



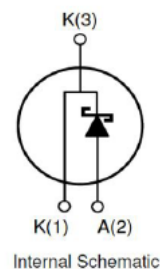
ESIC05065S



Silicon carbide power schottky diode



TO-220AC



Features

- Rated to 650V at 5 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behaviour
- High temperature operation
- High frequency operation
- Marking : ESIC05065S

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
ESIC05065S	TO-220AC	50 / Tube

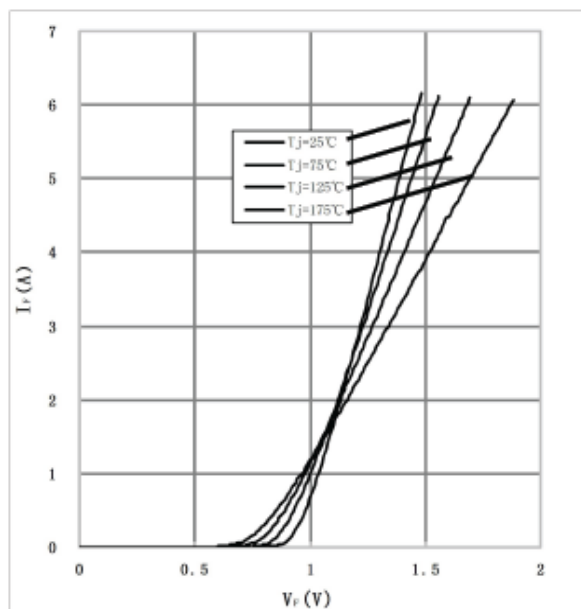
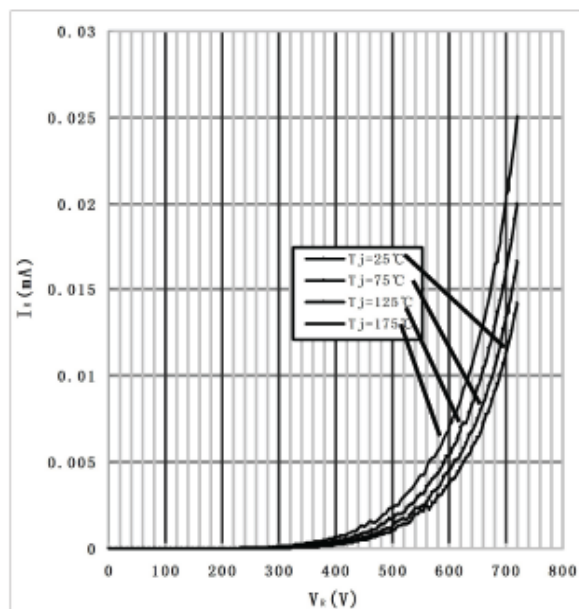
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

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	$T_J=25^{\circ}\text{C}$ $T_J=135^{\circ}\text{C}$ $T_J=158^{\circ}\text{C}$	19 8.5 5	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave, $D=0.3$	25	A
Non-Repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	35	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}\text{C}$	77	W
		$T_C=110^{\circ}\text{C}$	35	W
Maximum Case Temperature	T_C		135	$^{\circ}\text{C}$
Operating Junction and Storage Temperature	T_J , T_{stg}		-55~+175	$^{\circ}\text{C}$
Typical Thermal Resistance from Junction to Case	$R_{\theta JC}$		1.95	$^{\circ}\text{C/W}$

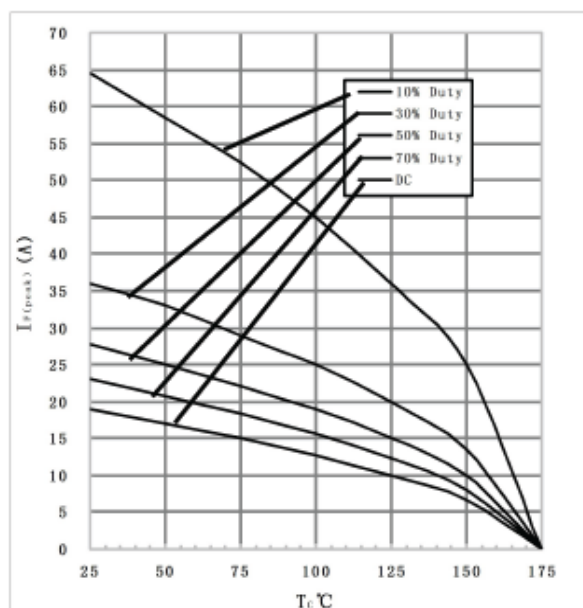
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage	$I_F=5\text{A}, T_J=25^\circ\text{C}$	V_F	-	1.4	1.8	V
	$I_F=5\text{A}, T_J=175^\circ\text{C}$		-	1.75	2.5	
Reverse Current	$V_R=650\text{V}, T_J=25^\circ\text{C}$	I_R	-	5	100	μA
	$V_R=650\text{V}, T_J=175^\circ\text{C}$		-	20	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	-	17	-	nC
Total Capacitive Charge	$V_R=0\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$	C	-	304	320	pF
	$V_R=200\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$		-	32	34	
	$V_R=400\text{V}, T_J=25^\circ\text{C}, f=1\text{MHz}$		-	31.4	32	

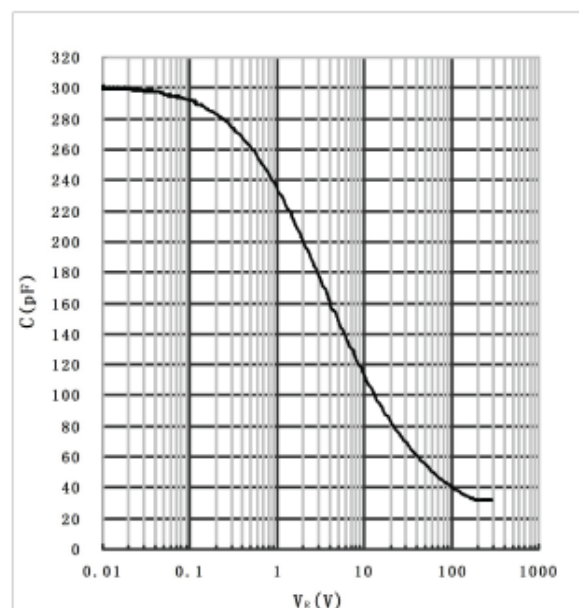
Rating and Characteristics Curves

1) Forward IV characteristics as a function of T_J :2) Reverse IV characteristics as a function of T_J :

3) Current Derating

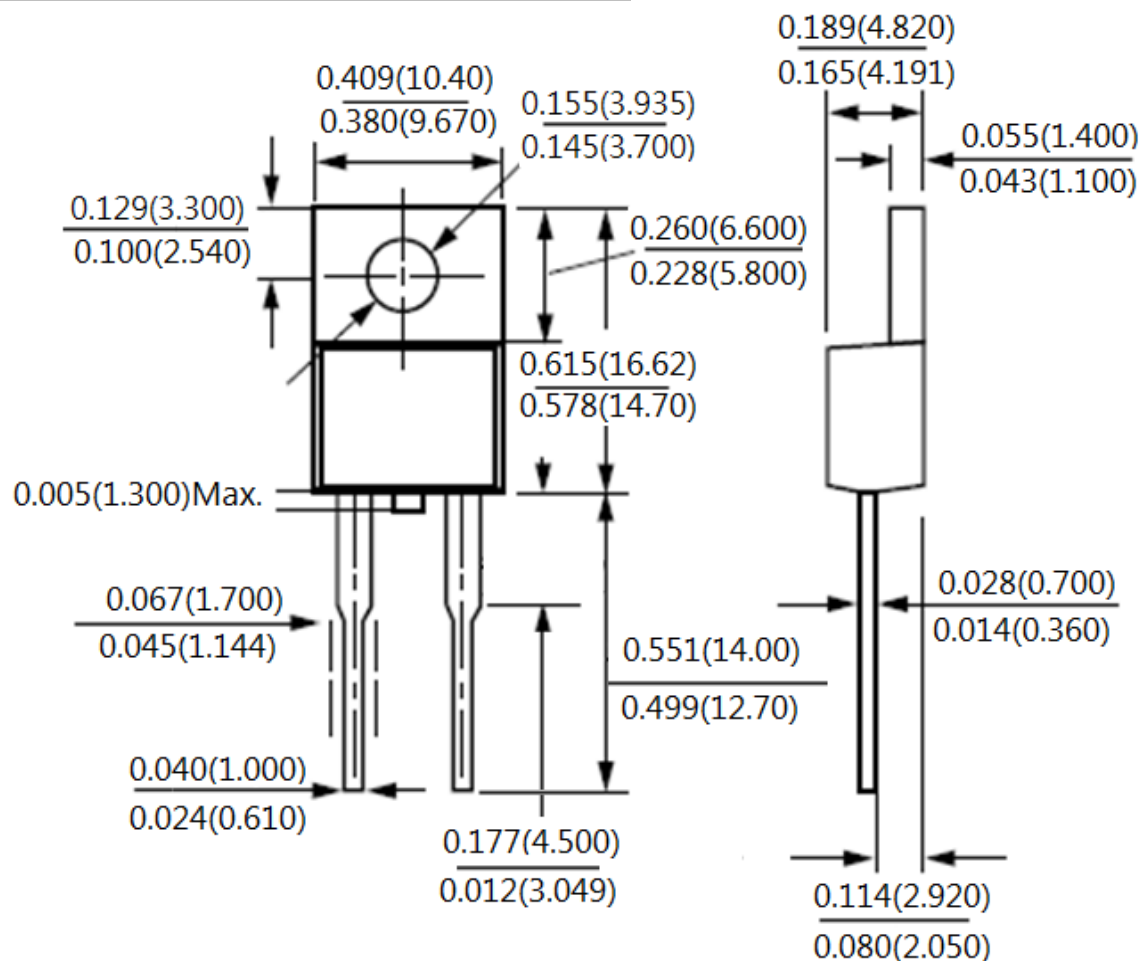


4) Capacitance vs. reverse voltage :





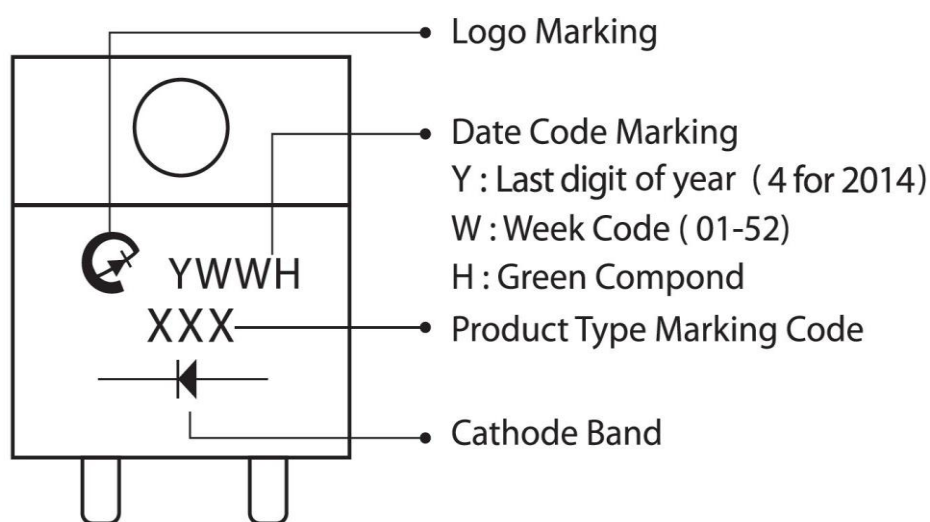
Package Outline Dimensions



TO-220AC

Dimensions in inches and (millimeters)

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