

G3S06506H

650V/6A Silicon Carbide Power Schottky Barrier Diode

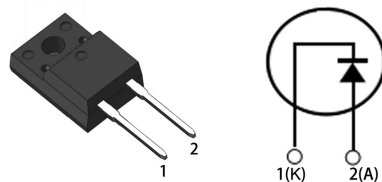
Features

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

Key Characteristics		
V_{RRM}	650	V
$I_F, T_c \leq 145^\circ\text{C}$	6	A
Q_C	21	nC

Benefits

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



Applications

- SMPS, e.g., CCM PFC;
- Motor drives, Solar application, UPS, Wind turbine, Rail traction, EV/HEV



Part No.	Package Type	Marking
G3S06506H	TO-220F	G3S06506H

Maximum Ratings

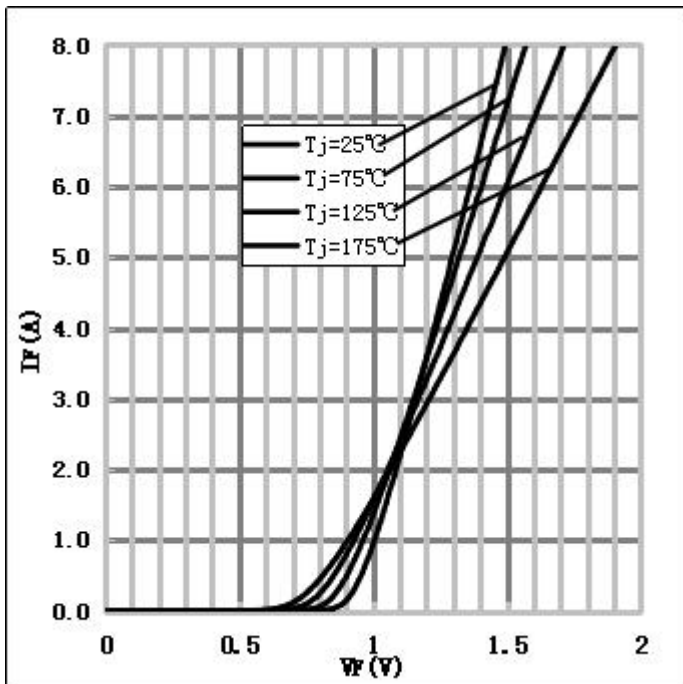
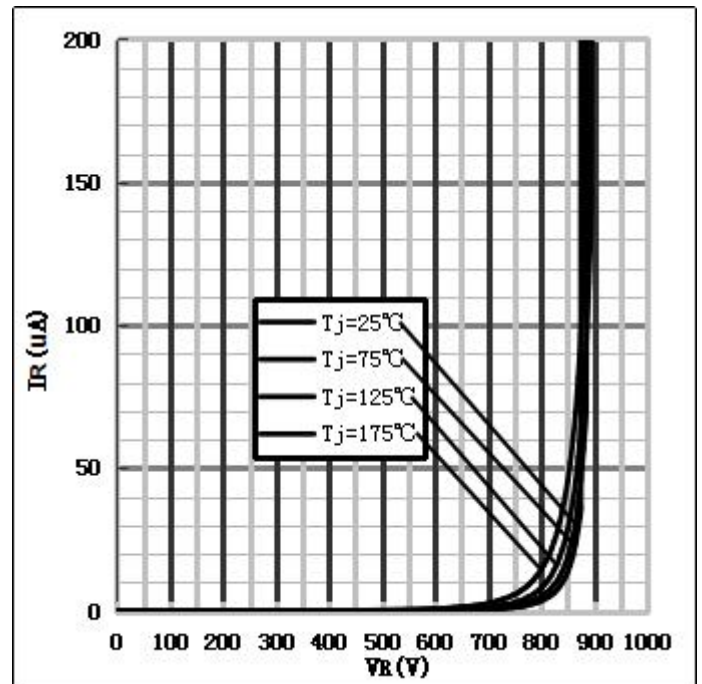
Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		650	V
Surge Peak Reverse Voltage	V_{RSM}		650	
DC Blocking Voltage	V_{DC}		650	
Continuous Forward Current	I_F	$T_C=25^{\circ}C$ $T_C=125^{\circ}C$ $T_C=145^{\circ}C$	16 8.4 6	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave, $D=0.3$	30	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave	72	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}C$	50	W
		$T_C=110^{\circ}C$	21	W
Operating Junction	T_j		-55°C to 175°C	°C
Storage Temperature	T_{stg}		-55°C to 175°C	°C
Mounting Torque		M3 Screw	1	Nm
		6-32 Screw	8.8	lbf-in

Thermal Characteristics

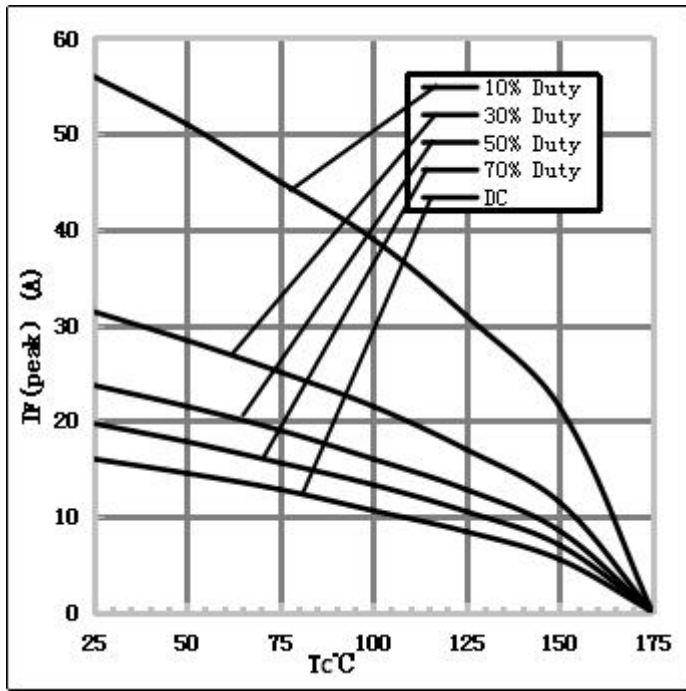
Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	R_{thJC}		3.03	°C/W

Electrical Characteristics

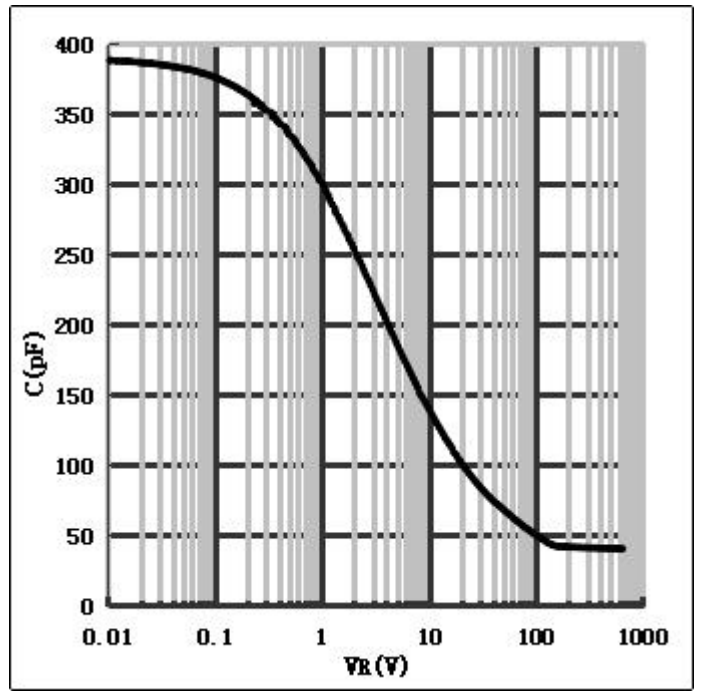
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	$I_F=6A, T_j=25^\circ C$	1.36	1.7	V
		$I_F=6A, T_j=175^\circ C$	1.63	2	
Reverse Current	I_R	$V_R=650V, T_j=25^\circ C$	0.3	50	μA
		$V_R=650V, T_j=175^\circ C$	1.2	100	
Total Capacitive Charge	Q_C	$V_R=400V, T_j=150^\circ C$ $Q_C = \int_0^{V_R} C(V)dV$	21	-	nC
Total Capacitance	C	$V_R=0V, T_j=25^\circ C, f=1MHz$	390	-	pF
		$V_R=200V, T_j=25^\circ C, f=1MHz$	42	-	
		$V_R=400V, T_j=25^\circ C, f=1MHz$	41	-	

Performance Graphs1) Forward IV characteristics as a function of T_j :2) Reverse IV characteristics as a function of T_j :

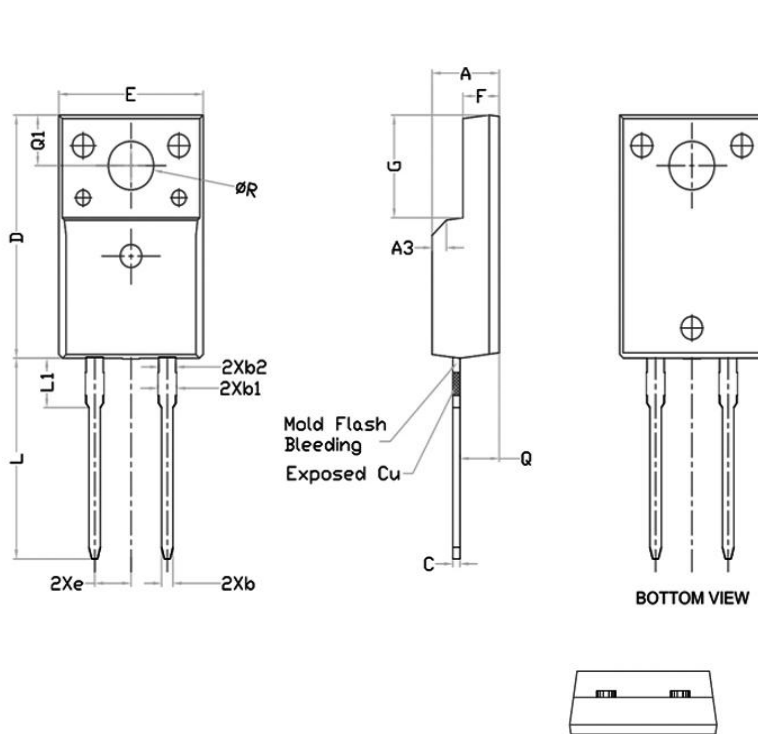
3) Current Derating:



4) Capacitance vs. reverse voltage:



Package TO-220F



单位 : mm

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.

WAFER DIAMETER	WAFER LOT
150 mm	(Up to 13 bit): LT*****, LE*****