

HCG240FB200K1T1

2000V / 240A C2 (size similar to Flow 2 with Cu Baseplate)

Features

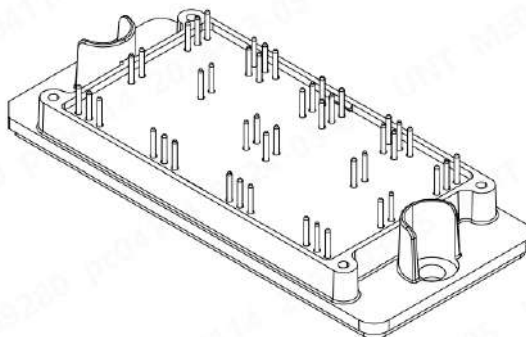
- Low Inductive Layout
- Solderable Pins

Benefits

- Higher System Efficiency
- Reduced Cooling Requirements

Applications

- Solar Inverters
- Uninterruptable Power Supplies Systems



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Table 1 Absolute Maximum Ratings (Ta = 25 °C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	2000	V
Gate-Source Voltage	V_{GSS}	-10 / 22	V
Nominal Drain Current	I_D	240	A
Pulsed Drain Current	I_{DP}	480	A
Junction Temperature	T_J	-40 to +175	°C

INSULATION PROPERTIES

Isolation Test Voltage, t = 1 s, 50 Hz	Viso	4000	V_{RMS}
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RECOMMENDED TEMPERATURE

Storage Temperature	T_{stg}	-40 to +125	°C
Operating Temperature	T_{op}	-40 to +175	°C

Table 2 Thermal Resistance (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction to case	R_{thJC}	-	TBD	-	°C /W

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Table 3 Characteristics Values

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 18 V, I _D = 60 A	T _J = 25℃	-	20.57	-	mΩ
			T _J = 175 ℃	-	44.93	-	
Gate Threshold Voltage	V _{GS(th)}	I _{DS} = 34 mA	T _J = 25℃	-	2.51	-	V
Gate - Source Charge	Q _{gtot}	V _{GS} = 18V, V _{DS} = 1200 V	T _J = 25℃	-	TBD	-	μC
Gate input resistance	R _G	f = 1 MHz	T _J = 25℃	-	TBD	-	Ω
Gate-Source Leakage Current	I _{GSS}	V _{GS} = 20 V, V _{DS} = 0 V	T _J = 25℃	-	-	800	nA
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	T _J = 25℃	2000	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 2000V, V _{GS} = 0V	T _J = 25℃	-	3	10	μA
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 100 KHz	T _J = 25℃	-	TBD	-	nF
Output Capacitance	C _{oss}		T _J = 25℃	-	TBD	-	
Reverse Transfer Capacitance	C _{rss}		T _J = 25℃	-	TBD	-	
Turn-on delay time(inductive load)	t _{d on}	V _{GS} = -5 to 18V V _{DS} = 1200 V I _{DS} = 60 A R _{Gon} = 1.6 Ω R _{Goff} = 2.0 Ω	T _J = 25℃	-	38	-	ns
			T _J = 175 ℃	-	34	-	
Rise time (inductive load)	t _r		T _J = 25℃	-	13	-	
			T _J = 175 ℃	-	14	-	
Turn-off delay time(inductive load)	t _{d off}		T _J = 25℃	-	410	-	
			T _J = 175 ℃	-	265	-	
Fall time (inductive load)	t _f		T _J = 25℃	-	25	-	
			T _J = 175 ℃	-	30	-	
Turn - on Switching Loss	E _{on}		T _J = 25℃	-	0.59	-	mJ
			T _J = 175 ℃	-	0.54	-	
Turn - off Switching Loss	E _{off}		T _J = 25℃	-	1.46	-	
			T _J = 175 ℃	-	1.66	-	
Forward Voltage	V _{SD}	V _{GS} = -3 V, I _{SD} = 60 A	T _J = 25℃	-	4.70	-	V
			T _J = 175 ℃	-	4.12	-	
Peak reverse recovery current	I _{rrm}		T _J = 25℃	-	37	-	A
			T _J = 175 ℃	-	40	-	
Reverse recovery energy	E _{rec}		T _J = 25℃	-	0.54	-	mJ
			T _J = 175 ℃	-	0.65	-	

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Table 4 NTC-Thermistor

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Rated Resistance	R_{25}	$T_C = 25^{\circ}\text{C}$	-	22	-	k Ω
Deviation of R100	$\Delta R/R$	$T_C = 100^{\circ}\text{C}$, $R_{100} = 1486 \Omega$	-5	-	5	%
Power Dissipation	P25	TNTC = 25°C	-	-	20	mW
B-value	$B_{25/50}$	B (25/50), tolerance $\pm 3\%$	-	3950	-	K
B-value	$B_{25/100}$	B (25/100), tolerance $\pm 3\%$	-	3998	-	K

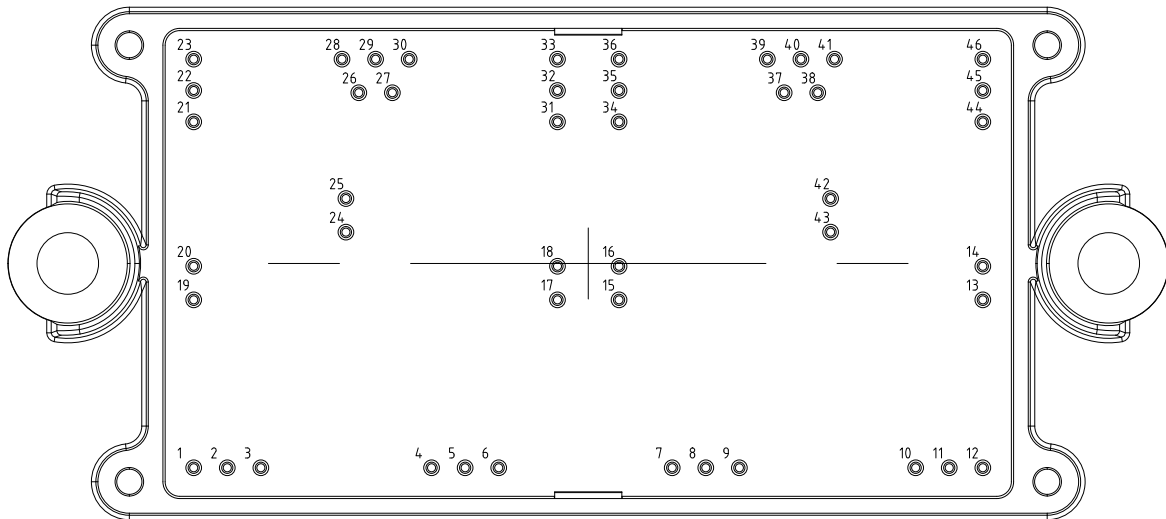
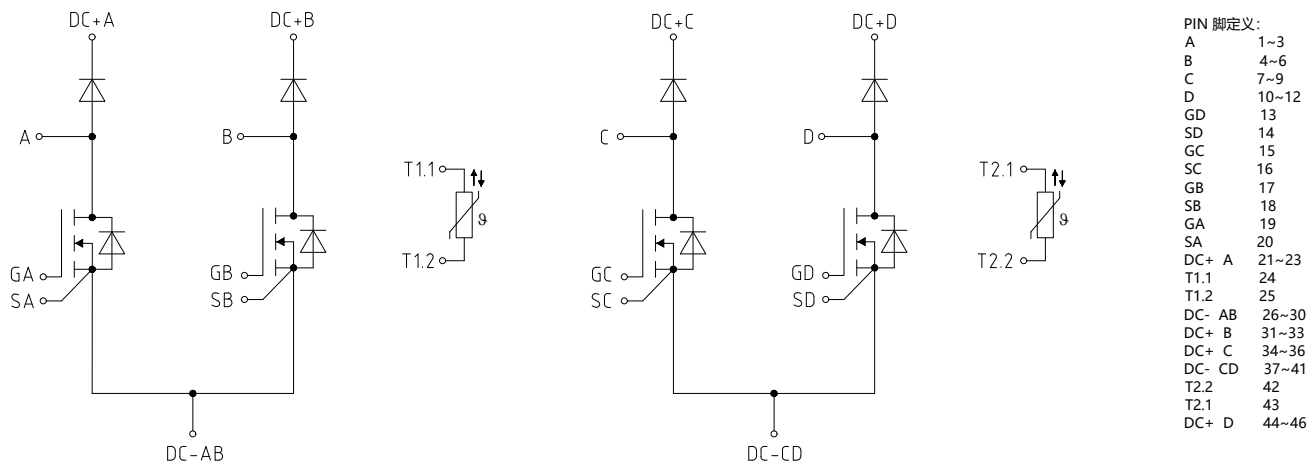
Table 5 Module Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
Stray Inductance	L_{CE}	-	17	-	nH	
Mounting Torque Screw:M5	M	3.0	-	5.0	N.m	
Creepage distance	terminal to heatsink		12.7			
Clearance	terminal to heatsink		12.7			
CTI			≥ 600			
RTI			130		$^{\circ}\text{C}$	
Flatness of base plate				0.3	mm	
Weight			176.5		g	

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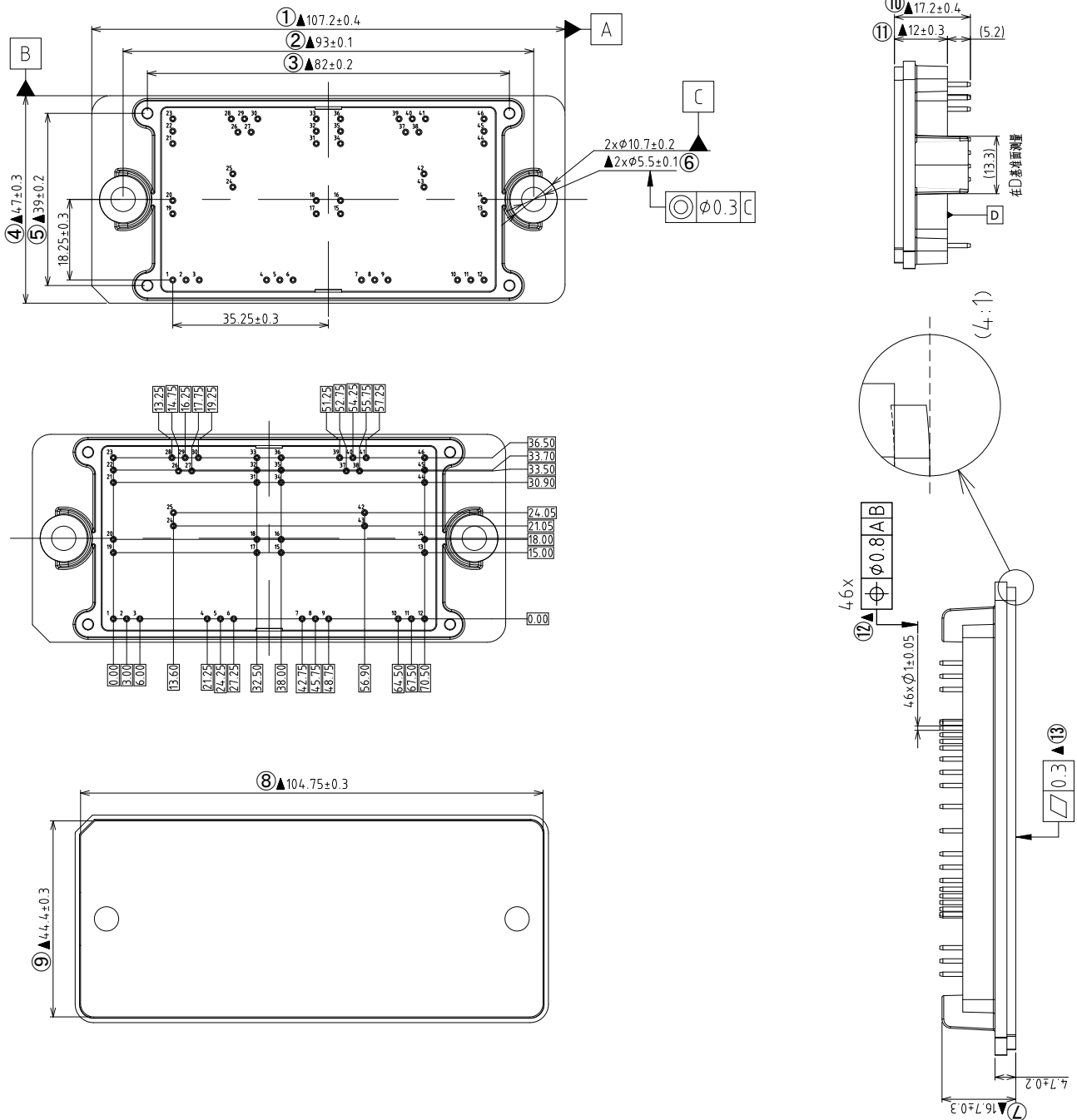
Circuit Diagram



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Package Outlines



Revision History

Document Version	Description of Changes
RevX.0.1	Released

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