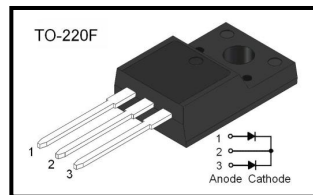


Features

- Reverse withstand voltage 650V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

Application

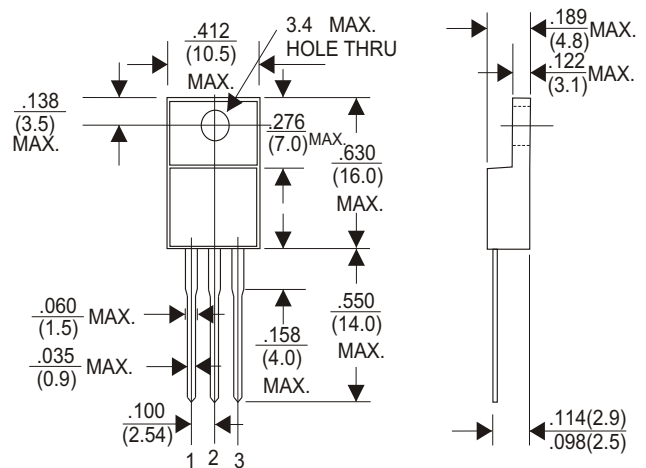
- Switching mode power supply, AC/DC converter
- Power factor correction
- Motor drive
- PV inverter and wind turbine



Advantages

- Very low switching loss
- Higher efficiency
- Low dependence of the system on the heat sink
- No thermal collapse in parallel devices

TO-220F (FULLY INSULATED)



Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	V_{RRM}		650	V
Working Peak Reverse voltage	V_{RWM}		650	V
DC Blocking Voltage	V_{DC}		650	V
Average rectified output current	$I_{F(AV)}$	$T_C = 25^\circ C$ $T_C = 125^\circ C$ $T_C = 150^\circ C$	13.5 6 4	A
Forward repetitive peak current	I_{FRM}	$T_C = 25^\circ C, t_p = 10ms, \text{Half Sine Wave}$ $T_C = 110^\circ C, t_p = 10ms, \text{Half Sine Wave}$	17 12	A
Forward surge current	I_{FSM}	$T_C = 25^\circ C, t_p = 10ms, \text{Half Sine Wave}$ $T_C = 110^\circ C, t_p = 10ms, \text{Half Sine Wave}$	30.5 20	A
Power dissipation	P_{tot}	$T_C = 25^\circ C$ $T_C = 110^\circ C$	60 24	W
Junction temperature	T_j		-55 ~ +175	°C
Storage temperature	T_{stg}		-55 ~ +175	°C

GK08D650FT

Electrical Characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V _F	I _F = 4 A, T _j =25°C I _F = 4 A, T _j =175°C		1.4 1.57	1.7 2.4	V
Reverse current	I _R	V _R = 650V, T _j =25°C V _R = 650V, T _j =175°C		6 12	30 120	μA
Total capacitive charge	Q _C	V _R = 400V, I _F = 8 A di/dt=500A/μs, T _j =25°C		10		nC
Total capacitance	C	V _R = 0V, T _j =25°C, f=1MHz V _R = 200V, T _j =25°C, f=1MHz V _R = 400V, T _j =25°C, f=1MHz		231 18.5 15		pF
Capacitance stored energy	E _C	V _R = 400V		1.4		μJ

Thermal characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance - Junction to Case	R _{θJC}	3.6	°C/W

RATING AND CHARACTERISTIC CURVES (GK08D650FT)

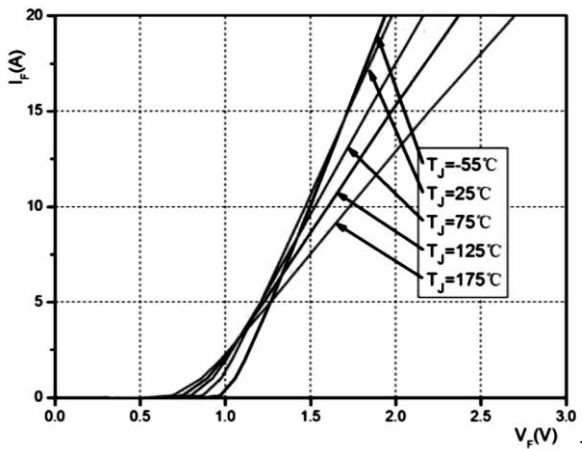


Figure 1. Forward Characteristics

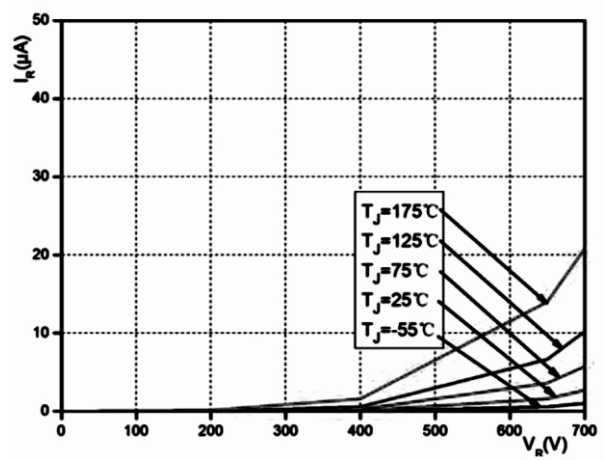


Figure 2. Reverse Characteristics

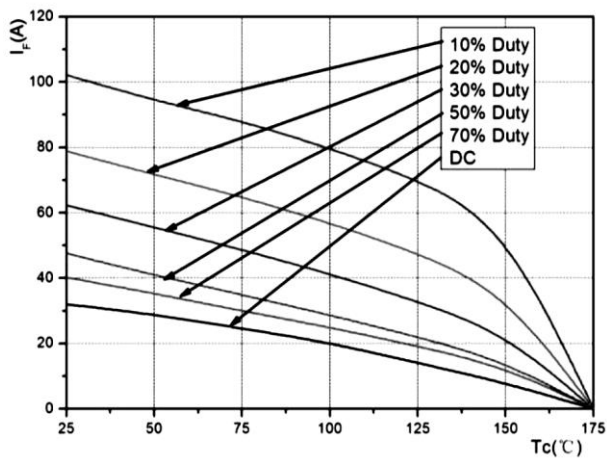


Figure 3. Load current

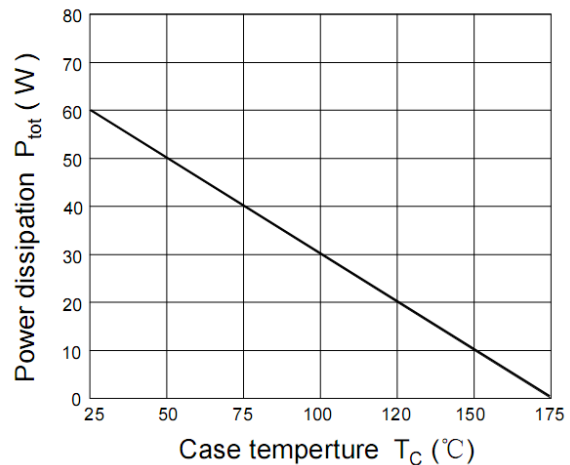


Figure 4. Dissipated power curve

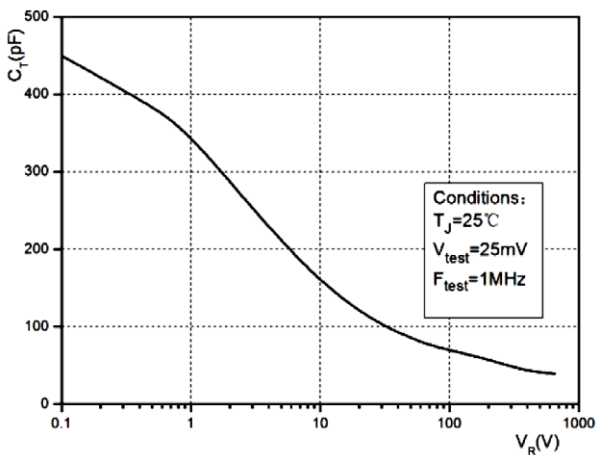


Figure 5. Capacitance vs reverse voltage

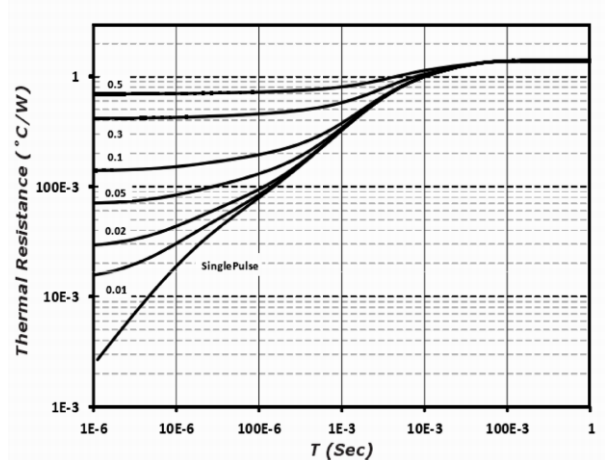


Figure 6. Thermal Impedance Junction-to-Case