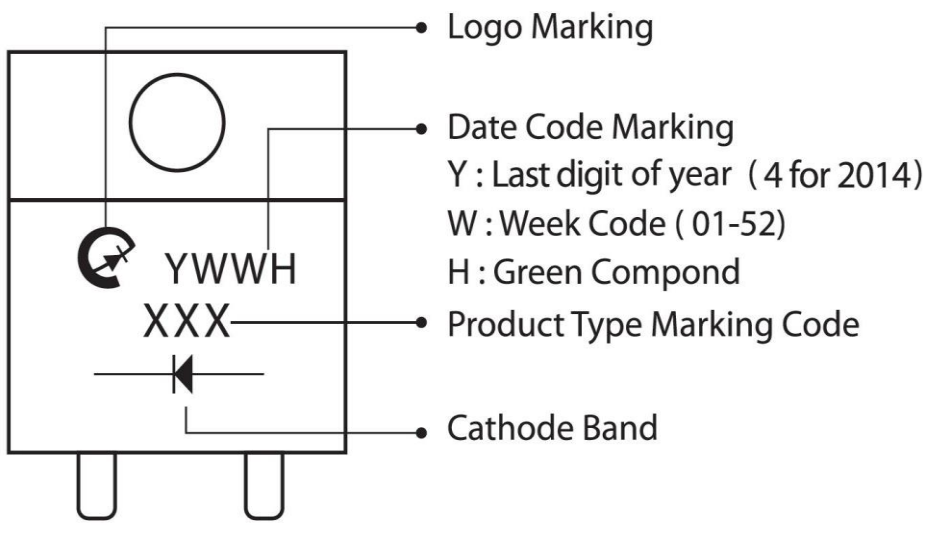


DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
C	1.23	1.32	0.048	0.052
D	2.4	2.72	0.094	0.107
E	0.49	0.7	0.019	0.028
F	0.61	0.88	0.024	0.035
F1	1.14	1.7	0.045	0.067
F3		1		0.039
G	4.95	5.15	0.195	0.203
H1	7.7	7.9	0.303	0.311
H2	10	10.4	0.394	0.409
L2	16.4		0.646	
L3	28.9		1.138	
L4	13	14	0.512	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.2	6.6	0.244	0.260
L9	3.5	3.93	0.138	0.155
M	2.6			
V	5°			
V2	30°			
V4	45°			
diam	3.75	3.85	0.148	0.152

TO-220AC

Dimensions in inches and (millimeters)

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