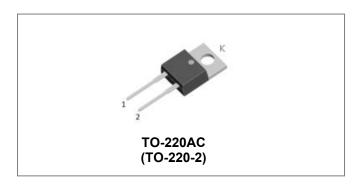






S3D60065A 650V SIC POWER SCHOTTKY RECTIFIER



Description

S3D60065A is a SiC Schottky rectifier packaged in TO-220AC(TO-220-2) case. The device is high voltage Schottky rectifier that has very low total conduction losses and very stable switching characteristics over temperature extremes. The S3D60065A is ideal for energy sensitive, high frequency applications in challenging environments.

Circuit Diagram



Features

- 175°C T_J operation
- Ultra-low switching loss
- . Switching speeds independent of operating temperature
- Low total conduction losses
- · High forward surge current capability
- High package isolation voltage
- Terminals finish: 100% Pure Tin
- "-A" is an AEC-Q101 qualified device
- Pb Free Device
- All SMC parts are traceable to the wafer lot
- Additional electrical and life testing can be performed upon request

Applications

- Alternative energy inverters
- Power Factor Correction (PFC)
- Free-Wheeling diodes
- Switching supply output rectification
- · Reverse polarity protection







Maximum Ratings

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _{DC}	-	650	V
Average Rectified Forward Current	I _{F (AV)1}	T _C =25°C	112	Α
Average Rectified Forward Current	I _{F (AV)2}	T _C =137°C	60	Α
	I _{FRM1}	10ms, Half Sine pulse, T _C =25°C	121	Α
Repetitive Peak Forward Surge Current	I _{FRM2}	10ms, Half Sine pulse, T _C =110°C	68	Α
	I _{FSM1}	10ms, Half Sine pulse, T _C =25°C	300	Α
Peak One Cycle Non-Repetitive Surge Current	I _{FSM2}	10ms, Half Sine pulse, T _C =110°C	209	Α

Electrical Characteristics:

Characteristics	Symbol	Condition	Тур.	Max.	Units
Forward Voltage Drop*	V _{F1}	@ 60A, Pulse, T _J = 25 °C	1.6	1.8	V
	V _{F2}	@ 60A, Pulse, T _J = 175 °C	1.95	2.2	V
Reverse Current at DC condition*	I _{R1}	$@V_R = \text{rated } V_R$ $T_J = 25 ^{\circ}\text{C}$	1	40	uA
Reverse Current *	I _{R2}	$@V_R = \text{rated } V_R$ $T_J = 175 ^{\circ}\text{C}$	10	60	uA
Junction Capacitance	Ст	V _R =0V, T _J =25°C,f=100MHz	3120	-	nF
Reverse Recovery Charge	Qc	$I_F = 60A$, di/dt = 200A/ μ s $V_R = 400 V$, $T_J = 25^{\circ}$ C	193.4	-	nC
Capacitance Stored Energy	Ec	V _R = 400 V, T _J =25°C	47.37	-	μJ

 $^{^*}$ Pulse width < 300 μ s, duty cycle < 2%

Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	Τ _J	-	-55 to +175	°C
Storage Temperature	T _{stg}	-	-55 to +175	°C
Typical Thermal Resistance Junction to Case	R ₀ JC	DC operation	0.74	°C/W

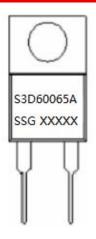
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Marking Diagram



Where XXXXX is YYWWL

S3D = Device Type A = Package type

60 = Forward Current (60A) 065 = Reverse Voltage (650V)

065 = Reverse Voltage (
SSG = SSG

YY = Year WW = Week L = Lot Number

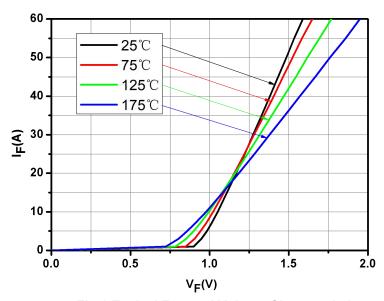
Cautions: Molding resin

Epoxy resin UL:94V-0

Ordering Information

Device Package		Shipping	
S3D60065A	TO-220AC(TO-220-2)	50pcs / tube	

Ratings and Characteristics Curves





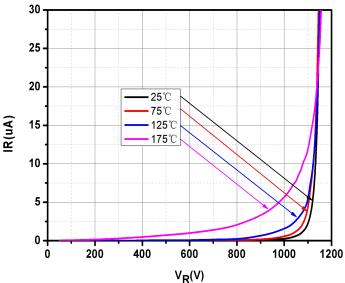


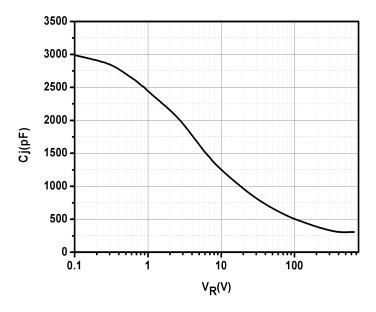
Fig.2-Typical Reverse Characteristics

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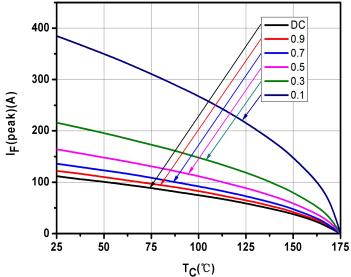
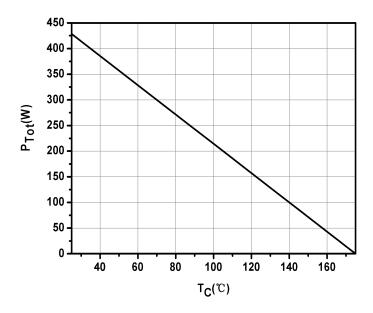


Fig.3-Capacitance vs. Reverse Voltage

Fig.4-Current Derating



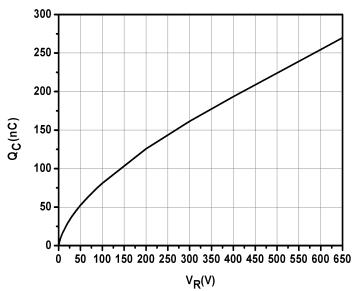


Fig.5-Power Derating

Fig.6-Total Capacitance Charge vs. Reverse Voltage

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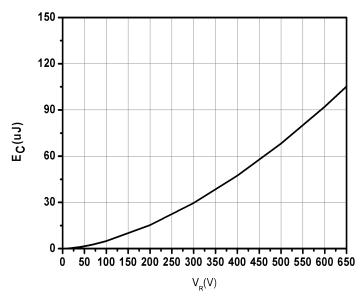


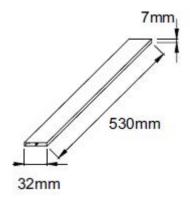
Fig.7-Capacitance Stored Energy





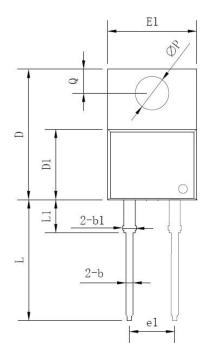


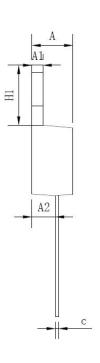
Tube Specification



TO-220AC(TO-220-2)

Mechanical Dimensions TO-220AC(TO-220-2)





Symbol	Dimensions in millimeters			
·	Min.	Typical	Max.	
Α	3.56	-	4.83	
A1	0.51	-	1.40	
A2	2.03	-	2.92	
b	0.38	-	1.02	
b1	1.14	-	1.78	
С	0.31	-	0.61	
D	14.22	ı	16.51	
D1	8.38	-	9.42	
E1	9.65	10.16	10.67	
e1	-	5.08	-	
H1	5.84	-	6.86	
L	12.70	-	14.73	
L1	-	-	6.35	
ФР	-	3.56	-	
Q	2.54	-	3.43	

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