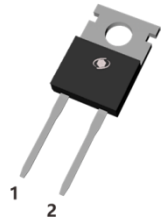
G3S06510A

Silicon Carbide Schottky Diode

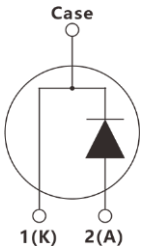
Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

V_{RRM}	650V
I_F (T_C = 153.5°C)	10A
Q_c	32nC



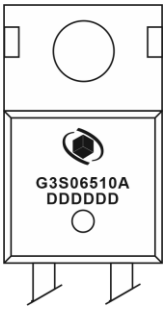
TO-220AC



Inner Circuit

Benefits

- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements



G = GPT
3 = Gen3
S = SiC Schottky Diode
065 = Voltage Rating 650V
10 = Current Rating 10A
A = TO-220AC
DDDDDD = Traceable Code

Applications

- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction

Maximum Ratings (at T_J = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
Continuous Forward Current T_C = 25°C T_C = 135°C T_C = 153.5°C	I_F	 32.1 14.8 10	A
Repetitive Peak Forward Surge Current T_C = 25°C, t_p = 10ms, Half Sine Pulse. D = 0.1, 1000Cycle	I_{FRM}	50	A
Non-Repetitive Forward Surge Current T_C = 25°C, t_p = 10ms, Half Sine Pulse	I_{FSM}	100	A
i^2t Value T_C = 25°C, t_p = 10ms, Half Sine Pulse	$\int i^2dt$	50	A^2s
Power Dissipation T_C = 25°C T_C = 110°C	P_{tot}	 115 50	W
Operating Junction Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{stg}	-55 to +175	°C
Mounting Torque, M3 Screw	M	1	Nm

Electrical Characteristics (at T_J = 25 °C, unless otherwise specified)

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
DC Blocking Voltage	V_{DC}		650	-	-	V
Forward Voltage	V_F	I_F = 10A T_J = 25°C T_J = 175°C	- -	1.39 1.66	1.7 2	V
Reverse Current	I_R	V_R = 650V T_J = 25°C T_J = 175°C	- -	0.35 2.4	50 100	μA
Total Capacitance	C	f = 1MHz V_R = 0V V_R = 200V V_R = 400V	- - -	617 62 61	- - -	pF
Total Capacitive Charge	Q_C	V_R = 400V T_J = 25°C	-	32	-	nC
Capacitance Stored Energy	E_C	V_R = 400V	-	8	-	uJ

Thermal Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
Thermal Resistance, junction-case	$R_{th(j-c)}$		-	1.3	-	°C/W

Typical Characteristics Curves

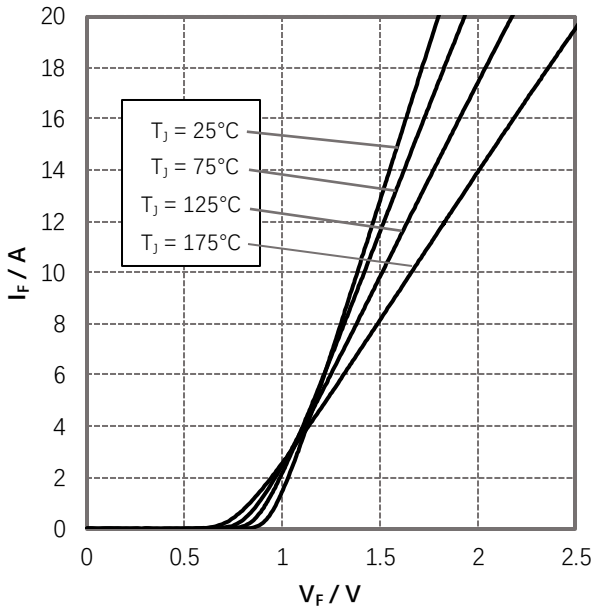


Figure 1. Forward Characteristics

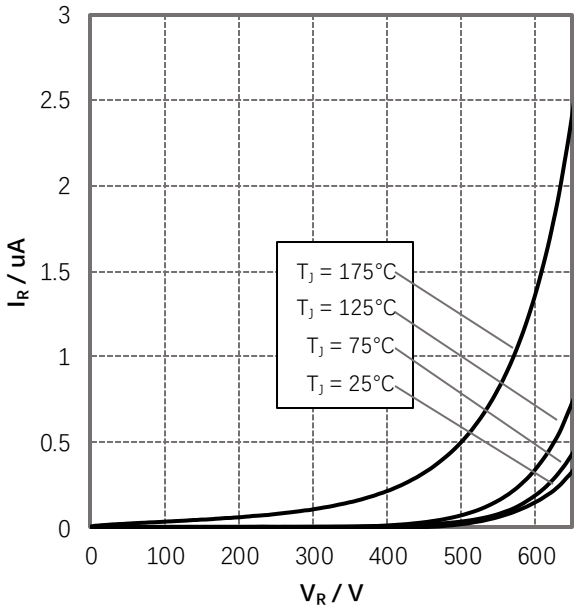


Figure 2. Reverse Characteristics

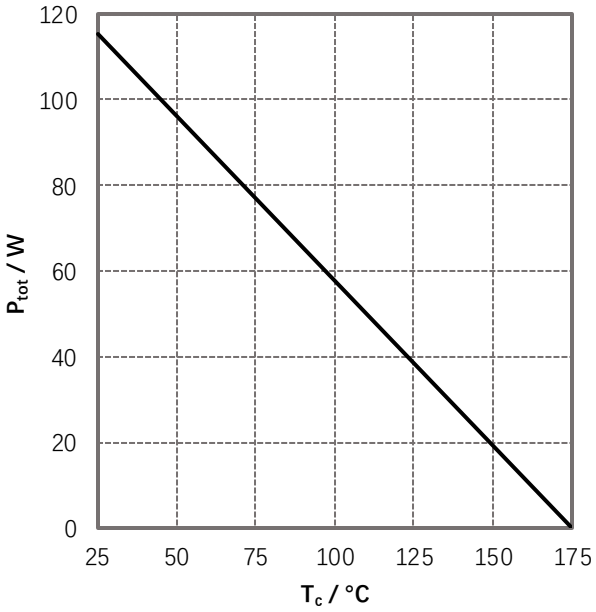


Figure 3. Power Derating

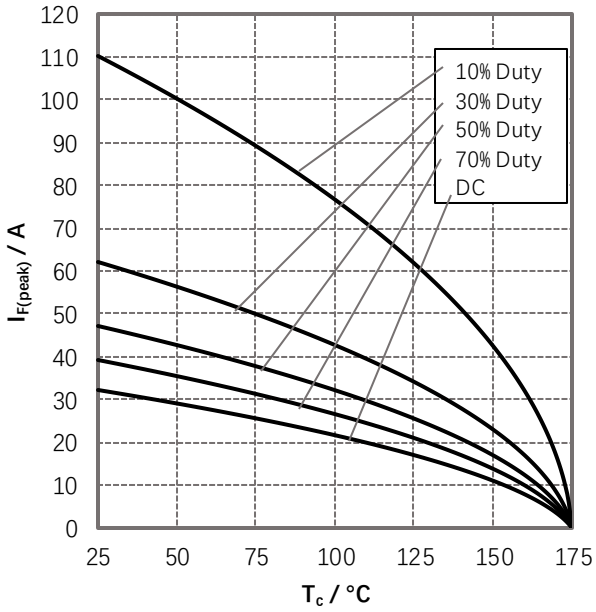


Figure 4. Current Derating
Valid for switching of above 20kHz, excluding D.C. curve

Typical Characteristics Curves

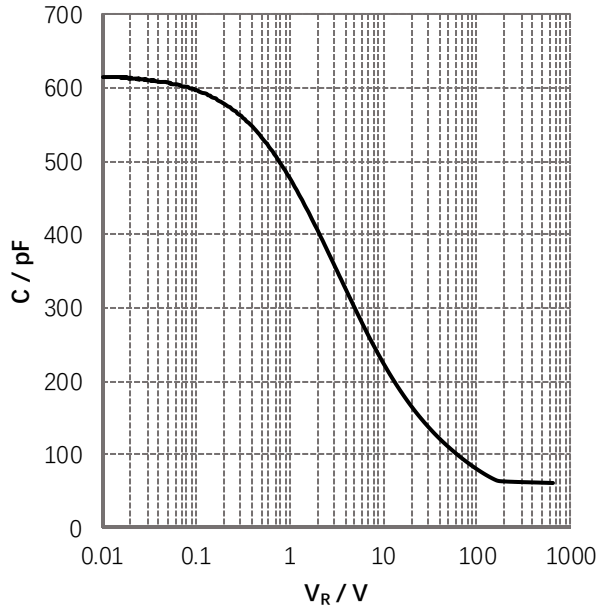


Figure 5. Capacitance vs. Reverse Voltage

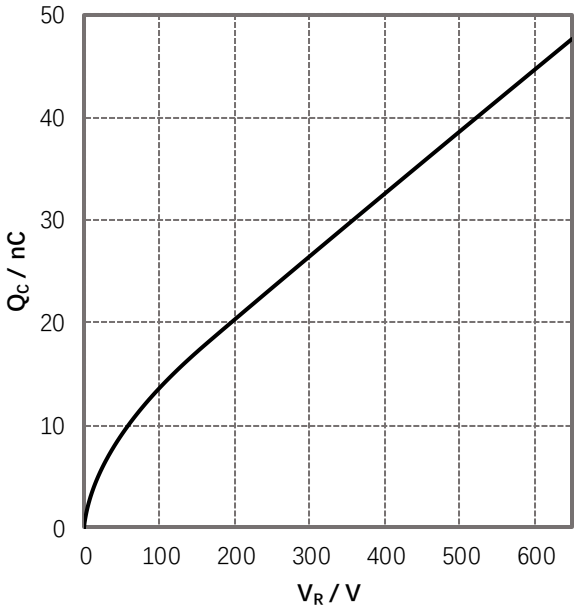


Figure 6. Reverse Charge vs. Reverse Voltage

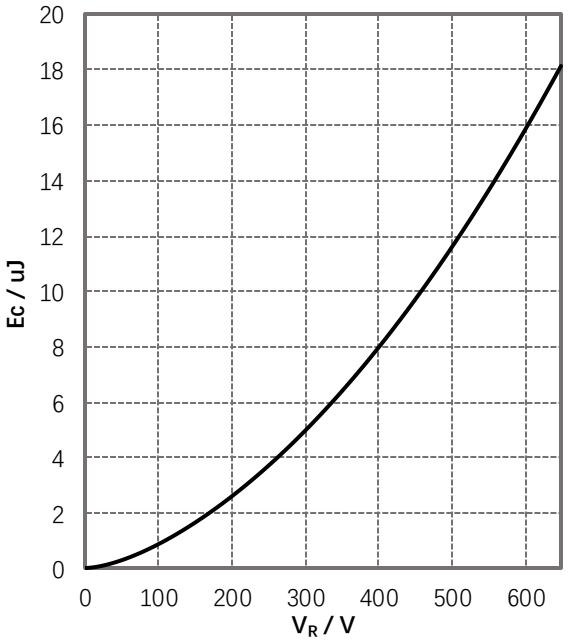


Figure 7. Capacitance Stored Energy

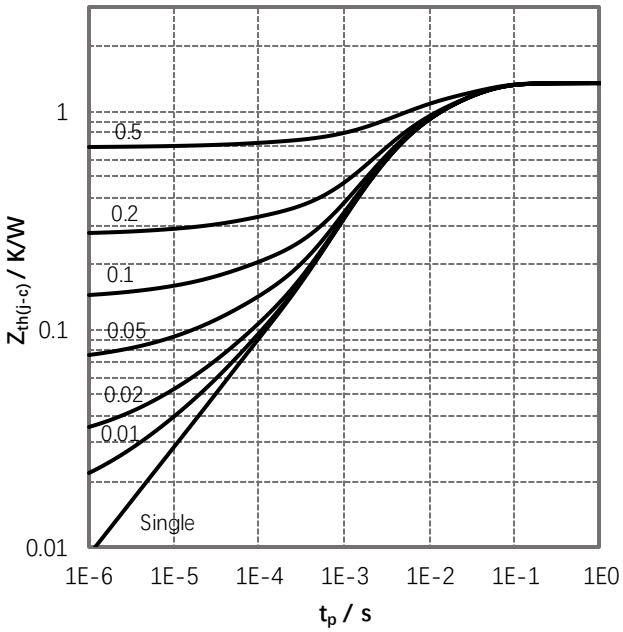
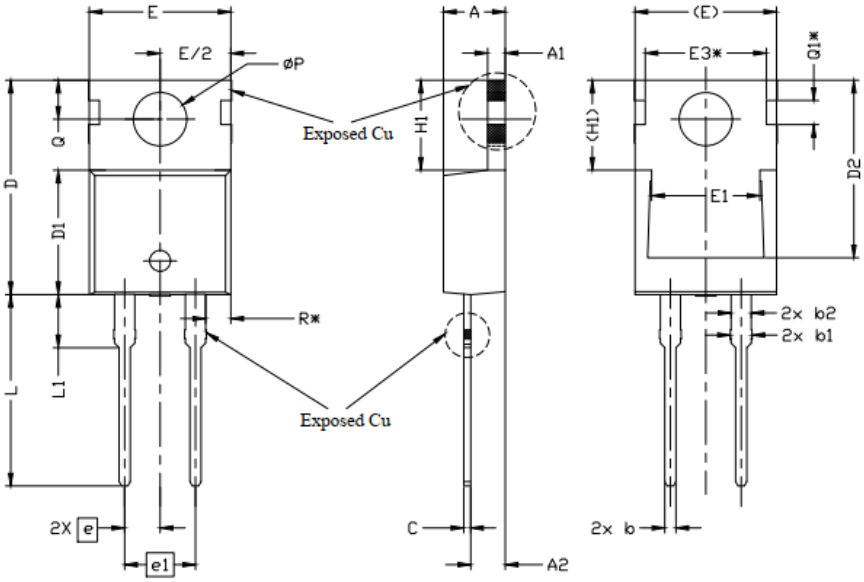


Figure 8. Transient Thermal Impedance

Package Dimensions



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.24	4.44	4.64	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.70	
b	0.70	0.80	0.90	
b1	1.20	1.55	1.75	
b2	1.20	1.45	1.70	
c	0.40	0.50	0.60	
D	14.70	15.37	16.00	4
D1	8.82	8.92	9.02	
D2	12.63	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.86	7.77	8.89	5
E3*	8.70REF.			
e	2.54BSC			
e1	5.08BSC			
H1	6.30	6.45	6.60	5,6
L	13.47	13.72	13.97	
L1	3.60	3.80	4.00	
øP	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

Note:
1. Package Reference: JEDEC TO220, Variation AB.
2. All Dimensions Are In mm.
3. Slot Required, Notch May Be Rounded
4. Dimension D & E Do Not Include Mold Flash. Mold Flash Shall Not Exceed 0.127mm Pre Side. These Dimensions Are Measured At The Outermost Extreme Of The Plastic Body.
5. Thermal Pad Contour Optional Within Dimensions E, H1, D2 & E1.
6. Dimension E2 & H1 Define A Zone Where Stamping And Singulation Irregularities Are Allowed.
7. "*" is reference .

Ordering Information

Part Number	Marking	Package	Packaging Mode
G3S06510A	G3S06510A	TO-220AC	50pcs/Tube

Notes

- Global Power Technology reserves the right to change or modify any of the products and their inherent physical and technical specifications without prior notice.
- The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics.

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