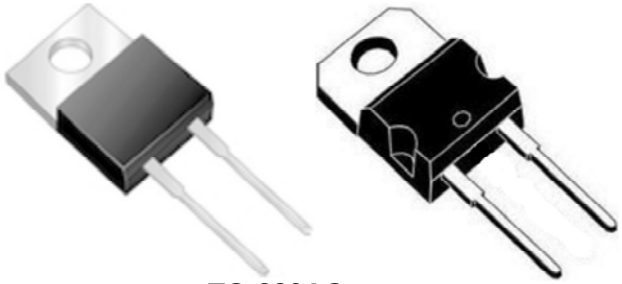
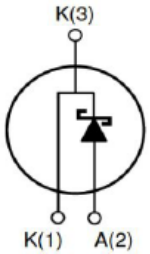
ESIC04065S

Silicon carbide power schottky diode



TO-220AC



Internal Schematic

Features
• Rated to 650V at 4 Amps
• Zero reverse recovery current
• Zero forward recovery voltage
• Temperature independent switching behaviour
• High temperature operation
• High frequency operation
• Marking : ESIC04065S

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

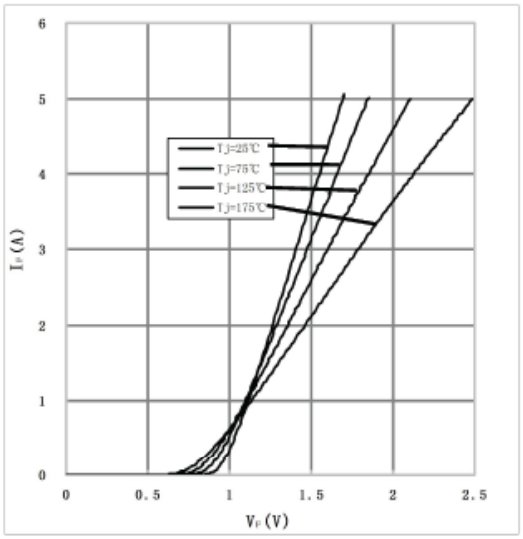
Ordering Information		
Part No.	Package	Packing
ESIC04065S	TO-220AC	50 / Tube

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_C=25℃ T_C=135℃ T_C=150℃	11 5 4	A
Repetitive Peak Forward Surge Current	I_{FRM}	T_C=25 ℃ , tp=10ms, Half Sine Wave, D=0.3	15	A
Non-Repetitive Peak Forward Surge Current	I_{FSM}	T_C=25 ℃ , tp=10ms, Half Sine Wave	30	A
Power Dissipation	P_{TOT}	T_C=25℃	53.2	W
		T_C=110℃	30	W
Operating Junction and Storage Temperature	Tj、Tstg		-55~+175	°C
Typical Thermal Resistance from Junction to Case	$R_{\theta JC}$		2.82	°C/W

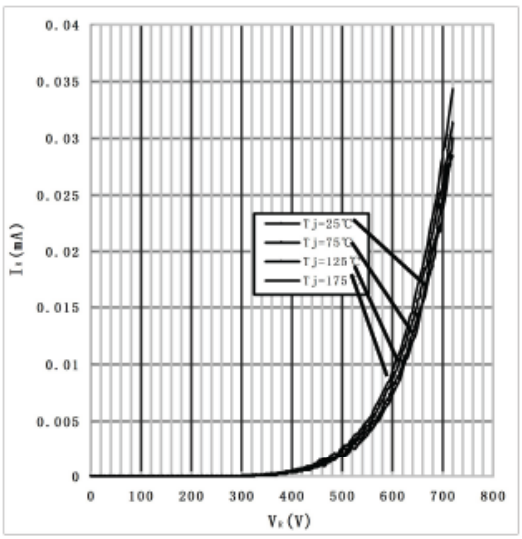
Electrical Characteristics (T_A = 25 °C unless otherwise specified)						
Parameter	**Conditions**	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
Forward Voltage	I_F=4A, T_j=25℃	V_F	-	1.55	1.7	V
	I_F=4A, T_j=175℃		-	2.2	2.5	
Reverse Current	V_R=650V, T_j=25℃	I_R	-	10	100	μA
	V_R=650V, T_j=175℃		-	20	200	
Total Capacitive Charge	V_R=400V, T_j=150℃ $Qc = \int_0^{VR} C(V)\,dV$	Q_C	-	11	-	nC
Total Capacitive Charge	V_R=0V, T_j=25℃, f=1MHZ	C	-	181	220	pF
	V_R=200V, T_j=25℃, f=1MHZ		-	22.5	25	
	V_R=400V, T_j=25℃, f=1MHZ		-	20.5	21	

Rating and Characteristics Curves

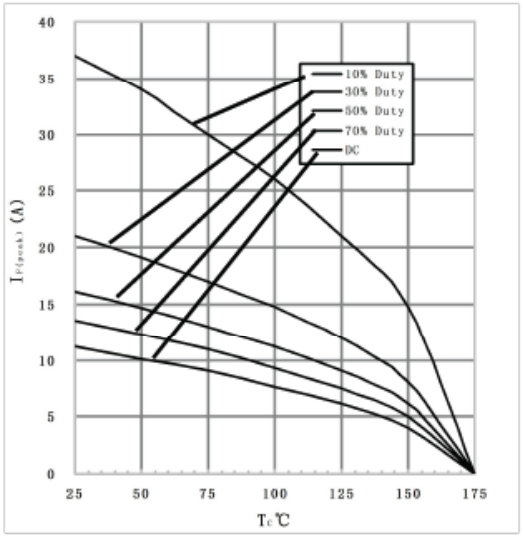
1) Forward IV characteristics as a function of Tj :



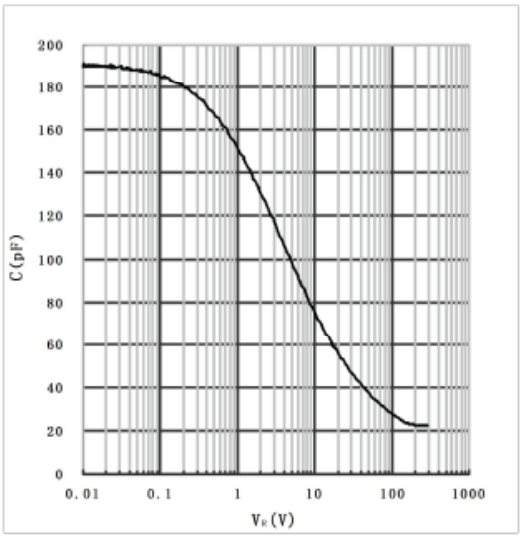
2) Reverse IV characteristics as a function of Tj :



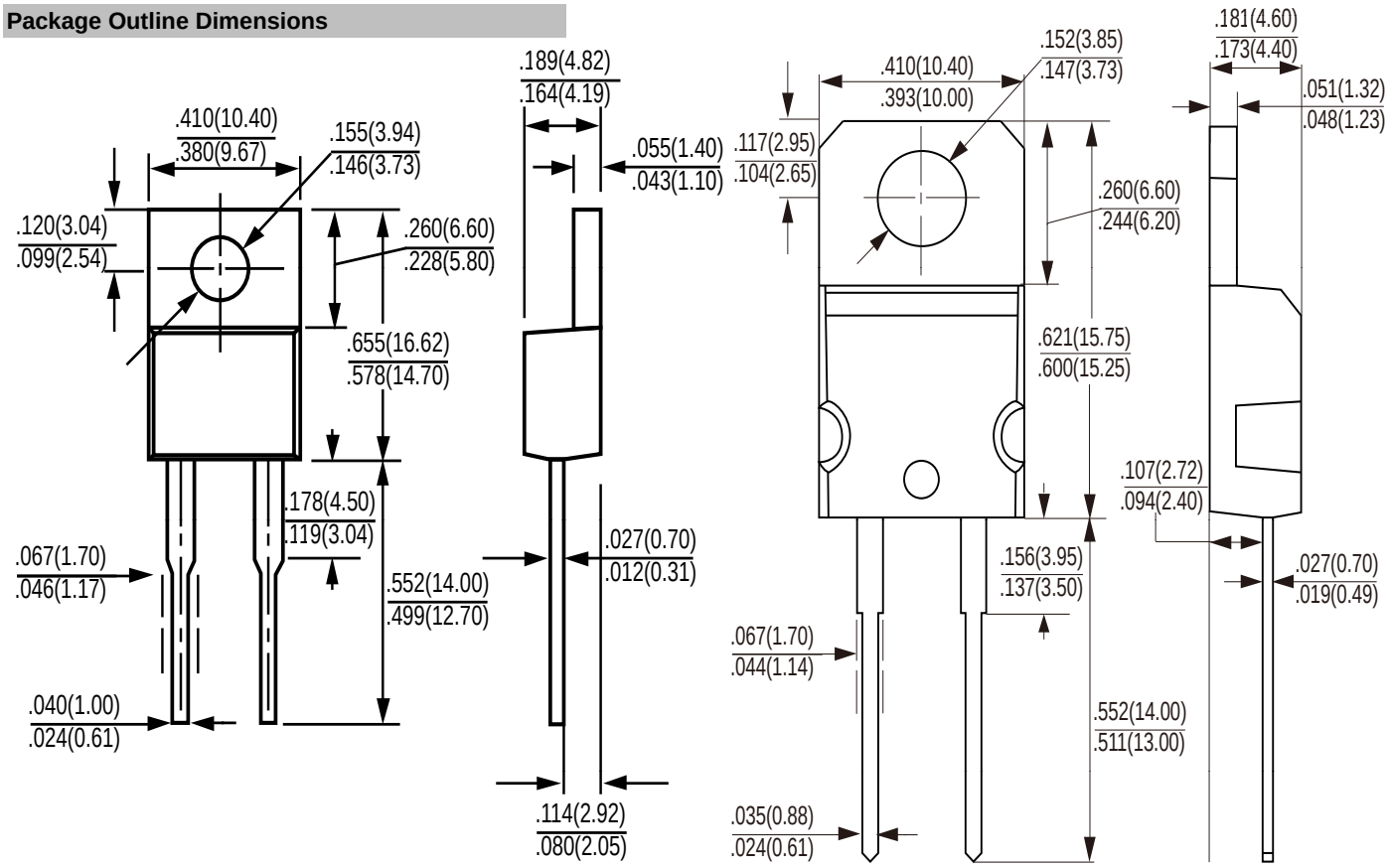
3) Current Derating



4)Capacitance vs. reverse voltage :



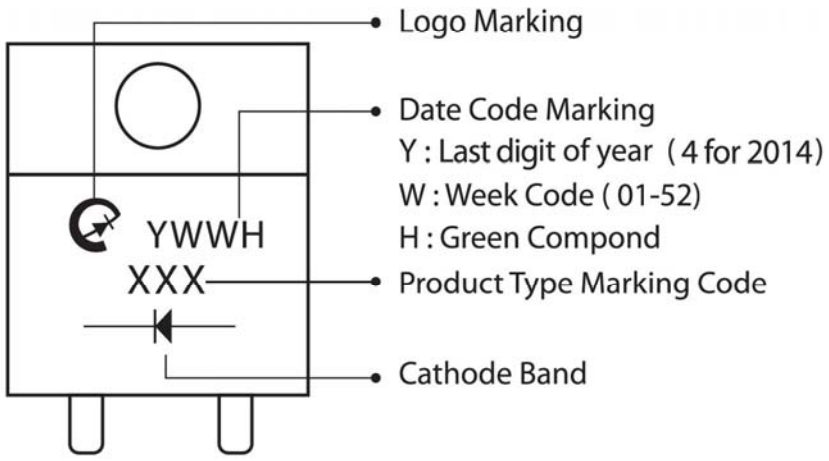
Package Outline Dimensions



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