G4S06515HT

Silicon Carbide Schottky Diode

Features

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

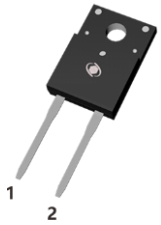
Benefits

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

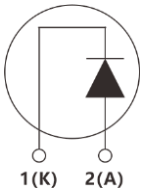
Applications

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

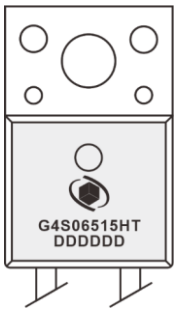
V_{RRM}	650V
I_F (T_C = 104.5°C)	15A
Q_c	32nC



TO-220F(SG)



Inner Circuit



G = GPT
4 = Gen4
S = SiC Schottky Diode
065 = Voltage Rating 650V
15 = Current Rating 15A
HT = TO-220F(SG)
DDDDDD = Traceable Code

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 = 104.5°C	I_F	 23.2 15	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}	 68 30	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 = 15A T_J = 25°C T_J = 175°C	- -	1.5 2.1	1.7 2.5	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	- - -	618 62 56	- - -	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	$R_{th(j-c)}$		-	2.2	-	°C/W

Typical Characteristics Curves

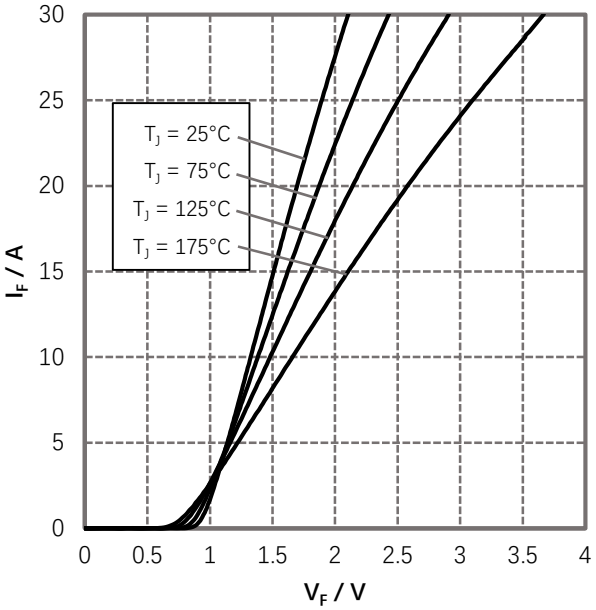


Figure 1. Forward Characteristics

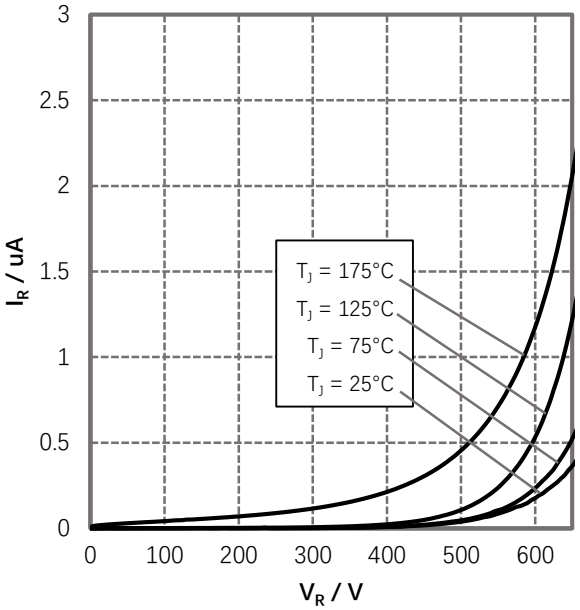


Figure 2. Reverse Characteristics

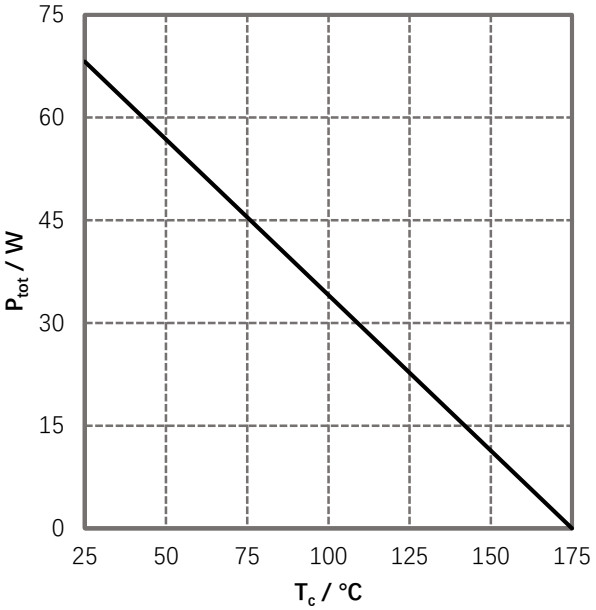


Figure 3. Power Derating

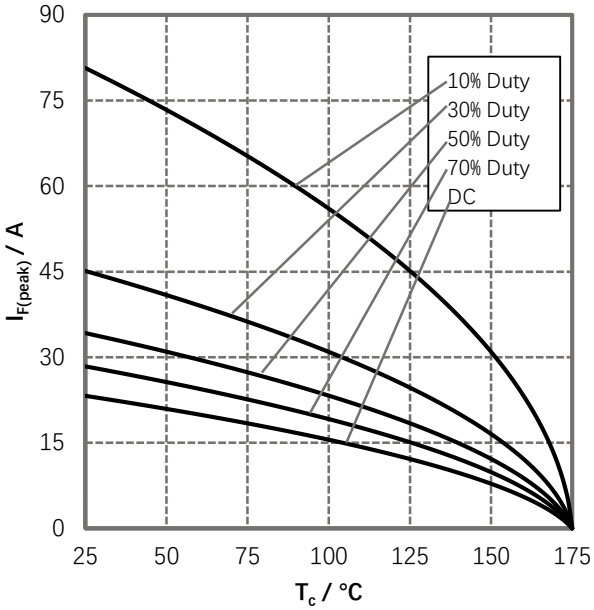


Figure 4. Current Derating
Valid for switching of above 20kHz,
excluding D.C. curve

Typical Characteristics Curves

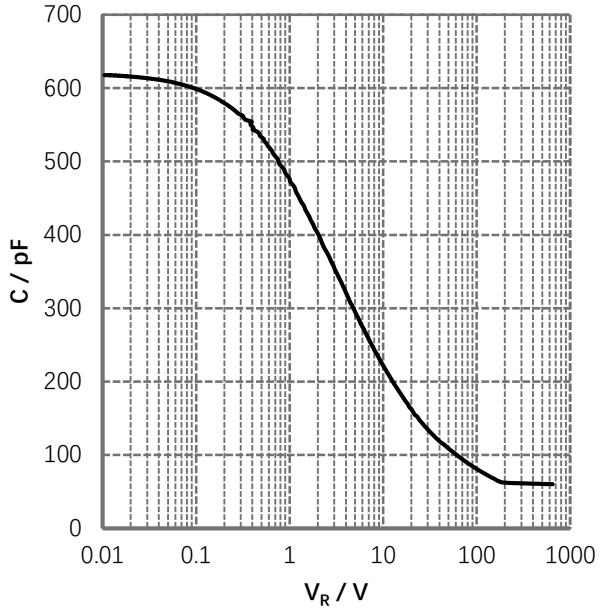


Figure 5. Capacitance vs. Reverse Voltage

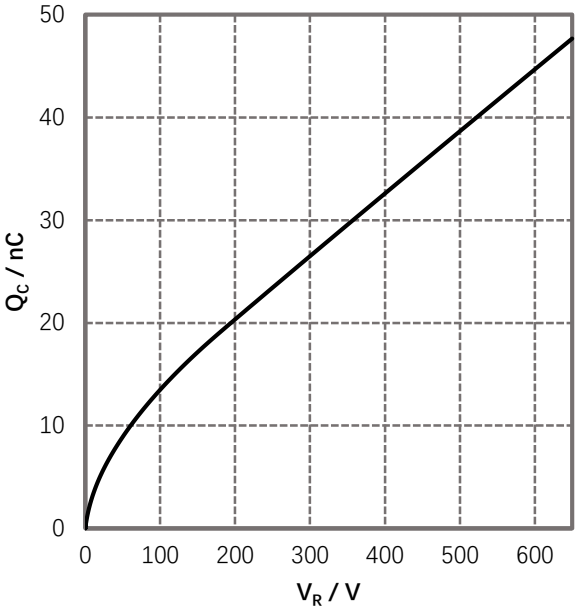


Figure 6. Reverse Charge vs. Reverse Voltage

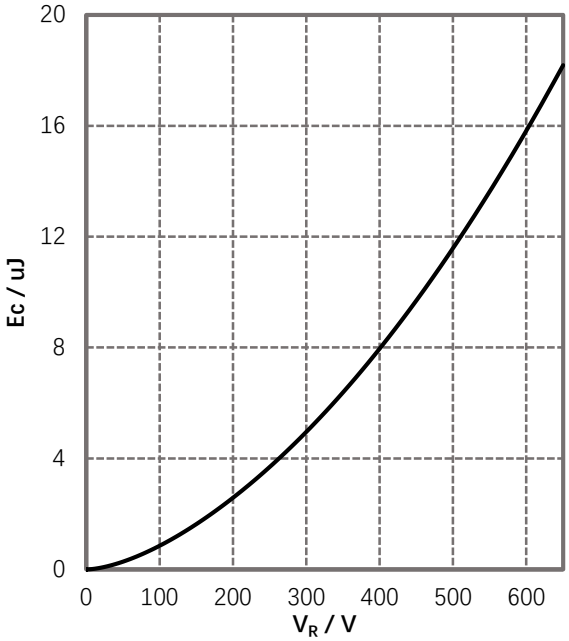


Figure 7. Capacitance Stored Energy

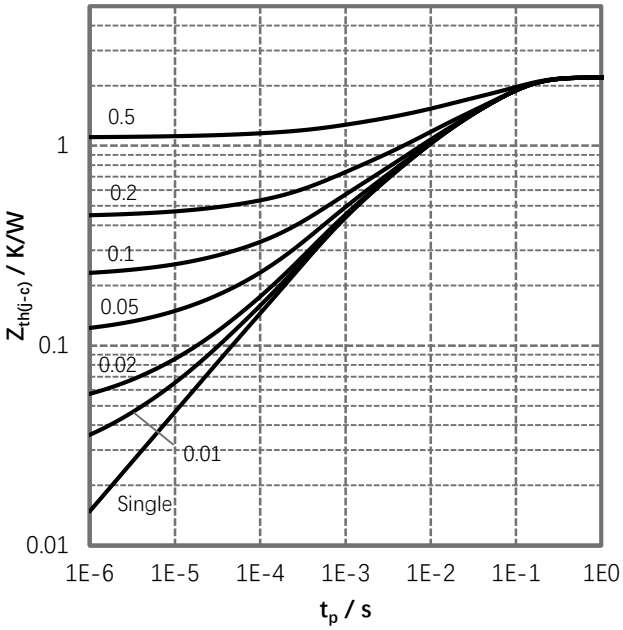
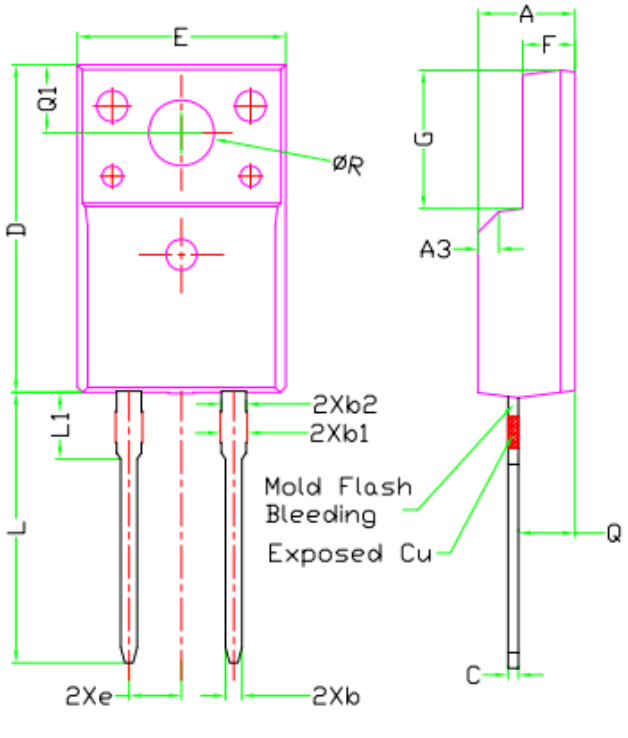
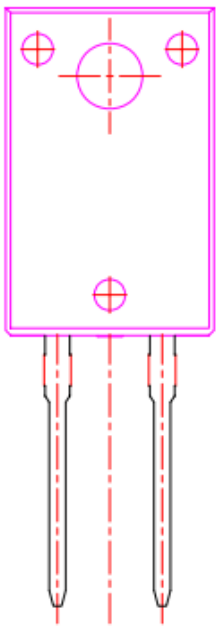


Figure 8. Transient Thermal Impedance

Package Dimensions





BOTTOM VIEW

SYMBOL	DIMENSIONS		
	Min.	Nom.	Max.
A	4.60	4.70	4.80
b	0.70	0.80	0.91
b1	1.20	1.30	1.47
b2	1.10	1.20	1.30
C	0.45	0.50	0.63
D	15.80	15.87	15.97
e		2.54	
E	10.00	10.10	10.30
F	2.44	2.54	2.64
G	6.50	6.70	6.90
L	12.90	13.10	13.30
L1	3.13	3.23	3.33
Q	2.65	2.75	2.85
Q1	3.20	3.30	3.40
ΦR	3.08	3.18	3.28

Note:
1. All Dimension Are In mm.
2. Package Body Sizes Exclude Mold Flash And Burrs Mold Flash Should Be Less Than 6 Mil.

Ordering Information

Part Number	Marking	Package	Packaging Mode
G4S06515HT	G4S06515HT	TO-220F(SG)	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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