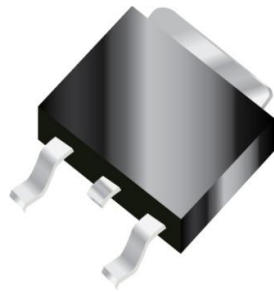




Silicon carbide power schottky diode



D2-PAK



Features
<ul style="list-style-type: none"> • 600-Volt Schottky Rectifier • Zero Reverse Recovery Current • Zero Forward Recovery Voltage • High-Frequency Operation • Temperature-Independent Switching Behavior • Extremely Fast Switching • Positive Temperature Coefficient on VF • Marking : ESIC0506SD

Benefits
<ul style="list-style-type: none"> • Replace Bipolar with Unipolar Rectifiers • Essentially No Switching Losses • Higher Efficiency • Reduction of Heat Sink Requirements • Parallel Devices Without Thermal Runaway

Ordering Information		
Part No.	Package	Packing
ESIC0506SD	D2-PAK	2500/ Tape & Reel

Application
<ul style="list-style-type: none"> • Switching power supply • Solar inverter • Uninterruptible power supply • Power factor correction • Motor drive

Absolute Maximum Ratings (T _A =25°C unless otherwise specified)				
Parameter	Conditions	Symbol	Limits	Unit
Repetitive Peak Reverse Voltage	T _j =25°C	V _{RRM}	600	V
Surge Peak Reverse Voltage	T _j =25°C	V _{RSM}	600	V
DC Blocking Voltage	T _j =25°C	V _{DC}	600	V
Continuous Forward Current	T _j =150°C	I _F	5	A
Repetitive Peak Forward Surge Current	T _C =25 °C , tp=10ms, Half Sine Wave, D=0.3	I _{FRM}	45	A
Non-Repetitive Peak Forward Surge Current	T _C =25 °C , tp=10ms, Half Sine Wave, D=0.3	I _{FSM}	75	A
Power Dissipation	T _C =25°C	P _{TOT}	90	W
	T _C =110°C		39	W
Reverse recovery time	I _F =5A, di/dt=200A/μs	T _{rr}	10	ns
Operating Junction and Storage Temperature		T _j · T _{stg}	-55~+175	°C
Typical Thermal Resistance form Junction to Case		R _{θJC}	1.67	°C/ W

Electrical Characteristics (T _A = 25 °C unless otherwise specified)						
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage	I _F =5A, T _j =25°C	V _F	-	1.35	1.8	V
	I _F =5A, T _j =175°C		-	1.75	2.4	
Reverse Current	V _R =600V, T _j =25°C	I _R	-	7.1	100	μA
	V _R =600V, T _j =175°C		-	15	200	
Total Capacitive Charge	V _R =600V, I _F =5A, di/dt=500A/us, T _j =25°C	Q _C	-	15	-	V
						μA
Total Capacitive Charge	V _R =0V, T _j =25°C, f=1MHZ	C	-	230	-	V
	V _R =200V, T _j =25°C, f=1MHZ		-	32	-	μA
	V _R =400V, T _j =25°C, f=1MHZ		-	30	-	μA



Rating and Characteristics Curves

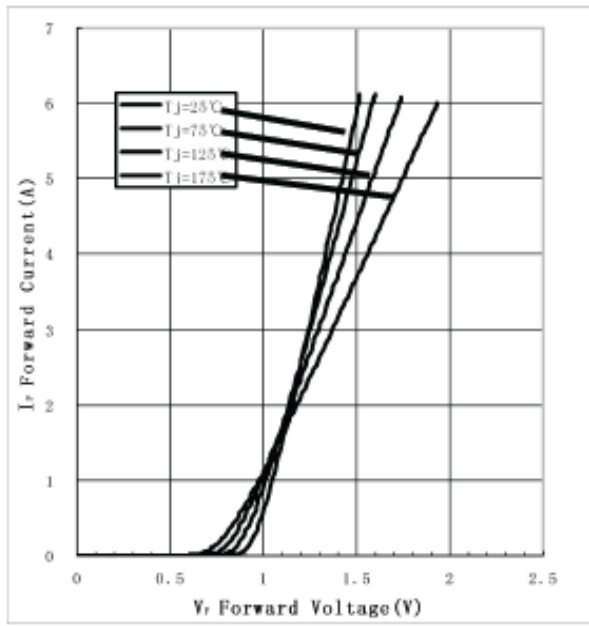


Figure 1. Forward Characteristics

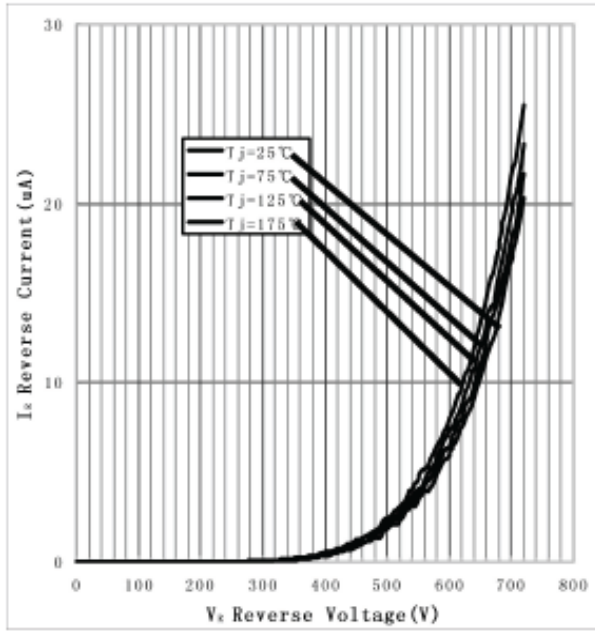


Figure 2. Reverse Characteristics

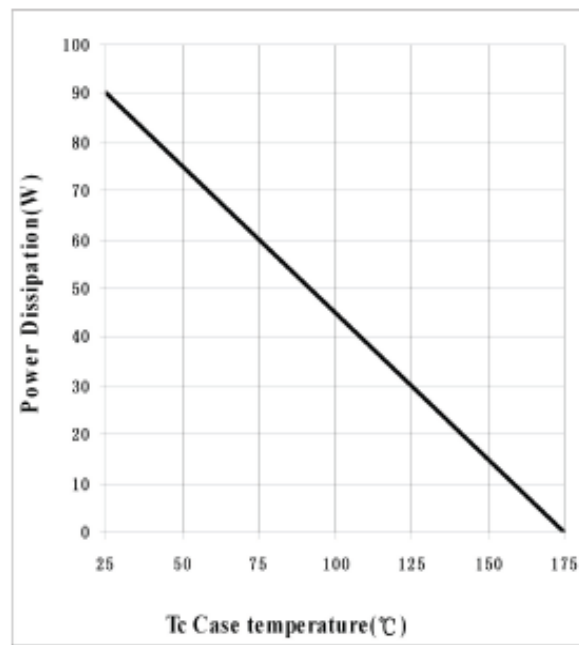
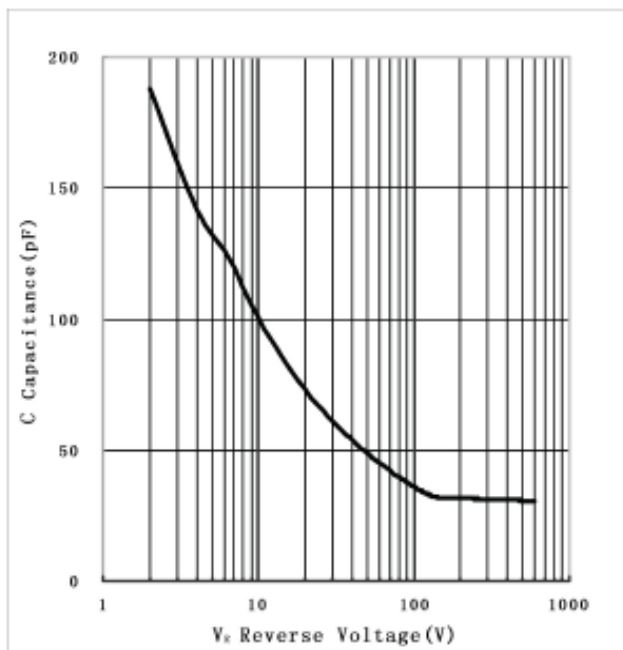


Figure 4. Power Derating

