

Description

The DFH50CU12F0H1 is a Dual Boost Power Module. It integrates high performance IGBT chips and SiC Diodes designed for the applications such as Solar Inverter, UPS, Fuel cell- DC/DC converter, Energy storage Systems.



Features

- Blocking voltage :1200V
- low saturation voltage $V_{CE(sat)}$
- SiC Diode
- 1600V Bypass and Anti-parallel Diodes
- Low Inductive Design
- Low thermal resistance
- Thermistor inside

Applications

- Solar Inverter
- Fuel cell- DC/DC converter
- Uninterruptible Power Supplier
- Energy Storage Systems

Circuit diagram

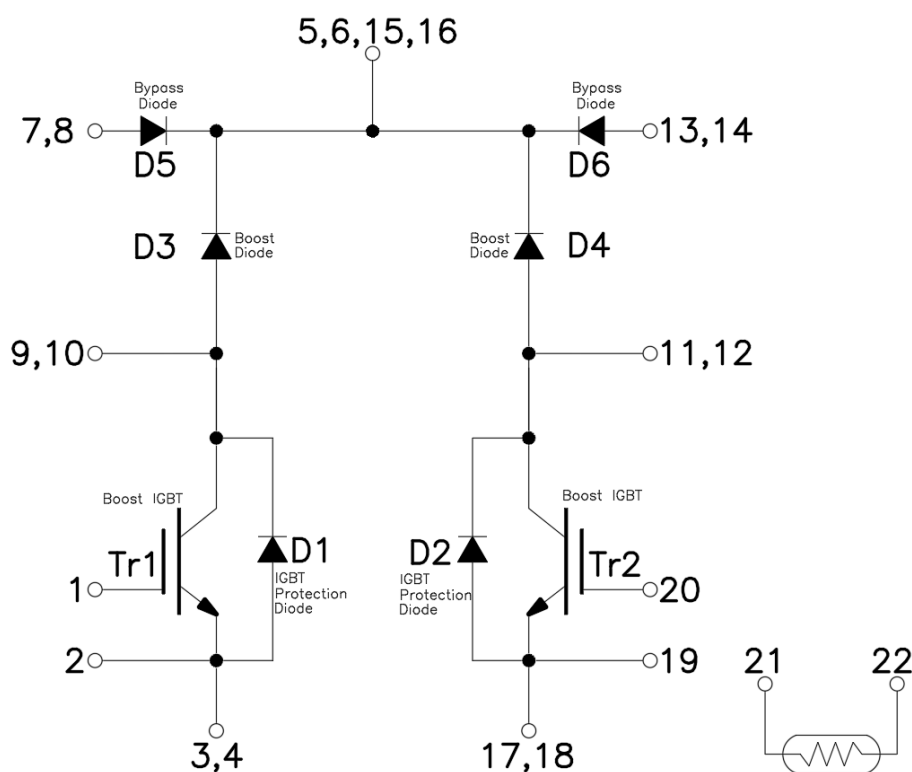


Figure 1. Out drawing & circuit diagram for DFH50CU12F0H1

Pin Configuration and Marking Information

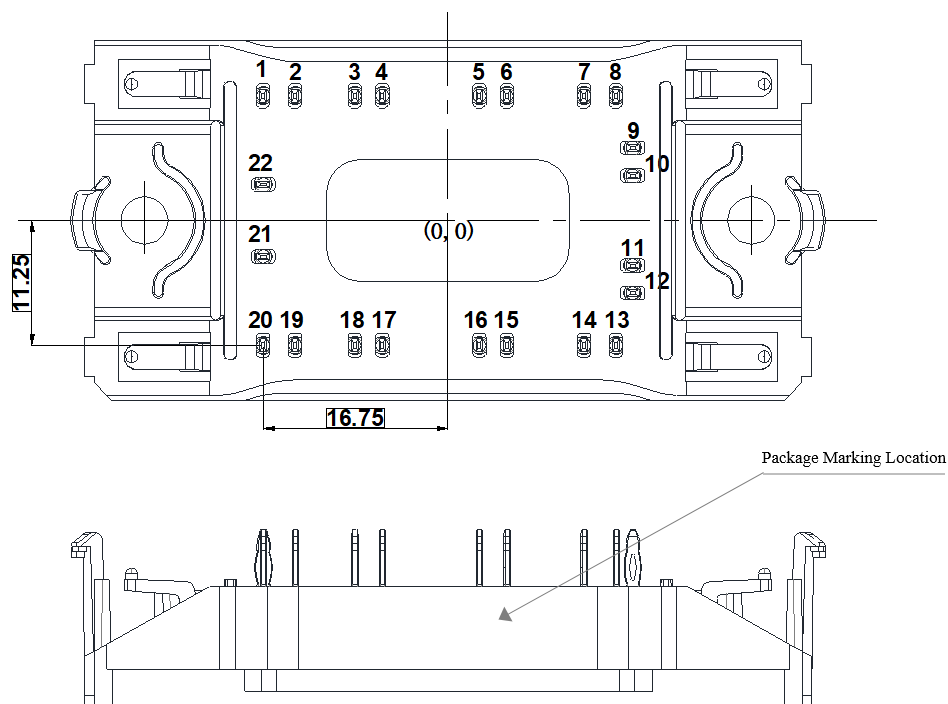


Figure 2. Pin configuration

Module

Parameter	Conditions	Value	Unit
Isolation Voltage	RMS, f =50Hz, t =1min	2.5	kV
Creepage distance	-	12.7	mm
Clearance	Press-fit pin	9.15	mm
Comparative Tracking Index	-	>200	-
Module lead resistance, terminals–chip	T _c = 25°C	0.8	mΩ
Weight	-	26.5	g

Thermistor Electrical characteristics

Symbol	Item	Condition	Value			Unit
			Min.	Typ.	Max	
R25	Nominal resistance	-	-	22	-	kΩ
R100	Nominal resistance	T =100°C	-	-	-	Ω
ΔR/R	Deviation of R25	-	-5	-	5	%
-	B-value	B(25/50) , tolerance ±3%	-	3950	-	K
-	B-value	B(25/100) , tolerance ±3%	-	3998	-	K
P _D	Power Dissipation	-	-	200	-	mW

Maximum Ratings ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Boost IGBT

Symbol	Parameter	Conditions	Ratings	Unit
V_{CES}	Collector-Emitter Voltage	G-E Short	1200	V
V_{GES}	Gate-Emitter Voltage	C-E Short	± 20	V
I_C	DC Continuous Collector Current	$T_S=80^{\circ}\text{C}$	60	A
		$T_C=80^{\circ}\text{C}$	75	A
I_{CM}	Pulse Collector Current	$T_C=80^{\circ}\text{C}$, Note1	150	A
P_{tot}	Maximum Power Dissipation	$T_S=80^{\circ}\text{C}$, $T_j=175^{\circ}\text{C}$	190	W
		$T_C=80^{\circ}\text{C}$, $T_j=175^{\circ}\text{C}$	271	W
T_j	Junction temperature	-	-40 to 175	$^{\circ}\text{C}$
T_{stg}	Storage temperature	-	-40 to 125	$^{\circ}\text{C}$

Note1: Pulse width limited by maximum junction temperature

Boost Diode

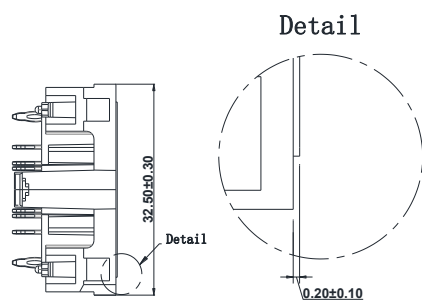
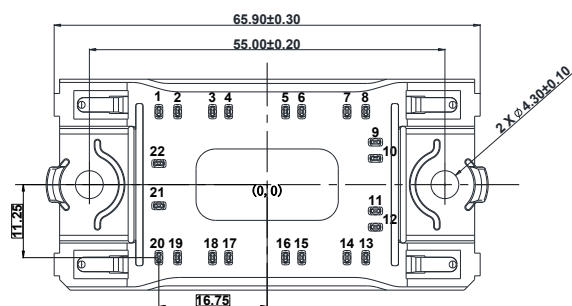
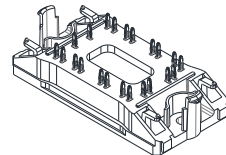
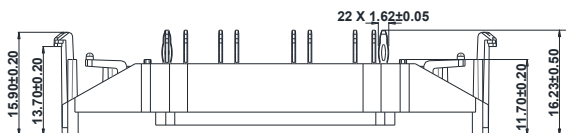
Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Peak Repetitive Revers Voltage	-	1200	V
I_F	Continuous Forward Current	$T_j=T_{jmax}$, $T_S<80^{\circ}\text{C}$	33	A
		$T_j=T_{jmax}$, $T_C<80^{\circ}\text{C}$	37	A
I_{FSM}	Surge Forward Current	$T_S=25^{\circ}\text{C}$	185	A
I^2t	Surge Current Capability	(60Hz single half-sine wave)	142	A^2s
P_{tot}	Total Power Dissipation	$T_j=T_{jmax}$, $T_S<80^{\circ}\text{C}$	100	W
		$T_j=T_{jmax}$, $T_C<80^{\circ}\text{C}$	118	W
T_{jmax}	Maximum Junction temperature	-	175	$^{\circ}\text{C}$

Bypass Diode/Boost IGBT Protection Diode

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Peak Repetitive Revers Voltage	-	1600	V
I_F	Continuous Forward Current	$T_j=T_{jmax}$, $T_S<80^{\circ}\text{C}$	43	A
		$T_j=T_{jmax}$, $T_C<80^{\circ}\text{C}$	50	A
I_{FRM}	Repetitive Peak Forward Current	$T_j=T_{jmax}$	200	A
P_{tot}	Total Power Dissipation	$T_j=T_{jmax}$, $T_S<80^{\circ}\text{C}$	82	W
		$T_j=T_{jmax}$, $T_C<80^{\circ}\text{C}$	100	W
T_{jmax}	Maximum Junction temperature	-	150	$^{\circ}\text{C}$

Package Dimensions

Pin Table		
Pin	X	Y
1	-16.75	11.25
2	-13.85	11.25
3	-8.45	11.25
4	-5.95	11.25
5	2.85	11.25
6	5.35	11.25
7	12.35	11.25
8	15.25	11.25
9	16.75	6.55
10	16.75	4.05
11	16.75	-4.05
12	16.75	-6.55
13	15.25	-11.25
14	12.35	-11.25
15	5.35	-11.25
16	2.85	-11.25
17	-5.95	-11.25
18	-8.45	-11.25
19	-13.85	-11.25
20	-16.75	-11.25
21	-16.75	-3.25
22	-16.75	3.25



Editing record :

Version	Content	Data
A	First edition	2022.03.08

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