

MNHX051R5S weapon DC-DC converter

1 Features of weapon DC-DC converter

- Input DC Voltage range(Continuous): 9~38V
- Typical input DC voltage: 24V
- Output voltage: 5V
- Output power: 7.5W
- Temperature (Tc) : -40~85°C
- BUCK topological structure, PWM Control



25x22.86x7.87mm³

Fig 1 Product type

MNHX051R5S

2 Application of weapon DC-DC converter

MNHX051R5S DC/DC Converter is used in aerospace high reliable electronic system.

3 Descriptions of weapon DC-DC converter

MNHX051R5S DC/DC Converter uses BUCK topological structure. Circuit contains input filter, PWM control, and reactive circuit and so on. Circuit also has protection function for over-current and under-voltage to improve the reliability.

This product is modular circuit structure; it's used by PCB surface assembly process, no embedment, package is used by 2014 mucilage glue, gushing three proofing, copper shell.

4 Technical Specifications of weapon DC-DC converter

Form 2 Rated condition and recommended condition

Absolute max rating	Recommended condition
Input voltage: 38V Output power: 7.5W Storage temperature: -45~105°C	Input voltage: 9~38V working temperature range (Tc) : -40~85°C

Leads resistance welding temperature (10s) :	
< 300°C	
Junction temperature: < 150°C	

Form 3 Electrical Characteristic

No.	Characteristic	Symbol	Conditions (otherwise specified, -40°C ≤T _c ≤85°C, V _{IN} =24V±0.5V)	Limit value		Unit
				min	max	
1	Input voltage	V _o	V _I =16V-38V, I _o =0.1A-1.5A	4.9	5.1	V
2	Output current	I _o	V _I =16V-38V	0.1	1.5	A
3	Output ripple voltage(peak-peak)	V _{P-P}	T _A =25°C, BW≤20MHz, full load	-	100	mV
4	Voltage regulation rate	S _v	full load, V _I =16V 38V	-	0.5	%
5	Load regulation rate	S _I	I _o =0.1A 1.5A	-	1	%
6	Efficiency	η	T _A =25°C, full load	80	-	%

Output in parallel capacitance with 0~10μF.

5 Circuit block diagram of weapon DC-DC converter

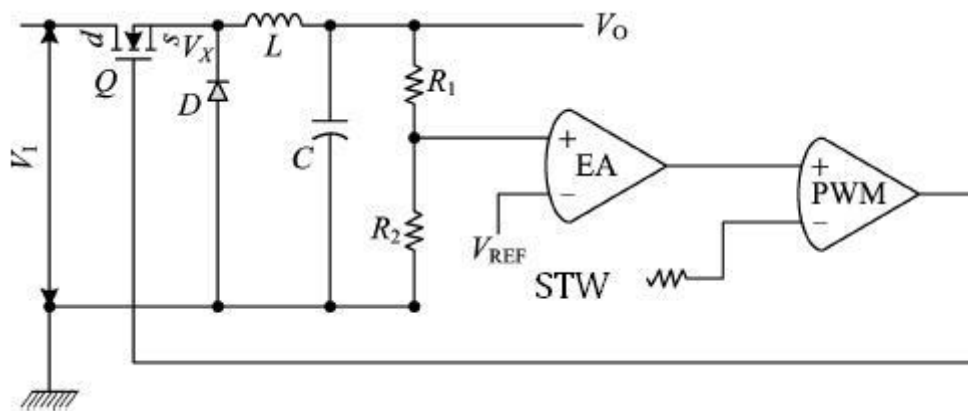


Fig 2 Product elementary diagram

6. Typical characteristic curve of weapon DC-DC converter

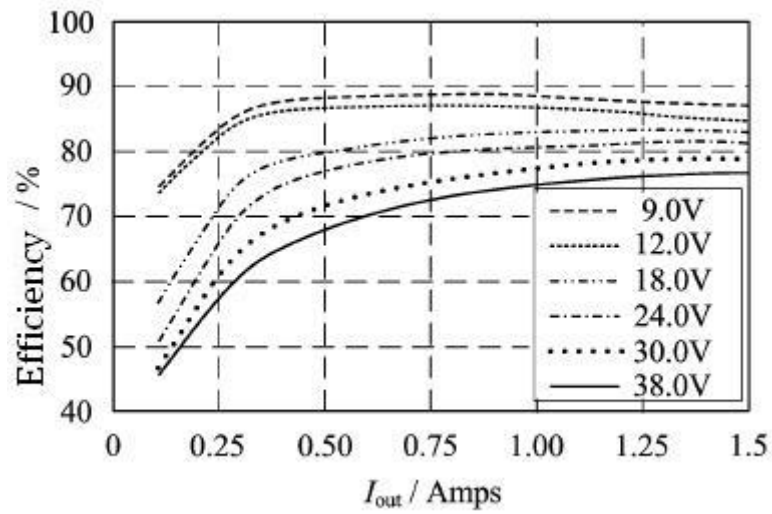
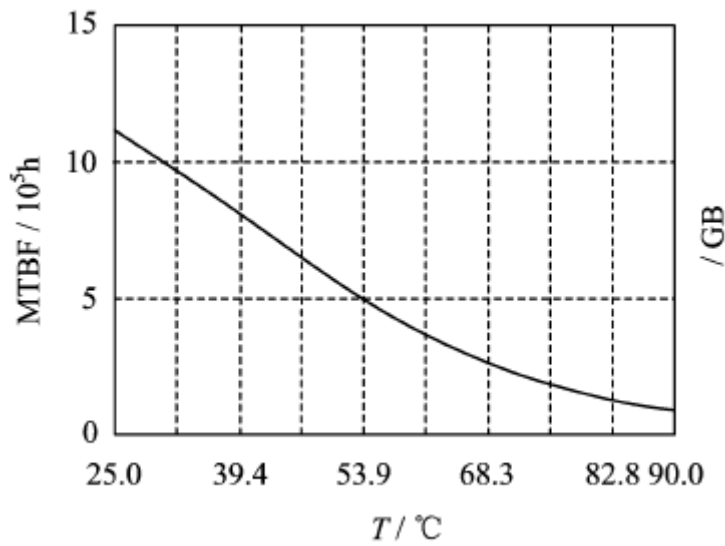


Fig 3 Efficiency (output power)

7.MTBF curve of weapon DC-DC converter



Char 4 MTBF Temperature Curve

(Prediction is based on well grounded)

8 Pin Designation of weapon DC-DC converter

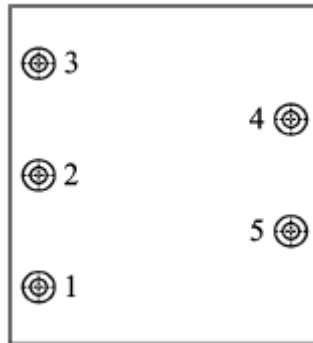


Fig 5 Upward view

Form 4 Pin Designation

No.	Symbol	Function
1	V_i	Input positive
2	GND	Input Output common
3	V_o	Output 5V
4	GND	Package common
5	GND_c	Package common

9 Typical Connection Diagram of weapon DC-DC converter

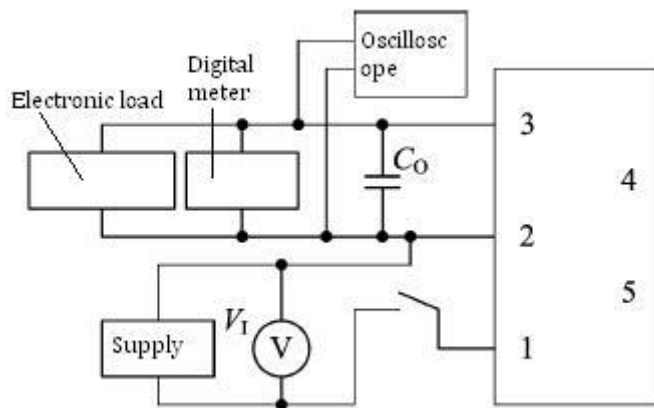


Fig 6 Electrical testing wiring diagram

10. Package Specifications of weapon DC-DC converter

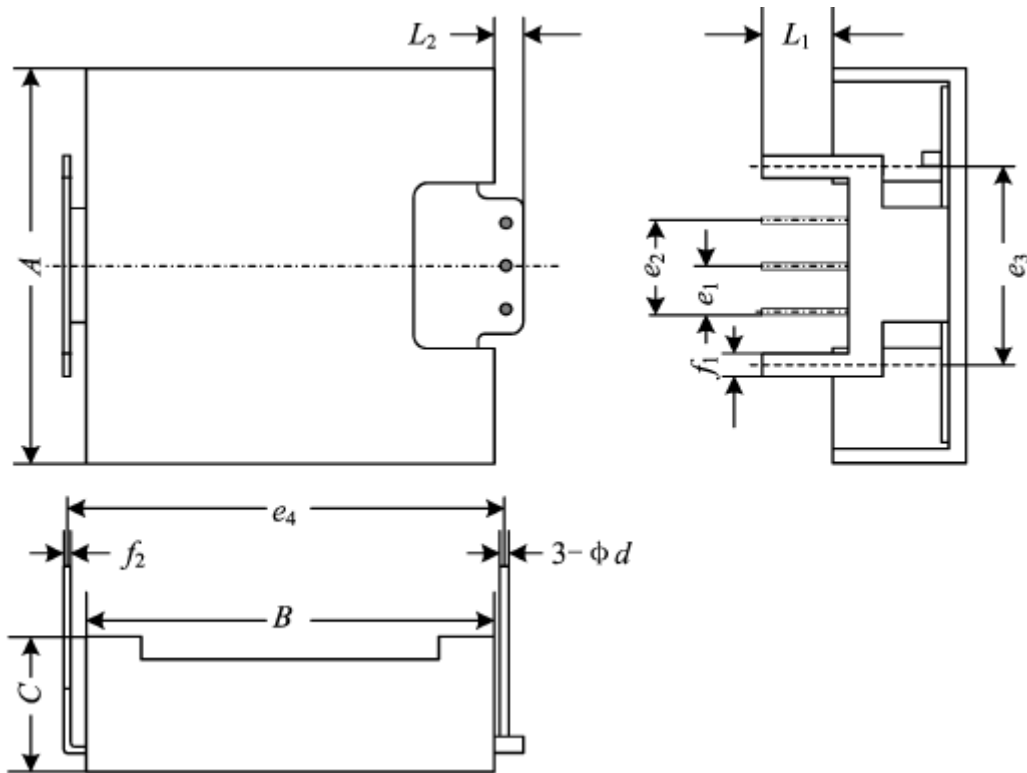


Fig 7 package outline drawing (upward view)

Form 5 Package Outline

Symbol	Data/mm		
	Min	Typical	Min
<i>A</i>	-	-	22.86
<i>B</i>	-	-	23.87
<i>C</i>	-	-	7.87
ψd	0.47	-	0.73
<i>e</i> ₁	-	2.54	-
<i>e</i> ₂	-	5.08	-
<i>e</i> ₃	-	11.4	-
<i>e</i> ₄	-	25.4	-
<i>F</i> ₁	1.0	-	1.6
<i>F</i> ₁	0.1	-	0.7
<i>L</i> ₁	3.55	-	-
<i>L</i> ₂	1.15	-	1.75

Note: Size for a *e*₁ *e*₂ *e*₃ *e*₄ is guaranteed by manufacturing of packages, do not have inspection requirements.

11 Ordering Information of weapon DC-DC converter

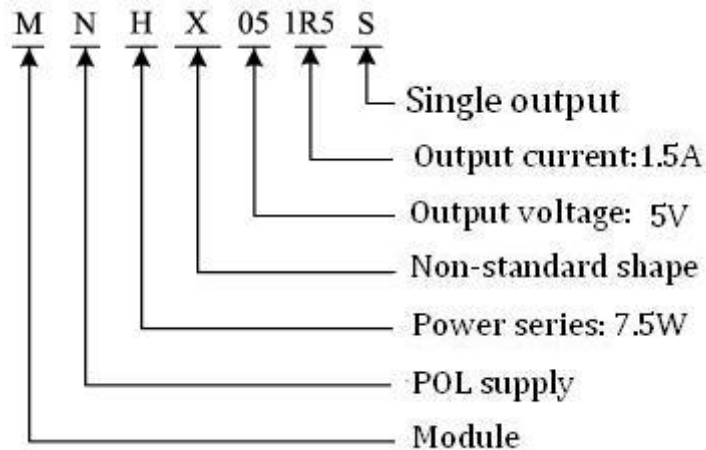


Fig 8 Ordering Information

Application Notes:

- ☆ The influence of external disturbance on the test accuracy should be avoided.
- ☆ The voltage detection point should be kept at the root of the pin of the testing product.
- ☆ Do not plug the product with electricity.
- ☆ Before power the testing product, you must confirm the polarity of the power supply to avoid damaging products by misconnection. At the same time, please ensure that the power supply voltage and load current does not exceed using limitation of the testing product.
- ☆ When using the shell temperature can not exceed the specified temperature, or to increase the use of heat sink.
- ☆ When ordering this device, the detailed electrical specifications shall be based on relevant standards.