

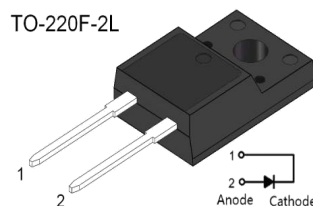
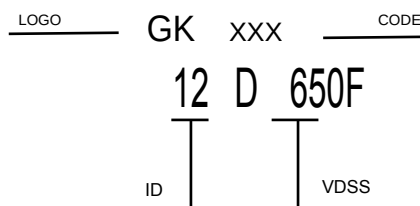
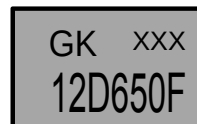
Features

- 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

V_{RRM} 650 V
 I_F 12 A
 Q_C 38 nC



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

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	$I_{F(AV)}$	$T_C=25^\circ\text{C}$ $T_C=125^\circ\text{C}$ $T_C=150^\circ\text{C}$	42 22 12	A
Forward repetitive peak current	I_{FRM}	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave $T_C=110^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	65 46	A
Forward surge current	I_{FSM}	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave $T_C=110^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	75 61	A
Power dissipation	P_{tot}	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$	60 26	W
Junction temperature	T_j		-55 ~ +175	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 ~ +175	$^\circ\text{C}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 12\text{ A}$, $T_J=25^{\circ}\text{C}$ $I_F = 12\text{ A}$, $T_J=175^{\circ}\text{C}$		1.5 1.8	1.8 2.2	V
Reverse current	I_R	$V_R = 650\text{V}$, $T_J=25^{\circ}\text{C}$ $V_R = 650\text{V}$, $T_J=175^{\circ}\text{C}$		2 10	50 200	μA
Total capacitive charge	Q_C	$V_R = 400\text{V}$, $I_F = 10\text{A}$ $di/dt=500\text{A}/\mu\text{s}$, $T_J=25^{\circ}\text{C}$		38		nC
Total capacitance	C	$V_R = 0\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$ $V_R = 200\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$ $V_R = 400\text{V}$, $T_J=25^{\circ}\text{C}$, $f=1\text{MHz}$		683 88 82		pF

Thermal characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$		2.5		$^{\circ}\text{C}/\text{W}$

RATING AND CHARACTERISTIC CURVES

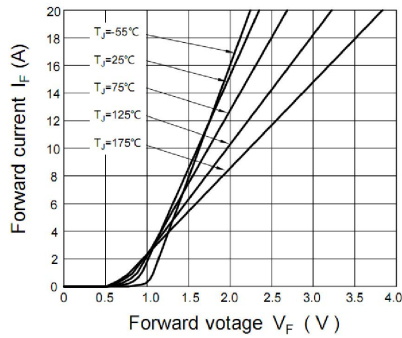


Figure 1. Forward Characteristics

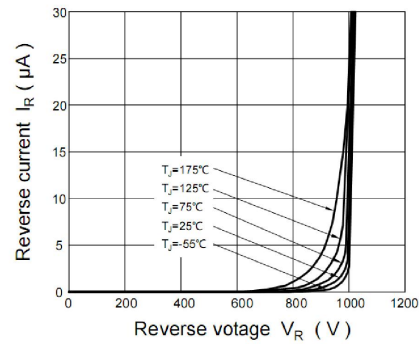


Figure 2. Reverse Characteristics

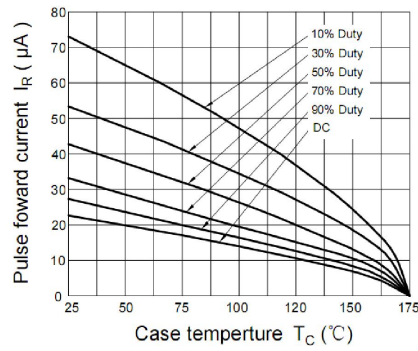


Figure 3. Current Derating

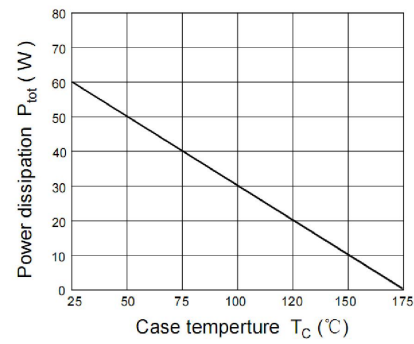


Figure 4. Power Derating

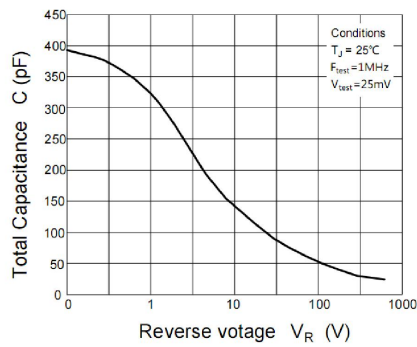


Figure 5. Capacitance vs reverse voltage

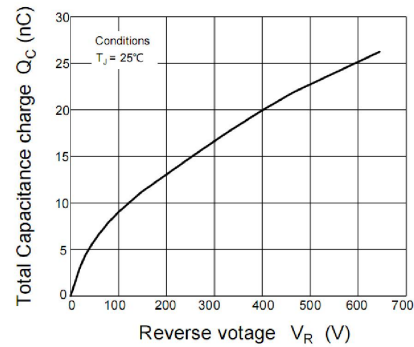


Figure 6. Recovery Charge vs Reverse Voltage

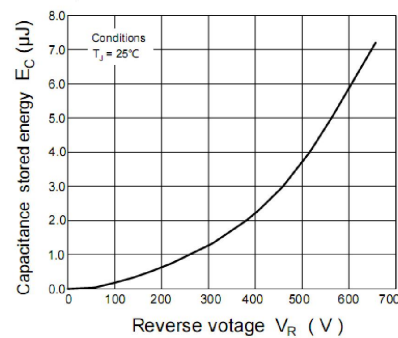


Figure 7. Capacitance stored Energy

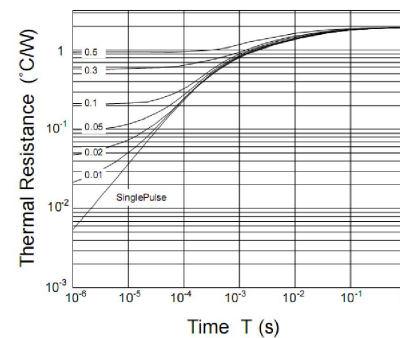
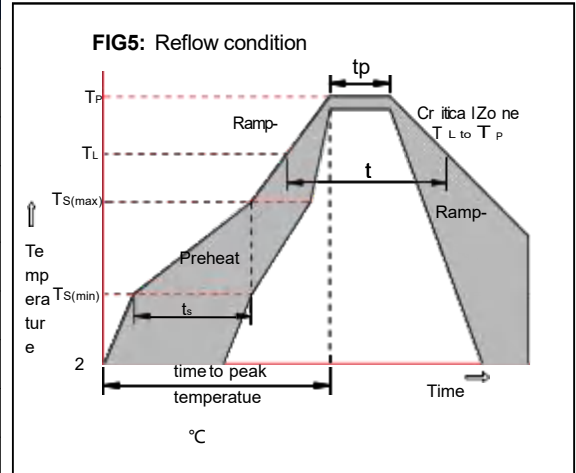


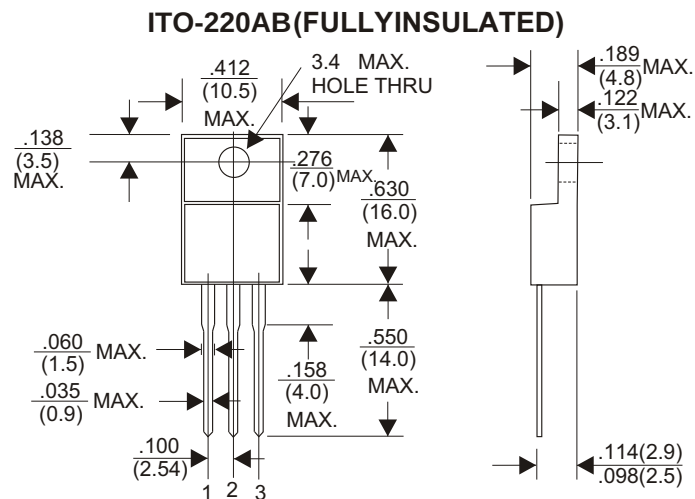
Figure 8. Thermal Impedance

Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout



Dimensions in inches and (millimeters)