FG3S06506C

650V,6A Silicon Carbide Schottky Diode

Features

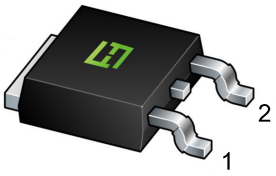
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current
- Halogen free, RoHs compliant

V_{RRM}	=	650	V
I_F (T_C=155℃)	=	6	A
Q_C	=	23	nC

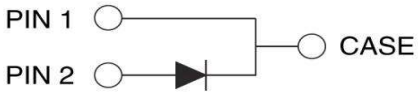
Benefits

- System efficiency improvement over Si diodes
- Higher switching frequency
- Increased power density
- Essentially no switching losses

Package



TO-252



Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- Motor drives
- UPS

Marking

Maximum Ratings (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Test conditions	Value	Unit
Repetitive peak reverse voltage	V_{RRM}		650	V
Non-repetitive peak reverse voltage	V_{RSM}		650	V
DC blocking voltage	V_{DC}		650	V
Continuous forward current	I_F	T_C=25℃ T_C=135℃ T_C=155℃	21.5 10 6	A
Repetitive forward surge current	I_{FRM}	T_C=25℃, tp=10ms，Half Sine Wave，D=0.3	40	A
Non-Repetitive forward surge current	I_{FSM}	T_C=25℃, tp=10ms，Half Sine Wave	80	A
Power dissipation	P_{TOT}	T_C=25℃	85.8	W
		T_C=110℃	37.2	W
Operating junction temperature	T_j		-55℃ to 175℃	℃
Storage temperature	T_{stg}		-55℃ to 175℃	℃
Mounting torque		M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

Thermal Characteristics

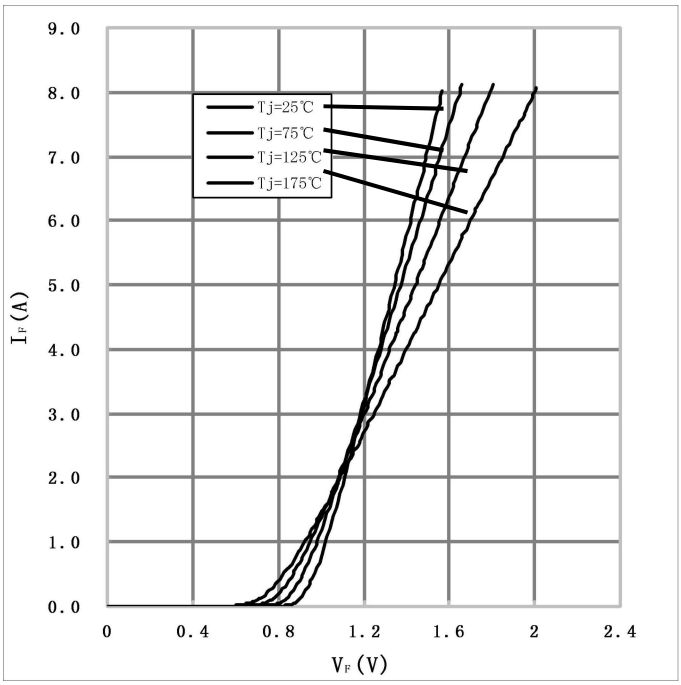
Parameter	Symbol	Test conditions	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{th\ JC}$		1.748	℃/W

Electrical Characteristics (T_j=25℃ unless otherwise noted)

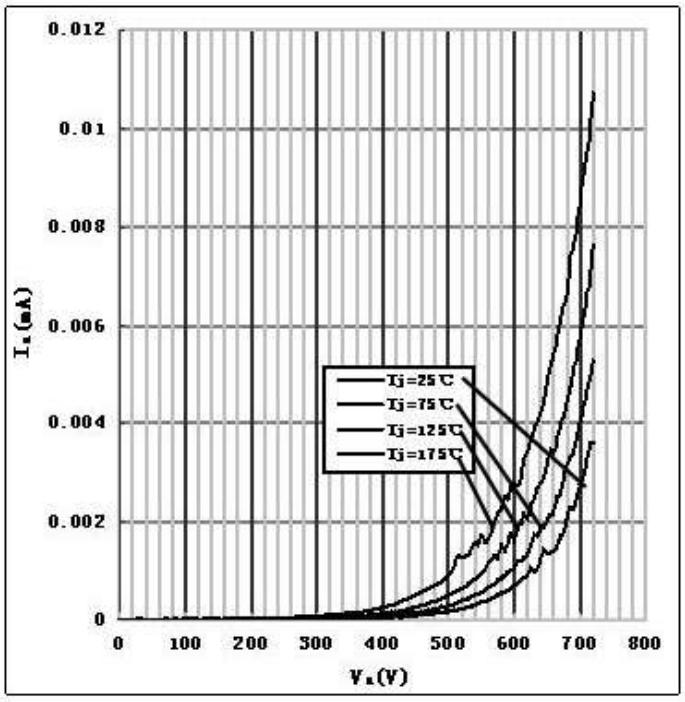
Parameter	Symbol	Test conditions	Value		Unit
			Typ.	Max.	
Diode forward voltage	V_F	I_F=6A, T_j=25℃	1.4	1.7	V
		I_F=6A, T_j=175℃	1.6	2.5	
Reverse current	I_R	V_R=650V, T_j=25℃	10	50	μA
		V_R=650V, T_j=175℃	20	100	
Total capactive charge	Q_C	V_R=400V, T_j=150℃ $Qc = \int_0^{VR} C(V)dV$	23	-	nC
Total capacitance	C	V_R=0V, T_j=25℃, f=1MHZ	424	434	pF
		V_R=200V, T_j=25℃, f=1MHZ	44	45	
		V_R=400V, T_j=25℃, f=1MHZ	42.5	43	

Typical Performance

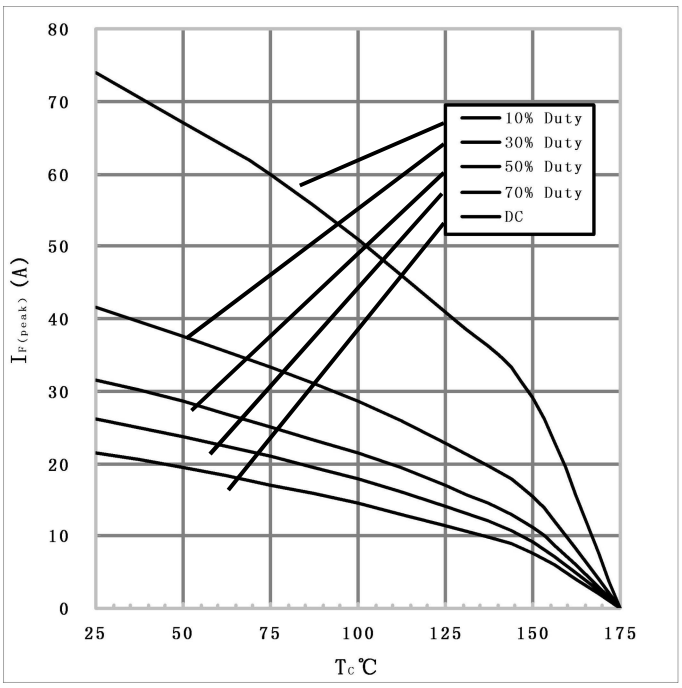
1) 典型正向特性
IF=f(VF)，结温 Tj 为参数



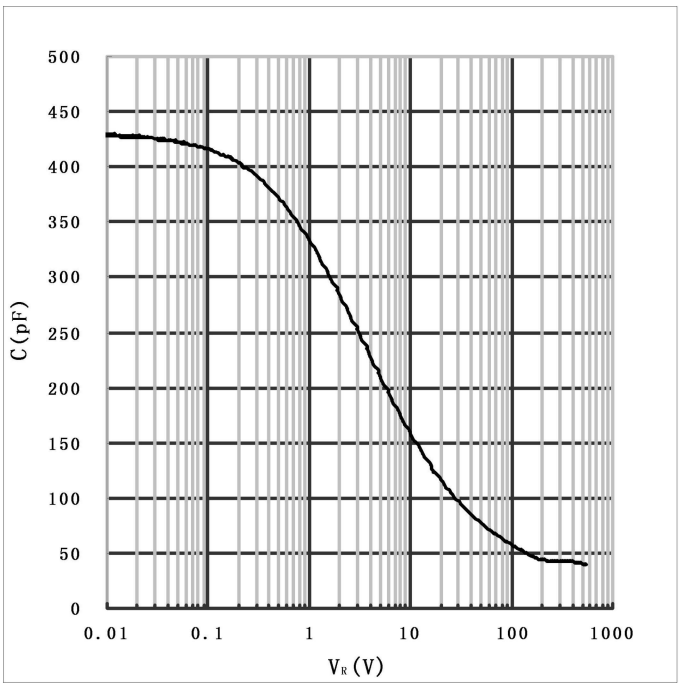
2)典型反向特性
$I_R=f(V_R)$，结温 T_j 为参数



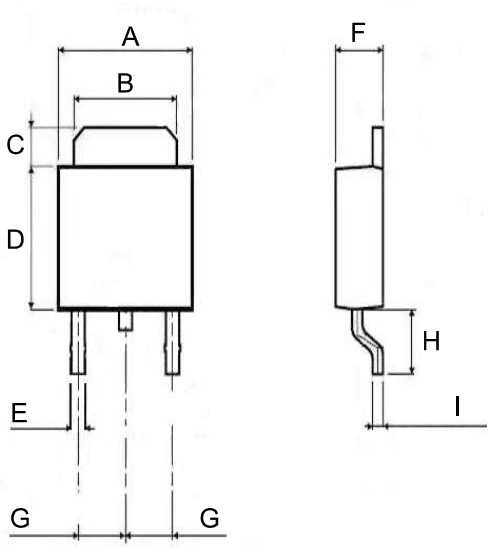
3) 不同负载下的电流（Current Derating）
（10%，30%，50%，70%，DC）



4)典型电容-反向电压曲线



TO-252 Package Information



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	6.30	6.60	6.73
B	5.21	5.34	5.46
C	0.89	1.08	1.27
D	6.00	6.12	6.23
E	0.64	0.76	0.88
F	2.20	2.30	2.40
G	-	2.286 BSC	-
H	-	2.743 REF	-
I	-	0.508 BSC	-