FDC15 SERIES

DC / DC Single & Dual Output: 15 Watts

Features

- 4:1 wide Input range option 9~36V & 18~75V
- Single & Dual outputs
- Industry Standard 2 x 1.6in package
- High efficiency up to 82%
- Regulated output & Short circuit protection
- 1600V isolation
- Five sided continuous copper shield
- Remote ON / OFF- Standard Positive logic
- High operating temperature +85ºC
- Fixed switching frequency
- Optional heat sink: **P/N: 7G-0011A**

Specifications:

Input Voltage	**24VDC** (9 ~ 36) **48VDC** (18 ~ 75)
Input Filter	Pi type
Input Surge Voltage. (100mS)	24V: 50VDC. 48V: 100VDC
Input Reflected Ripple Current	20mA pk-pk (@ nominal input & 100% load
Start Up time	20mS constant resistive load
Remote ON/OFF (Positive logic)	DC-DC ON Open or 3.5V < Vr < 12V DC-DC OFF Short or 0V < Vr < 1.2V Input current of remote control pin: 0.5mA Remote off state input current: 2.5mA
Output power	15 watts
Voltage Accuracy	±1.0%
Voltage Adjustment	±10% by external trim
Minimum Load	See table
Line Regulation	Single ±0.2% Dual ±0.5%
Load Regulation	Single ±0.5% , Dual ±1% (Min load -100% load)
Cross Regulation	±5% Asymmetrical load: 25-100% load)
Ripple & noise	See table. 20MHZ bandwidth
Temp. Coefficient	±0.02% / ºC
Transient Response	250uS (25% load step change)
Over Voltage Protection	5.0V: 6.2V 12V: 15V 15V: 18V
Overload Protection	Typically 150% of load
Short Circuit protection	Continuous hicc-up mode

Efficiency	Model dependant 80 ~ 82%
Isolation	1600VDC
Isolation Cap.	300pF
Switching Freq.	Standard 270KHz
Safety	EN60950-1, UL60950-1
Case Material	Nickel-coated copper
Base Material	Non-conductive black plastic
Potting	Epoxy UL94-V0
Dimensions	50.8 x 40.6 x 10.2mm
Weight	48g
MTBF	2.041 x 10^6 Hrs
Operating Temp	Standard: -45ºC to +85ºC (with derating)
Case Temp	+100ºC maximum case temperature
Thermal Impedance	10ºC / watt Standard convection 8.24ºC / watt with optional heatsink
Thermal shock	MIL-STD-810F
Vibration	10-55Hz, 10G, 30min along X, Y,Z
Humidity	5-95% RH
EMC	EN55022 Class A Consult office for Class B design
ESD	EN61000-4-2
Radiated Immunity	EN61000-4-3
Fast Transients	EN61000-4-4
Surge	EN61000-4-5
Conducted Immunity	EN61000-4-6

HELIOS
POWER SOLUTIONS

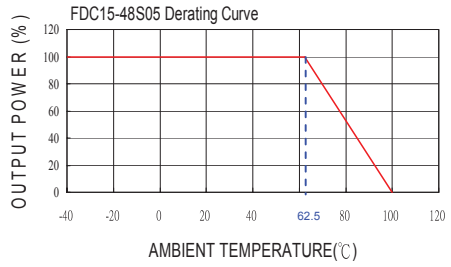
FDC15 SERIES

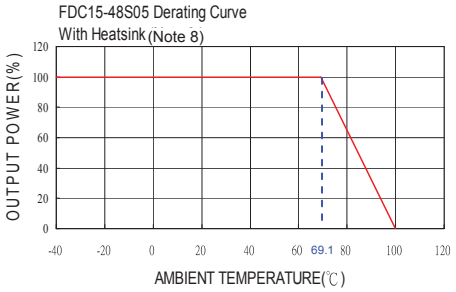
DC / DC Single & Dual Output: 15 Watts

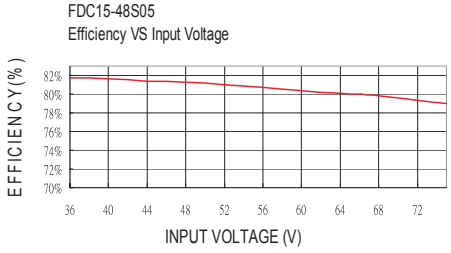
Model	Input V	Output V	Output Current		Output Ripple & Noise	Input Current		Eff (%)	Capacitor Load max
			Min. load	Full load		No load	Full load		
FDC15-24S05	9 – 36 V	5 V	210mA	3000mA	75mVp-p	20mA	822mA	80	6800uF
FDC15-24S12	9 – 36 V	12 V	100mA	1250mA	75mVp-p	10mA	801mA	82	890uF
FDC15-24S15	9 – 36 V	15 V	80mA	1000mA	75mVp-p	20mA	801mA	82	570uF
FDC15-24D05	9 – 36 V	± 5 V	± 105mA	± 1500mA	75mVp-p	20mA	822mA	80	± 1700uF
FDC15-24D12	9 – 36 V	± 12 V	± 50mA	± 625mA	75mVp-p	20mA	801mA	82	± 300uF
FDC15-24D15	9 – 36 V	± 15 V	± 40mA	± 500mA	75mVp-p	20mA	801mA	82	± 200uF
FDC15-48S05	18 – 75 V	5 V	210mA	3000mA	75mVp-p	15mA	411mA	80	6800uF
FDC15-48S12	18 – 75 V	12 V	100mA	1250mA	75mVp-p	15mA	401mA	82	890uF
FDC15-48S15	18 – 75 V	15 V	80mA	1000mA	75mVp-p	10mA	401mA	82	570uF
FDC15-48D05	18 – 75 V	± 5 V	± 105mA	± 1500mA	75mVp-p	10mA	411mA	80	± 1700uF
FDC15-48D12	18 – 75 V	± 12 V	±50mA	± 625mA	75mVp-p	20mA	401mA	82	± 300uF
FDC15-48D15	18 – 75 V	± 15 V	± 40mA	± 500mA	75mVp-p	15mA	401mA	82	± 200uF

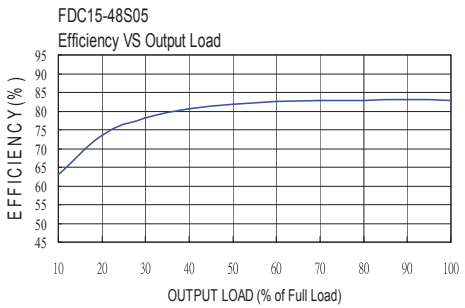
Notes:

1. MTBF as per BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40ºC. (Ground fixed and controlled environment).
2. Typical values at nominal input voltage and full load.
3. The output requires a minimum loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
4. The ON/OFF control pin voltage is reference to -Vin.
5. Heat-sink is optional and **P/N: 7G-0011A.**
6. An external filter capacitor is required if the module has to meet EN61000-4-5. The filter capacitor recommended: Nippon chemi-con KY series, 220μF/100V, ESR 48mΩ.



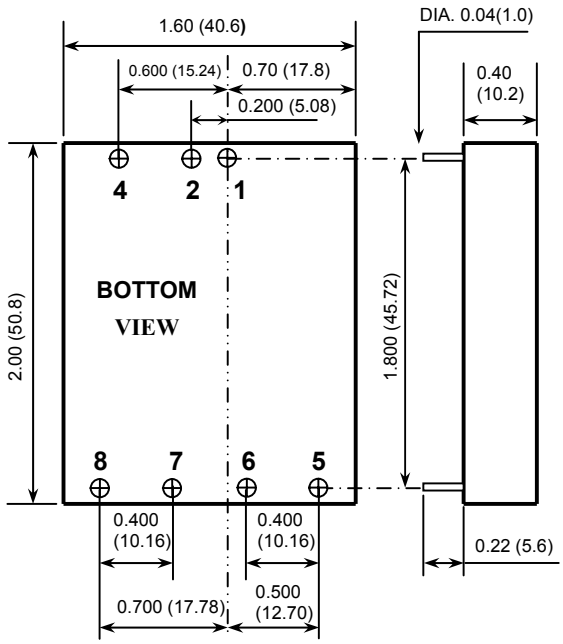






FDC15 SERIES

DC / DC Single & Dual Output: 15 Watts

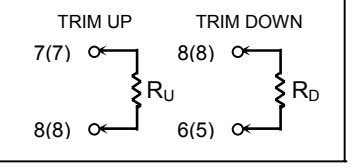


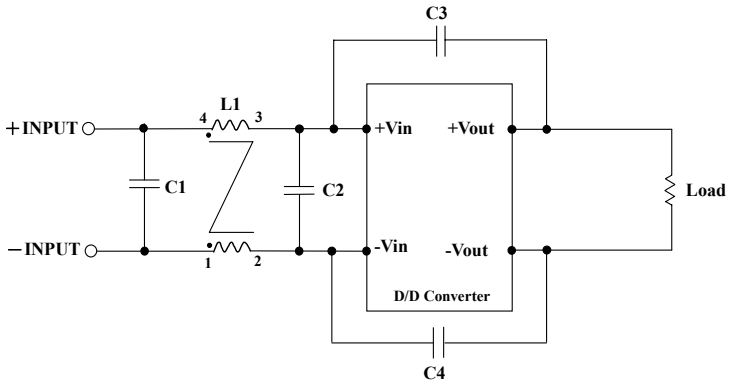
1. All dimensions in Inches (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01(0.25)
3. Pin dimension tolerance ±0.004 (0.1)

Pin Assignment		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
4	CTRL	CTRL
5	NO PIN	+ OUTPUT
6	+ OUTPUT	COMMON
7	- OUTPUT	- OUTPUT
8	TRIM	TRIM

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.
( ) for dual output trim

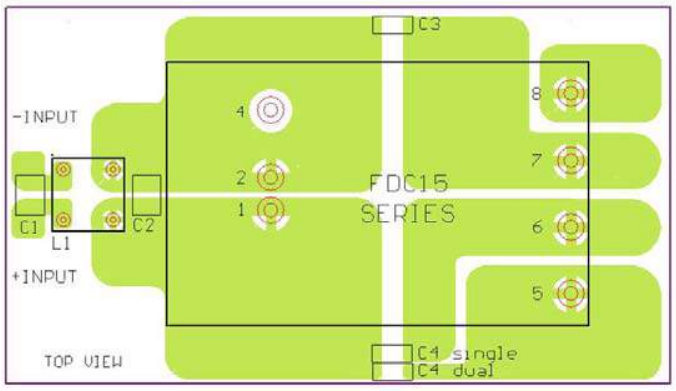




Recommended Filter for EN55022 Class B Compliance

The components used in the above figure, together with the manufacturers' part numbers for these components, are as follows:

	C1	C2	C3	C4	L1
FDC15-24xxx	6.8uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	450uH Common Choke PMT-048
FDC15-48xxx	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	1000pF/2KV MLCC	1000pF/2KV MLCC	450uH Common Choke PMT-048



Recommended EN55022 Class B Filter Circuit Layout