

FEATURES

- Wide 3V/5V input range
- High efficiency with low heat generation
- Good output stability
- High reliability and long life
- Suitable for rack pitch 3 HP (15.24mm) and 19" rack (Intel Multibus 2)
- Silicon packaged for high humidity resistance, efficient heat release and low stress
- No aluminum electrolytic capacitor used



DESCRIPTION

The FN Series of DC-DC converters offers low profile, high stability, and high reliability. They are suited to all kinds of electronic applications, especially control equipment, measuring instruments, and other applications where reliability is paramount. A full range of specifications and innovative optional choke coils are available to suit a wide variety of technical needs.

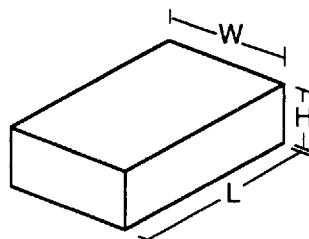
ENVIRONMENTAL CONDITIONS

Temperature:	Operating	-20°C to +70°C
	Storage	-25°C to +85°C
Humidity:	Operating	95% R.H. max.
	Storage	95% R.H. max.

APPLICATIONS

- Measuring instruments
- Control equipment
- Telecommunications
- General purpose

DIMENSIONS



	1.5W	3.0W
L	36mm	40mm
W	23mm	25mm
H	8mm	8mm

PART SELECTION GUIDE

OUTPUT POWER(W)	PART NUMBER	INPUT VOLTAGE(V)	OUTPUT VOLTAGE(V)	OUTPUT CURRENT(mA)	EFFICIENCY (%)
1 CH, POSITIVE OUTPUT					
1.5W	FN05P015-0	2.7~4	+5V±5%	3~300	79
	FN12P015-1	2.7~7	+12V±5%	2~125	79
	FN15P015-1	2.7~7	+15V±5%	2~100	79
3.0W	FN05P030-0	2.7~4	+5V±5%	6~600	79
	FN12P030-1	2.7~7	+12V±5%	3~250	79
	FN15P030-1	2.7~7	+15V±5%	2~200	79
1 CH, NEGATIVE OUTPUT					
1.5W	FN05N015-1	2.7~7	-5V±5%	3~300	71
	FN12N015-1	2.7~7	-12V±5%	2~125	71
	FN15N015-1	2.7~7	-15V±5%	2~100	71
3.0W	FN05N030-1	2.7~7	-5V±5%	6~600	70
	FN12N030-1	2.7~7	-12V±5%	3~250	70
	FN15N030-1	2.7~7	-15V±5%	2~200	70

OUTPUT POWER(W)	PART NUMBER	INPUT VOLTAGE(V)	OUTPUT VOLTAGE(V)	OUTPUT CURRENT(mA)	EFFICIENCY (%)
2 CH, POSITIVE & NEGATIVE OUTPUT					
1.5W	FN12D015-1	2.7~7	±12V±5%	±18 - 62	71
	FN15D015-1	2.7~7	±15V±5%	±15 - 50	71
3.0W	FN05D030-1	2.7~4	±12V±5%	±37 - 125	70
	FN12D030-1	2.7~7	±15V±5%	±30 - 100	70

FN SERIES

SPECIFICATIONS

PART NUMBER	INPUT VOLTAGE (V)	OUTPUT VOLTAGE		OUTPUT CURRENT (mA)	OUTPUT POWER (W)	EFFICIENCY (%)	THERMAL COEFFICIENT (%)	REGULATION		RIPPLE & NOISE WITH CHOKE
		Vout (V)	SETTING (%)					Line (%)	Load (%)	
1 CH, POSITIVE OUTPUT										
FN05P015-0	2.7~4	+5	±5%	3~300	1.5	79	±1	±1.5	±1	120mVp-p
FN12P015-1	2.7~7	+12	±5%	2~125	1.5	79	±1	±1.5	±1	120mVp-p
FN15P015-1	2.7~7	+15	±5%	2~100	1.5	79	±1	±1.5	±1	120mVp-p
FN05P030-0	2.7~4	+5	±5%	6~600	3	79	±1	±1.5	±1	120mVp-p
FN12P030-1	2.7~7	+12	±5%	3~250	3	79	±1	±1.5	±1	120mVp-p
FN15P030-1	2.7~7	+15	±5%	2~200	3	79	±1	±1.5	±1	120mVp-p
1 CH, NEGATIVE OUTPUT										
FN05N015-1	2.7~7	-5	±5%	3~300	1.5	71	±1	±1.5	±1	120mVp-p
FN12N015-1	2.7~7	-12	±5%	2~125	1.5	71	±1	±1.5	±1	120mVp-p
FN15N015-1	2.7~7	-15	±5%	2~100	1.5	71	±1	±1.5	±1	120mVp-p
FN05N030-1	2.7~7	-5	±5%	6~600	3	70	±1	±1.5	±1	120mVp-p
FN12N030-1	2.7~7	-12	±5%	3~250	3	70	±1	±1.5	±1	120mVp-p
FN15N030-1	2.7~7	-15	±5%	2~200	3	70	±1	±1.5	±1	120mVp-p
2 CH, POSITIVE AND NEGATIVE OUTPUT										
FN12D015-1	2.7~7	±12	±5%	±18 - 62	1.5	71	±1	±1.5	±1	120mVp-p
FN15D015-1	2.7~7	±15	±5%	±15 - 50	1.5	71	±1	±1.5	±1	120mVp-p
FN05D030-1	2.7~4	±12	±5%	±37 - 125	3	70	±1	±1.5	±1	120mVp-p
FN12D030-1	2.7~7	±15	±5%	±30 - 100	3	70	±1	±1.5	±1	120mVp-p

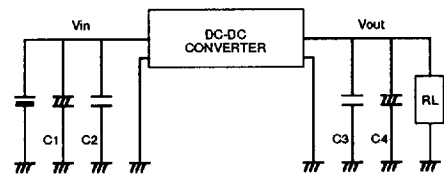
FILTERING RECOMMENDATIONS

Output Power	Input Capacitors (C1)		Type	Output Capacitors (C4)	
	Input Voltage			Current (mA)	Capacitors (Q ₄ F)
	3V	5V			
1.5W	1000μF	470μF	P Positive Output	100	82
				125	120
				200	270
				250	330
				300	330
				600	680
3.0W	2200μF	1000μF	N Negative Output	100	82
				125	120
				200	270
				250	330
				300	680
				600	1000
			D Dual Output	50	82
				62	120
100	180				
125	330				

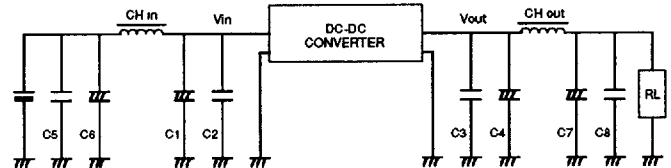
FN SERIES

INSTALLATION DIAGRAM

• Without choke coil



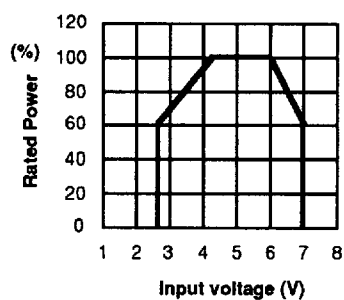
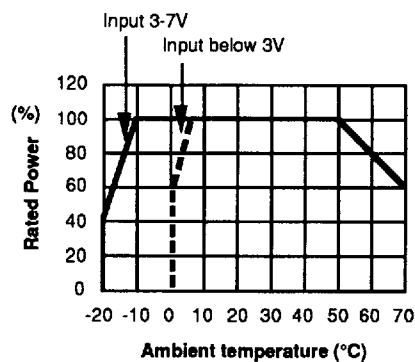
• With choke coil (standard method)



Notes:

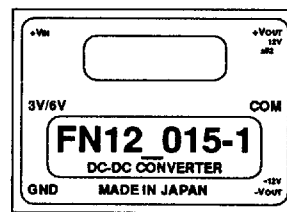
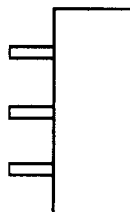
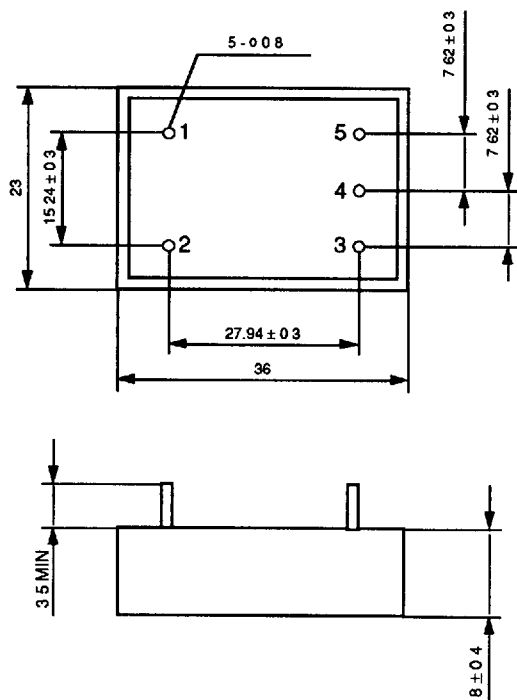
- 1 Input capacitor and choke coil should be within 20mm of terminals (as shown by thick lines in diagram)
- 2 C2, C3 0.047μF ceramic capacitors
- 3 C5, C8 0.01μF ceramic capacitors
- 4 CH: Please use impedance CH in = 22μF, CH out = 22μF, 33μF
- 4 Recommended parts CH in = 8RDB-220M, CH out = 8RDB-330M (TOKO part numbers)
- 5 C7 use: 82μF for 5V output
56μF for 12V output
39μF for 15V output
- 6 C8 use: 82μF

OPERATING CHARACTERISTICS



PHYSICAL DIMENSIONS

• 1.5W Type

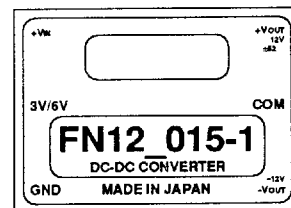
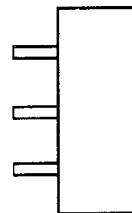
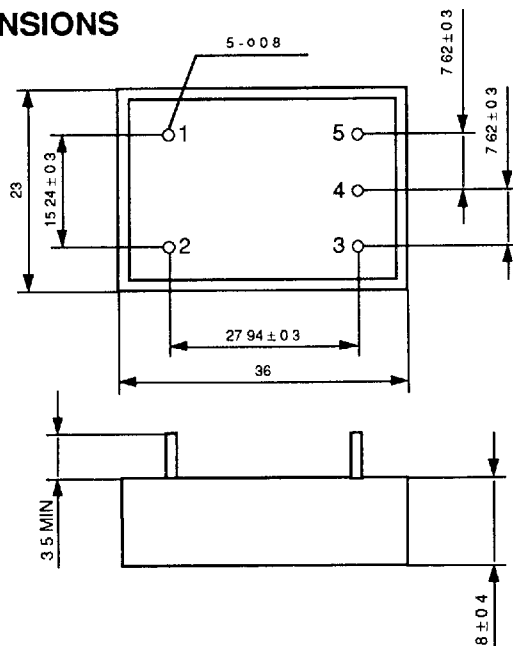


Positive out: Without Pin 5
Negative out: Without Pin 3

FN SERIES

PHYSICAL DIMENSIONS

• 3W Type



Positive out: Without Pin 5
Negative out: Without Pin 3

PIN ASSIGNMENTS

FN12P015-1

1 CH, Positive Output

1	GND
2	+Vin
3	+Vout
4	GND

FN12N015-1

1 CH, Negative Output

1	GND
2	+Vin
4	GND
5	-Vout

FN12D015-1

2 CH, Positive and Negative Output

1	GND
2	+Vin
3	+Vout
4	COM
5	-Vout

FN12P030-1

1 CH, Positive Output

1	GND
2	+Vin
3	+Vout
4	GND

FN12N015-1

1 CH, Negative Output

1	GND
2	+Vin
4	GND
5	-Vout

FN12D030-1

2 CH, Positive and Negative Output

1	GND
2	+Vin
3	+Vout
4	COM
5	-Vout

Note: Other products may be available to meet your specific requirements. Please contact your Toko representative for more information.

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