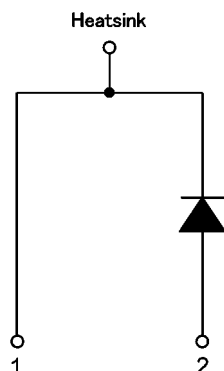


Features

- 1) Shorter recovery time
- 2) Reduced temperature dependence
- 3) High-speed switching possible
- 4) Temperature independent switching behavior

Applications

- PFC Boost Topology
- Secondary Side Rectification
- Data Center
- PV Power Conditioners
- DC/DC Converter
- EV Charger



Package

TO-220-2

1: Cathode
2: Anode

Part Number	Marking	Package	V_{RRM}	$I_F, T_C < 135^\circ C$	Q_c
GC3D02060A	GC3D02060	TO220-2	600 V	4 A	5.8 nC

Maximum Ratings ($T_C = 25^\circ C$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	600	V	
V_{RSM}	Surge Peak Reverse Voltage	600	V	
V_{DC}	DC Blocking Voltage	600	V	
I_F	Continuous Forward Current	8.5 4 2	A	$T_C = 25^\circ C$ $T_C = 135^\circ C$ $T_C = 161^\circ C$
I_{FRM}	Repetitive Peak Forward Surge Current	11 7.5	A	$T_C = 25^\circ C, t_p = 10 \text{ ms}$, Half Sine Pulse $T_C = 110^\circ C, t_p = 10 \text{ ms}$, Half Sine Pulse
I_{FSM}	Non-Repetitive Peak Forward Surge Current	16.5 15	A	$T_C = 25^\circ C, t_p = 10 \text{ ms}$, Half Sine Pulse $T_C = 110^\circ C, t_p = 10 \text{ ms}$, Half Sine Pulse
I_{FSM}	Non-Repetitive Peak Forward Surge Current	120 110	A	$T_C = 25^\circ C, t_p = 10 \mu s$, Pulse $T_C = 110^\circ C, t_p = 10 \mu s$, Pulse
P_{tot}	Power Dissipation	39.5 17	W	$T_C = 25^\circ C$ $T_C = 110^\circ C$
dV/dt	Diode dV/dt ruggedness	200	V/ns	$V_R = 0-600V$
$\int i^2 dt$	$i^2 t$ value	1.35 1.12	A ² s	$T_C = 25^\circ C, t_p = 10 \text{ ms}$ $T_C = 110^\circ C, t_p = 10 \text{ ms}$
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^\circ C$	
	TO-220 Mounting Torque	1 8.8	Nm lbf-in	M3 Screw 6-32 Screw

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions
V_F	Forward Voltage	1.5 1.8	1.7 2.4	V	$I_F = 2\text{ A}$ $T_J = 25^\circ\text{C}$ $I_F = 2\text{ A}$ $T_J = 175^\circ\text{C}$
I_R	Reverse Current	3 6	15 55	μA	$V_R = 600\text{ V}$ $T_J = 25^\circ\text{C}$ $V_R = 600\text{ V}$ $T_J = 175^\circ\text{C}$
Q_C	Total Capacitive Charge	5.8		nC	$V_R = 400\text{ V}$, $I_F = 2\text{ A}$ $di/dt = 500\text{ A}/\mu\text{S}$ $T_J = 25^\circ\text{C}$
C	Total Capacitance	175 10.5 8.5		pF	$V_R = 0\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 200\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 400\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$
E_C	Capacitance Stored Energy	0.8		μJ	$V_R = 400\text{ V}$

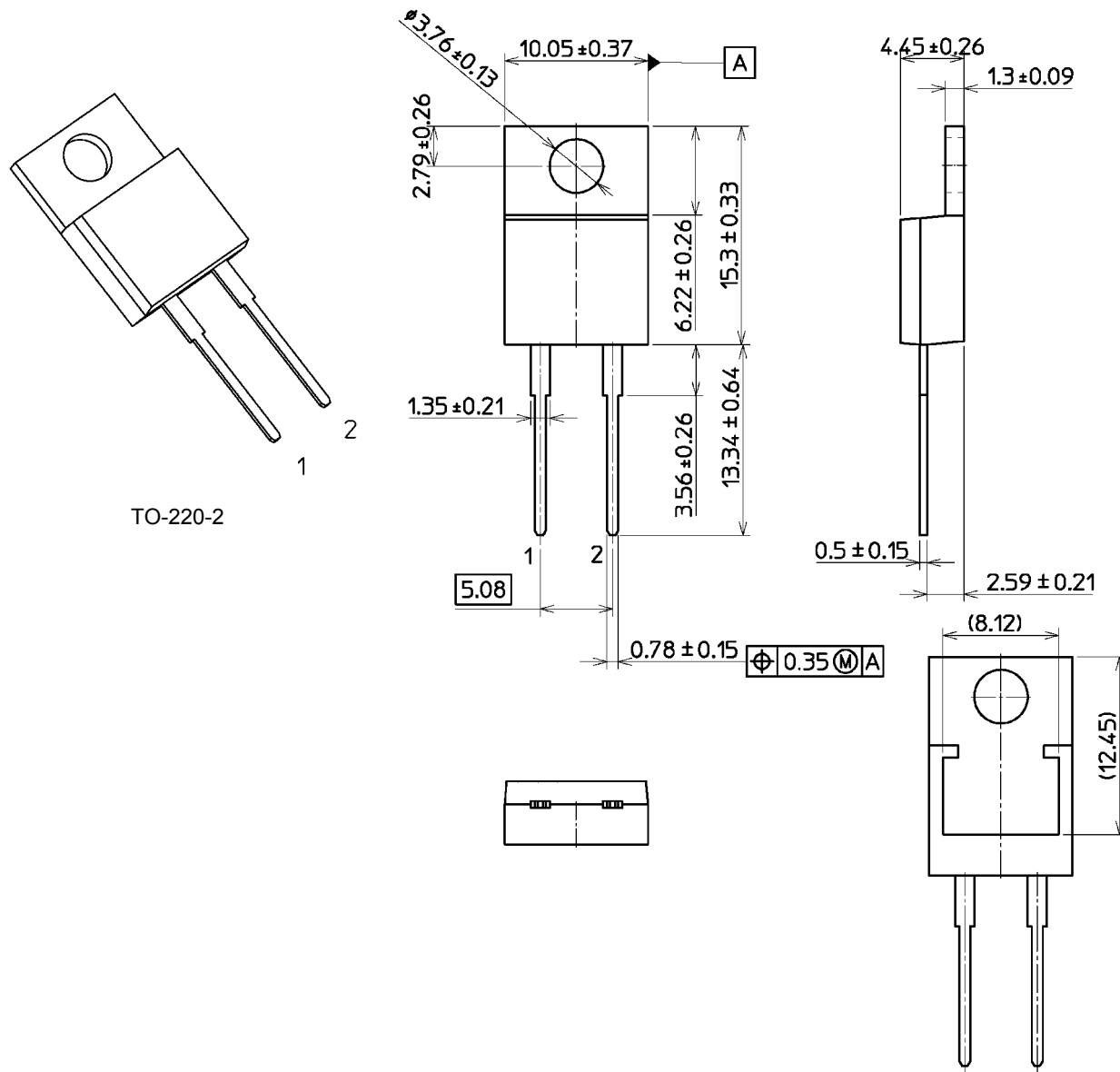
Note: This is a majority carrier diode, so there is no reverse recovery charge.

Thermal Characteristics

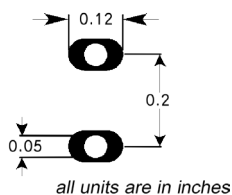
Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	TO-220 Package Thermal Resistance from Junction to Case	3.8	$^\circ\text{C}/\text{W}$

Package Dimensions

Unit: mm



Recommended Solder Pad Layout



TO-220-2