

# MNDX121R5S weapon DC-DC converter

## 1 Features of weapon DC-DC converter

- Input DC Voltage range(Continuous): 16~38V
- Typical input DC voltage: 28V
- Output voltage: 12V
- Output power: 300W
- Temperature (Tc) : -55~100°C
- BUCK topological structure, PWM Control



25x22.86x7.87mm<sup>3</sup>

Fig 1 Product type

MNDX121R5S

## 2 Application of weapon DC-DC converter

MNDX121R5S DC/DC Converter is used in aerospace and high reliable electronic system.

## 3 Descriptions of weapon DC-DC converter

MNDX121R5S DC/DC Converter uses buck topological structure. Circuit which contains input filter, PWM control, reactive circuit and so on. Circuit also has protect function for over-current and under-voltage to improve the reliability of the product.

This product is made by module circuit structure; it's used by PCB surface assembly process, no embedment, package is used by 2014 mucilage glue, gushing three proofing, and 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: 18W Storage temperature: -65~105°C Leads resistance welding temperature (10s) :	Input voltage: 16~38V (Tc) working temperature range (Tc) : -55~100°C

$< 300^{\circ}\text{C}$ Junction temperature: $< 150^{\circ}\text{C}$	
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**Form 3 Electrical Characteristic**

No.	Characteristic	Symbol	Conditions (otherwise specified, $-40^{\circ}\text{C}$ $\leq T_c \leq 85^{\circ}\text{C}$ , $V_{IN} = 28\text{V} \pm 0.5\text{V}$ )	Limit value		Unit
				min	max	
1	Output voltage	$V_o$	$V_i = 16\text{V} - 38\text{V}$ , $I_o = 0.1\text{A} - 1.5\text{A}$	11.85	12.15	V
2	Output current	$I_o$	$V_i = 16\text{V} - 38\text{V}$	0.1	1.5	A
3	Output ripple voltage(peak-peak)	$V_{P-P}$	$T_A = 25^{\circ}\text{C}$ , $BW \leq 20\text{MHz}$ , full load	-	100	mV
4	Voltage regulation rate	$S_v$	Full load, $V_i = 16\text{V} - 38\text{V}$	-	0.5	%
5	Load regulation rate	$S_i$	$I_o = 0.1\text{A} - 1.5\text{A}$	-	1	%
6	Efficiency	$\eta$	$T_A = 25^{\circ}\text{C}$ , full load	88	-	%

Output in parallel capacitance with  $0 \sim 10\mu\text{F}$ .

### 5 Circuit block diagram of weapon DC-DC converter

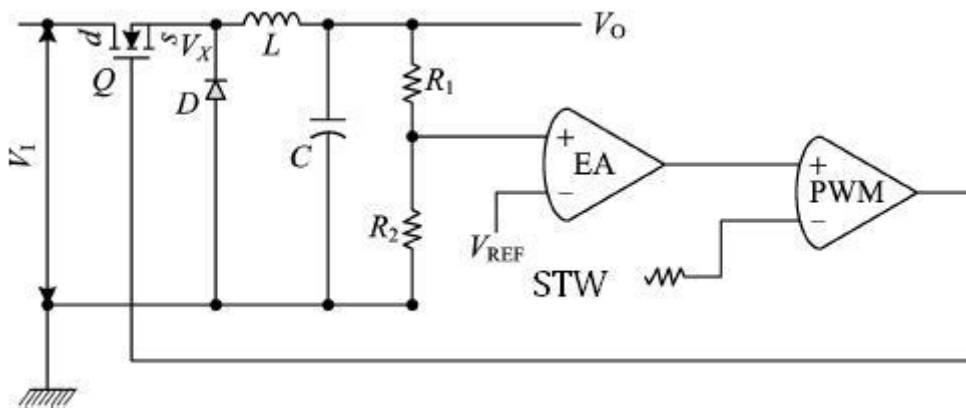


Fig 2 Product elementary diagram

### 6. Typical characteristic curve of weapon DC-DC converter

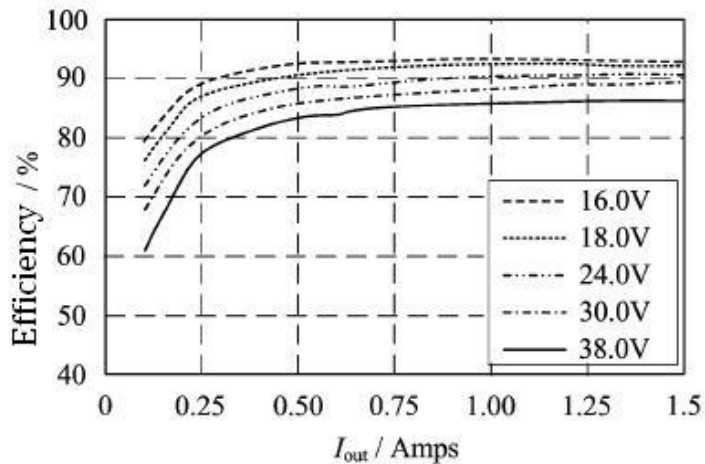
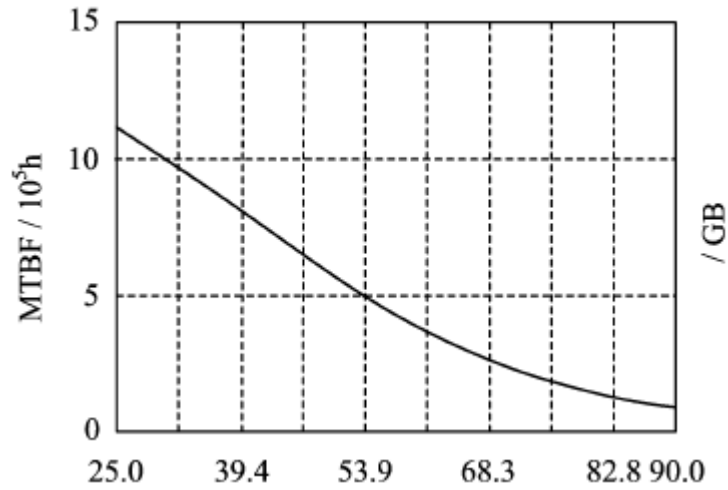


Fig 3 Efficiency (output power)

### 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

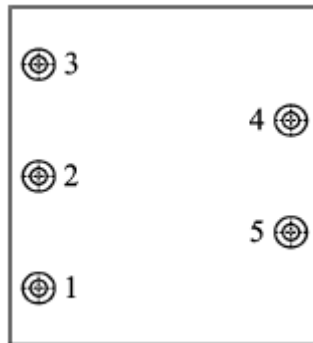


Fig 5 Upward view

Form 4 lead function declaration

No.	Symbol	Function
1	$V_I$	Input positive
2	GND	Input Output common
3	$V_o$	Output 12V
4	GND	Package common
5	$GND_C$	Package common

## 9 Typical Connection Diagram of weapon DC-DC converter

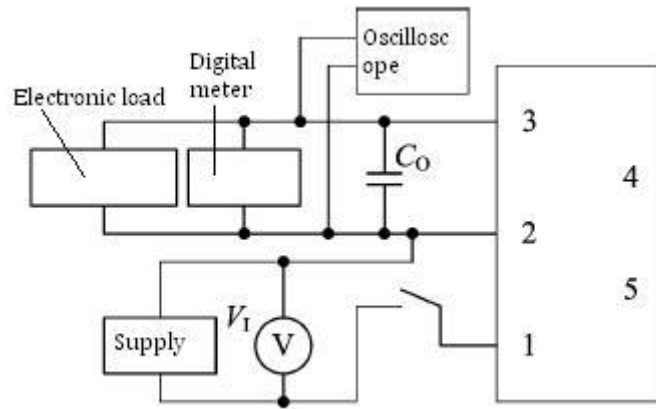


Fig 6 Electrical testing wiring diagram

## 10. Package Specifications of weapon DC-DC converter

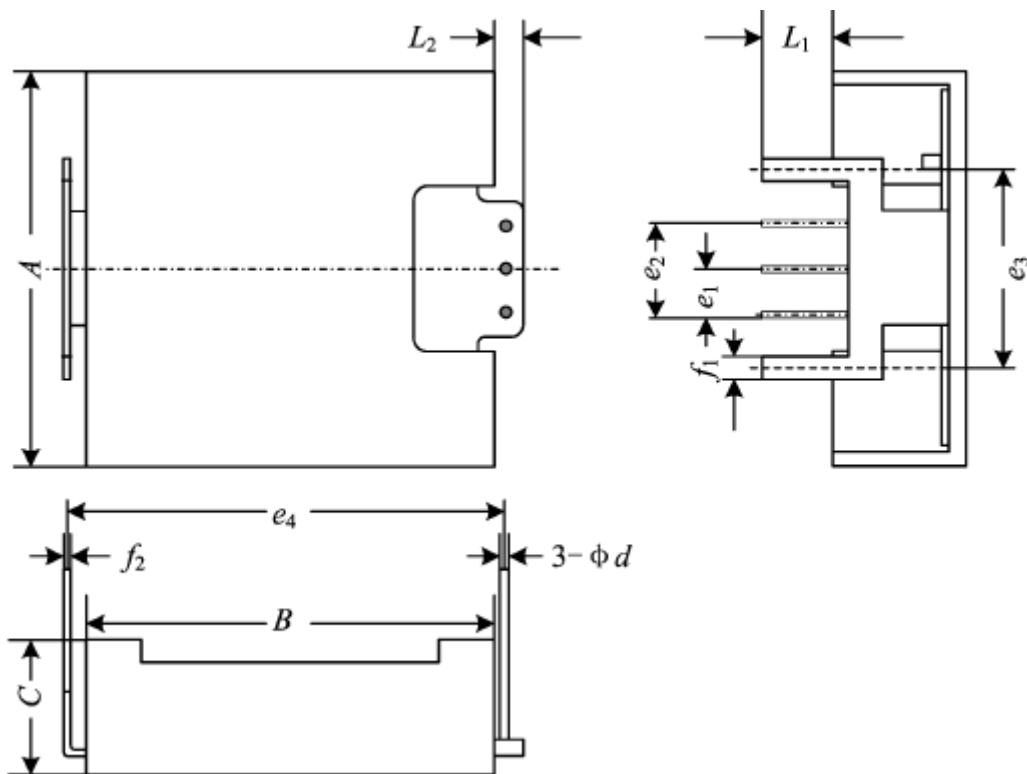


Fig 7 package outline drawing (upward view)

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

Note: Size for a e1 e2 e3 e4 is guaranteed by manufacturing of packages, do not have inspection requirements.

## 11 Ordering Information of weapon DC-DC converter

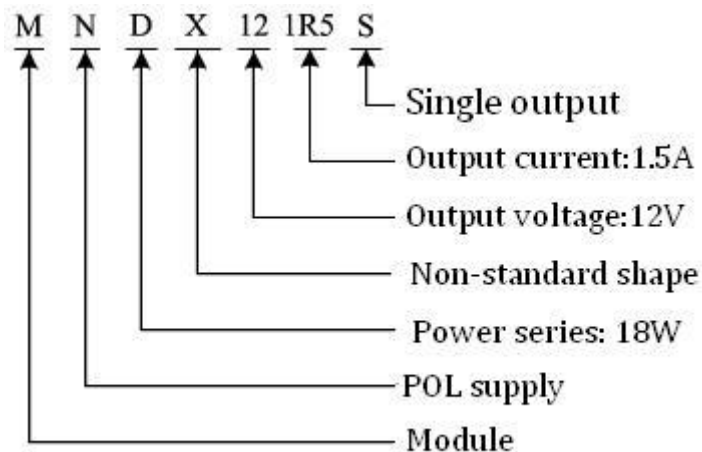


Fig 8 Ordering Information

### 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.