



SPD10N65

Silicon Carbide Schottky Diode

DESCRIPTION

The SPD10N65 is silicon carbide Schottky diode which is fabricated using an advanced process. It delivers high level of performance and robustness in popular AC-DC applications. By providing high voltage and low V_F , these parts can be adopted quickly into new and existing offline power supply designs.

APPLICATIONS

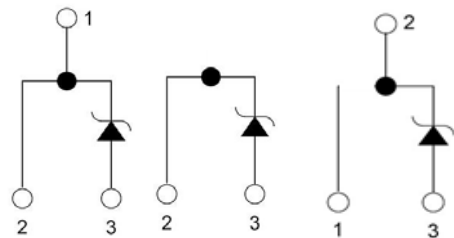
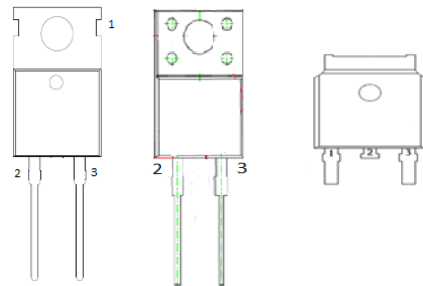
- AC/DC Switching Power Supply
- Server Power
- Motor Driver
- Solar Power
- PV Inverter/UPS

FEATURES

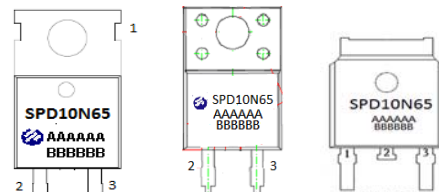
- ◆ 650V/32A, $V_F=1.75V@I_F=10A$
- ◆ High blocking voltage
- ◆ Zero forward/reverse recovery current
- ◆ High frequency operation
- ◆ Positive temperature coefficient on V_F
- ◆ TO-220-2L/TO-220F-2L/TO252 package design

PIN CONFIGURATION

TO-220 TO-220F TO252



PART MARKING



A : Lot Code
B : Date Code
(YY / MM / DD)

A: Lot Code
B: Date Code
(YYMMDD)

A : Lot Code
B : Date Code



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ORDERING INFORMATION

Part Number	Package	Part Marking
SPD10N65T252RGB	TO252	SPD10N65
SPD10N65T220TGB	TO-220-2	SPD10N65
SPD10N65T220FTGB	TO-220F-2	SPD10N65

- ※ SPD10N65T252TGB : Reel ; Pb – Free ; Halogen – Free
- ※ SPD10N65T220TGB : Tube ; Pb – Free ; Halogen – Free
- ※ SPD10N65T220FTGB : Tube ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Peak Reverse Surge Voltage	V_{RSM}	650	V
DC Blocking Voltage	V_R	650	V
Continuous Forward Current	I_F	Tc=25°C 32 16*	A
		Tc=135°C 14 7*	
		Tc=150°C 10 5*	
Non-repetitive Forward Surge Current	I_{FSM}	Tc=25°C, tp=10 ms, half Sine 65 50*	A
		Tc=150°C, tp=10 ms, half Sine 55 40*	
		Tc=25°C, tp=10 us, Square 520 400*	
Repetitive Forward Surge Current	I_{FRM}	Tc=25°C, tp=10 ms, Freq = 0.1Hz, 100 Cycles, half Sine 55 45*	A
		Tc=150°C, tp=10 ms, Freq = 0.1Hz, 100 Cycles, half Sine 45 40*	
Power Dissipation	P_D	94 38*	W
Operating Junction Temperature	T_J	-55/175	°C
Storage Temperature Range	T_{STG}	-55/175	°C
Thermal Resistance-Junction to Case	$R_{\theta JC}$	1.6 3.95*	°C/W

*For TO220F



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
DC Blocking Voltage	V _{DC}	I _R = 250uA, T _J = 25°C	650			V
Forward Voltage	V _F	I _F = 10A, T _J = 25°C		1.4	1.75	V
		I _F = 10A, T _J = 125°C		1.5		
		I _F = 10A, T _J = 175°C		1.7		
Reverse Current	I _R	V _R =650V, T _J =25°C		2	50	uA
		V _R =650V, T _J =125°C		6		
		V _R =650V, T _J =175°C		18		
Total Capacitive Charge	Q _C	V _R =400V, T _J =25°C		23		nC
Total Capacitance	C	V _R =1V, T _J =25°C, f=1MHz		395		pF
		V _R =200V, T _J =25°C, f=1MHz		43		
		V _R =400V, T _J =25°C, f=1MHz		32		



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TYPICAL CHARACTERISTICS

Figure 1. Forward Characteristics

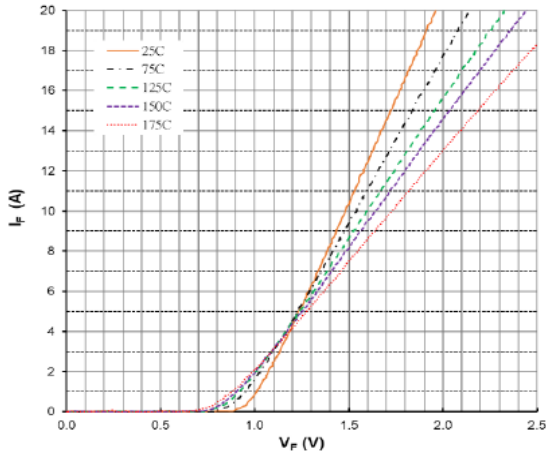


Figure 2. Forward Characteristics

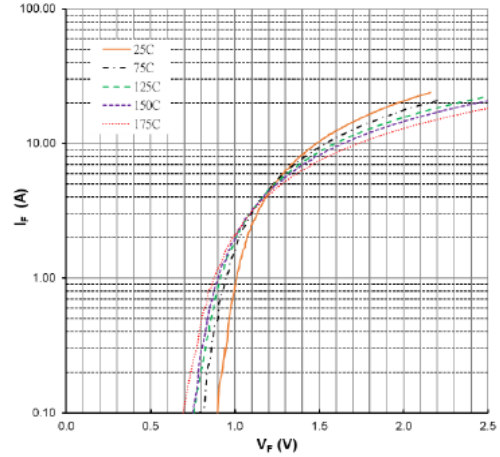


Figure 3. Reverse Characteristics

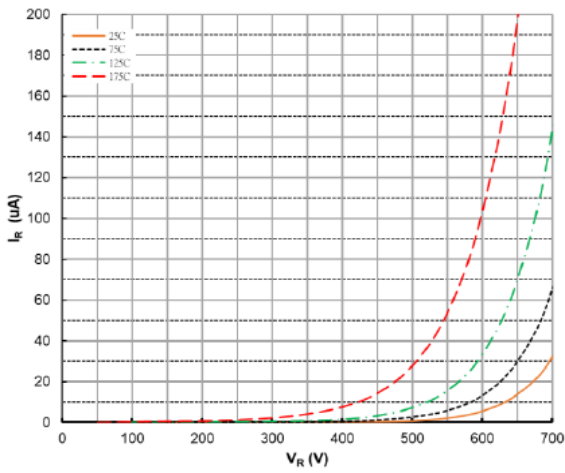


Figure 4. Power Derating

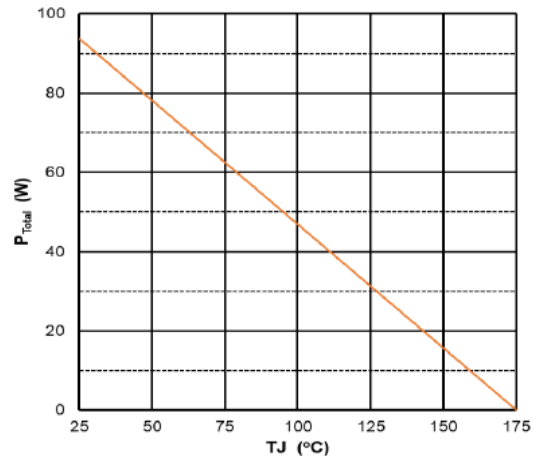


Figure 5. Capacitance vs Reverse Voltage

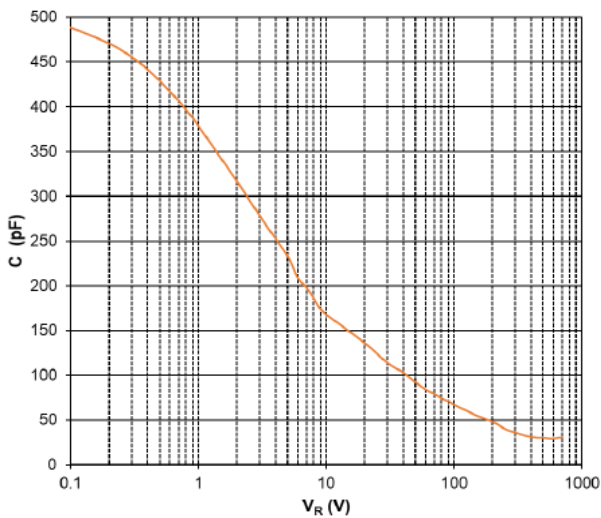
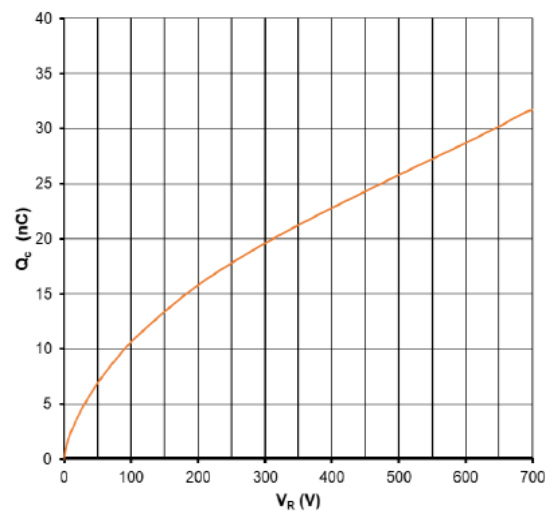


Figure 6. Recovery Charge vs Reverse Voltage

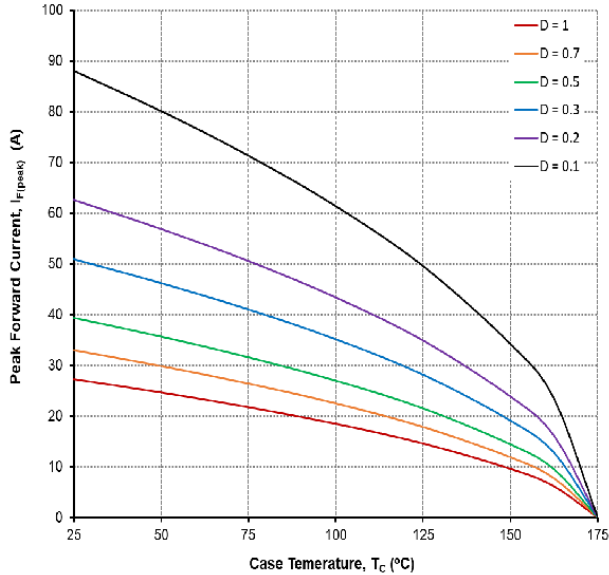




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Figure 7 Current De-rating



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