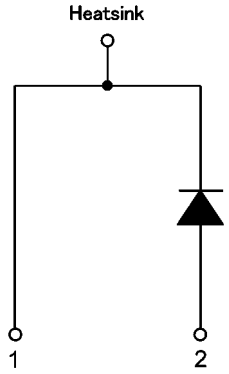
GC3D50170H

Silicon Carbide Schottky Diode

Features

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



Package

TO-247-2

1: Cathode
2: Anode

Applications

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

Part Number	Marking	Package	V_{RRM}	$I_{F;\ T_C<135°C}$	Q_c
GC3D50170H	GC3D50170	TO247-2	1800V	50 A	158 nC

●Absolute Maximum Ratings (T_j = 25°C)

Parameter		Symbol	Value	Unit
Reverse voltage (repetitive peak)		V_{RM}	1800	V
Reverse voltage (DC)		V_R	1800	V
Continuous forward current (T_c=145°C)		I_F	50 *1	A
Surge non-repetitive forward current	PW=10ms sinusoidal, T_j=25°C	I_{FSM} *2	151	A
	PW=10ms sinusoidal, T_j=150°C		110	A
	PW=10μs square, T_j=25°C		630	A
i^2t value	1≦PW≦10ms, T_j=25°C	$\int i^2dt$ *2	120	A^2s
	1≦PW≦10ms, T_j=150°C		60	A^2s
Junction temperature		T_j	175	°C
Range of storage temperature		T_{stg}	−55 to +175	°C

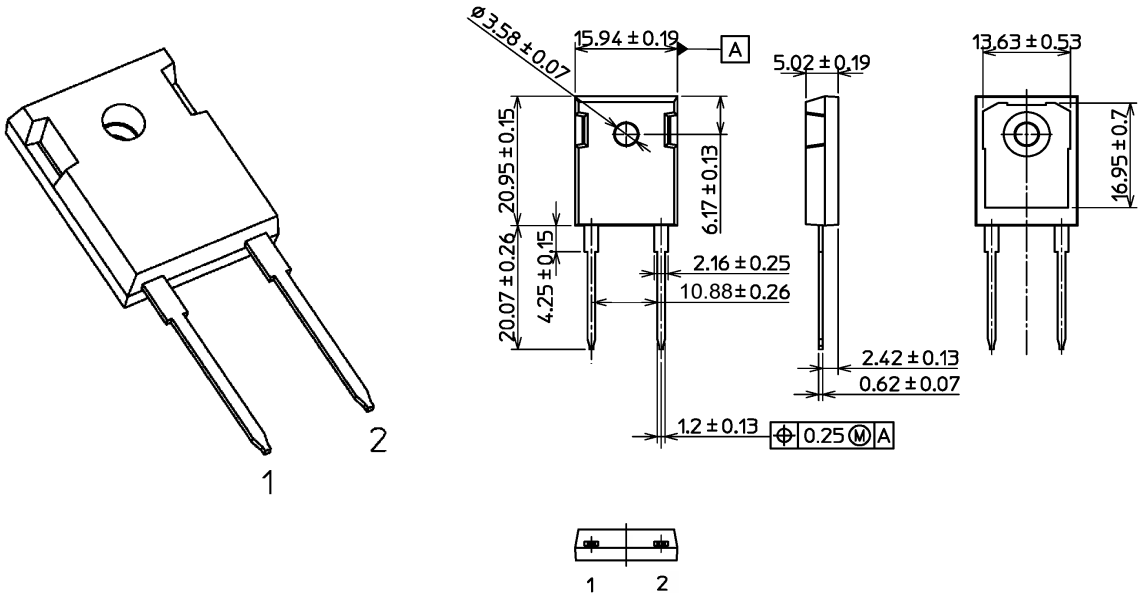
*1 Limited by T_j *2 Assumes $Z_{th(j-a)}$ of 0.16 °C/W or less. (Pulse Width = 8.3ms)

●**Electrical characteristics** (T_j = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}	I_R =0.3mA	1700	-	-	V
Forward voltage	V_F	I_F=50A,T_j=25°C	-	1.65	1.95	V
		I_F=50A,T_j=150°C	-	2.5	-	V
		I_F=50A,T_j=175°C	-	2.8	-	V
Reverse current	I_R	V_R=1800V,T_j=25°C	-	5	300	μA
		V_R=1800V,T_j=150°C	-	110	-	μA
		V_R=1800V,T_j=175°C	-	250	-	μA
Total capacitance	C	V_R=1V,f=1MHz	-	3100	-	pF
		V_R=1800V,f=1MHz	-	170	-	pF
Total capacitive charge	Q_C	V_R=800V,di/dt=500A/μs	-	158	-	nC
Switching time	t_C	V_R=800V,di/dt=500A/μs	-	39	-	ns

Package Dimensions

Unit: mm



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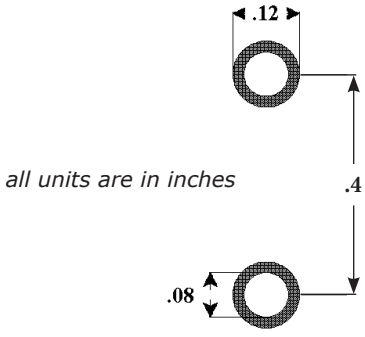
Recommended Solder Pad Layout



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