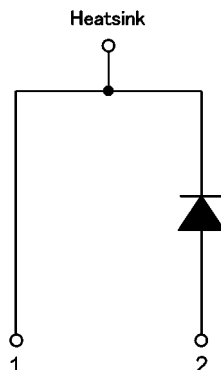


Features

- 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-247-2

1: Cathode
2: Anode

Part Number	Marking	Package	V_{RRM}	$I_F, T_c < 135^\circ C$	Q_c
GC3D25170H	GC3D25170	T0247-2	1700 V	26.3 A	230 nC

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1700	V		
V_{RSM}	Surge Peak Reverse Voltage	1700	V		
V_{DC}	DC Blocking Voltage	1700	V		
I_F	Continuous Forward Current	26.5	A	$T_c < 135^\circ C$	
I_{FRM}	Repetitive Peak Forward Surge Current	99.5 57	A	$T_c = 25^\circ C, t_p = 10 \text{ ms, Half Sine Wave, D=1}$ $T_c = 110^\circ C, t_p = 10 \text{ ms, Half Sine Wave, D=1}$	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	117 88	A	$T_c = 25^\circ C, t_p = 10 \text{ ms, Half Sine Wave, D=1}$ $T_c = 110^\circ C, t_p = 10 \text{ ms, Half Sine Wave, D=1}$	
P_{tot}	Power Dissipation	376 163	W	$T_c = 25^\circ C$ $T_c = 110^\circ C$	
T_c	Maximum Case Temperature	135	$^\circ C$		
T_j	Operating Junction Range	-55 to +175	$^\circ C$		
T_{stg}	Storage Temperature Range	-55 to +135	$^\circ C$		
	TO-247 Mounting Torque	1 8.8	Nm lbf-in	M3 Screw 6-32 Screw	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.8 3.2	2.5 4	V	$I_F = 25\text{ A}$ $T_J = 25^\circ\text{C}$ $I_F = 25\text{ A}$ $T_J = 175^\circ\text{C}$	
I_R	Reverse Current	20 100	100 400	μA	$V_R = 1700\text{ V}$ $T_J = 25^\circ\text{C}$ $V_R = 1700\text{ V}$ $T_J = 175^\circ\text{C}$	
Q_C	Total Capacitive Charge	230		nC	$V_R = 1700\text{ V}$, $I_F = 25\text{ A}$ $di/dt = 200\text{ A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$	
C	Total Capacitance	2079 187.5 97		pF	$V_R = 0\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 200\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 800\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$	

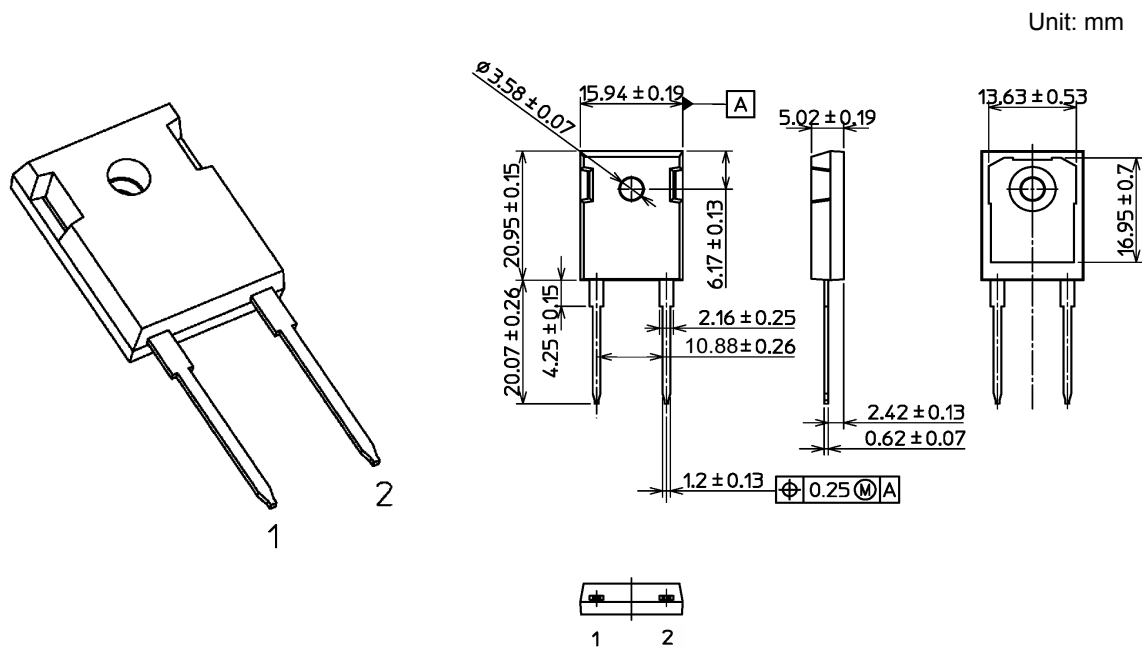
Note:

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

Thermal Characteristics

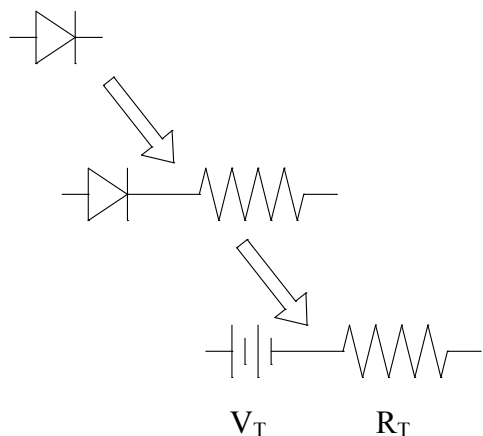
Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.4	$^\circ\text{C}/\text{W}$

Package Dimensions



TO-247-2

Diode Model



$$V_{fT} = V_T + I_f \cdot R_T$$

$$V_T = 0.99 + (T_J \cdot -1.50 \cdot 10^{-3})$$

$$R_T = 0.03 + (T_J \cdot 0.5 \cdot 10^{-3})$$

Note: T_J = Diode Junction Temperature in Degrees Celsius