

Features

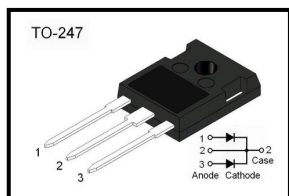
- Reverse withstand voltage 600V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

Application

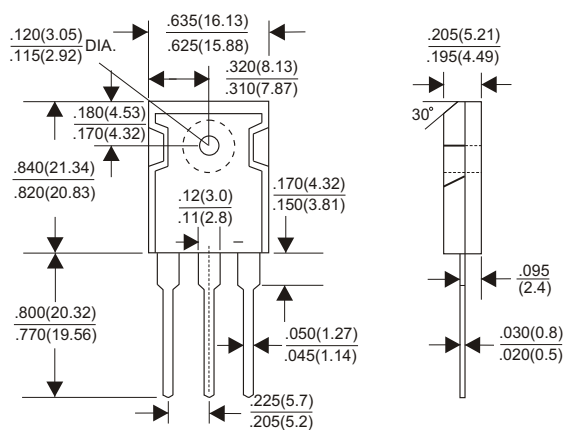
- Switching mode power supply, AC/DC converter
- Power factor correction
- Motor drive
- PV inverter and wind turbine

Advantages

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



TO-247



Dimensions in inches and (millimeters)

Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	V_{RRM}		600	V
Working peak reverse voltage	V_{RWM}		600	V
DC blocking voltage	V_{DC}		600	V
Continuous forward current	$I_{F(AV)}$	$T_C=25^{\circ}C$ $T_C=125^{\circ}C$ $T_C=150^{\circ}C$	29.5/59 14/28 10/20	A
Repetitive peak forward surge current	I_{FRM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave $T_C=110^{\circ}C$, $t_p=10ms$, Half Sine Wave	67/134 44/88	A
Non-repetitive peak forward surge current	I_{FSM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave $T_C=110^{\circ}C$, $t_p=10ms$, Half Sine Wave	90/157 71/115	A
Power dissipation	P_{tot}	$T_C=25^{\circ}C$ $T_C=125^{\circ}C$	118 59	W
Junction temperature	T_j		-55 ~ +175	°C
Storage temperature	T_{stg}		-55 ~ +175	°C
Mounting torque	M_T	M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

GK20D600D

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 10A, T_j = 25^\circ C$ $I_F = 10A, T_j = 175^\circ C$		1.5 2.0	1.8 2.4	V
Reverse current	I_R	$V_R = 600V, T_j = 25^\circ C$ $V_R = 600V, T_j = 175^\circ C$		10 20	50 200	μA
Total capacitive charge	Q_C	$V_R = 600V, I_F = 10 A$ $di/dt = 500A/\mu s, T_j = 25^\circ C$		25		nC
Total capacitance	C	$V_R = 0V, T_j = 25^\circ C, f = 1MHz$ $V_R = 200V, T_j = 25^\circ C, f = 1MHz$ $V_R = 400V, T_j = 25^\circ C, f = 1MHz$		480 50 42		pF
Capacitance stored energy	E_C	$V_R = 400V$		4.9		μJ

Thermal characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance - junction to case	$R_{\theta JC}$	1.1** 0.55*	$^\circ C/W$

RATING AND CHARACTERISTIC CURVES (GK20D600D)

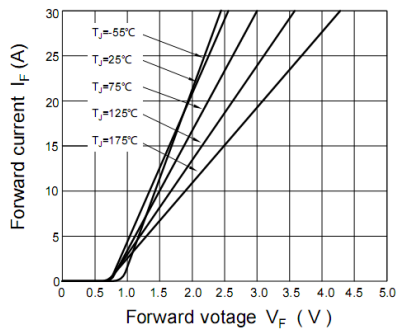


Figure 1. Forward Characteristics

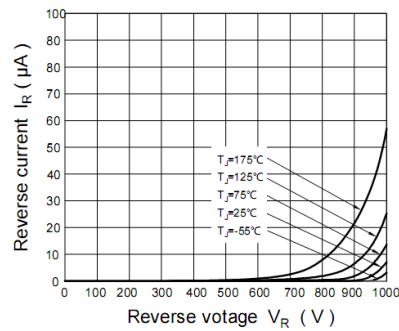


Figure 2. Reverse Characteristics

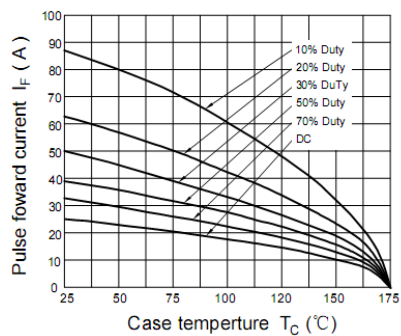


Figure 3. Current Derating

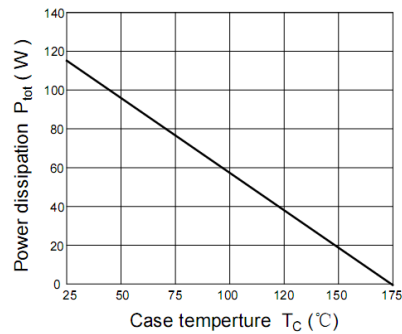


Figure 4. Dissipated power curve

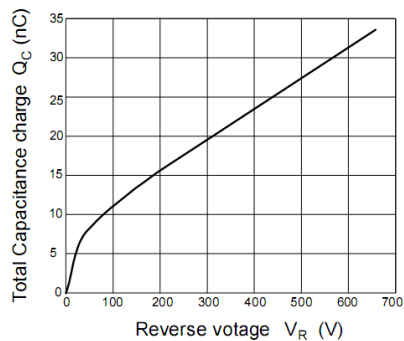


Figure 5. Capacitance vs reverse voltage

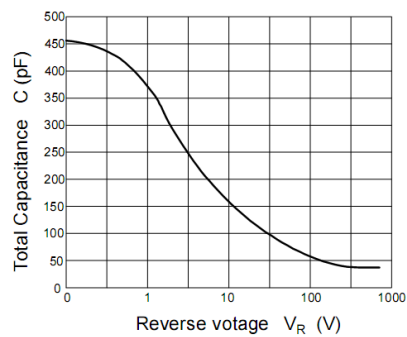


Figure 6. Capacitance vs. reverse voltage

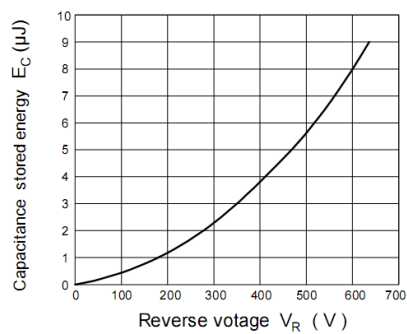


Figure 7. Capacitance stored energy

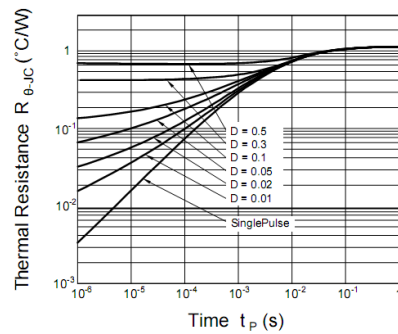


Figure 8. Transient Thermal Impedance