FDC10(W) SERIES

DC / DC Single & Dual Output: 10 Watts

AMTEX ELECTRONICS PTY LTD
www.amtex.com.au
"DC Power Solutions...not just components"

Features

- 2:1 standard input range
- 4:1 wide Input range option 9~36V & 18~75V
- Single & Dual outputs
- Industry Standard 2 x 1in package
- High efficiency up to 83%
- Regulated output & Short circuit protection
- 1600V isolation
- Five sided continuous copper shield
- Remote ON / OFF (Negative or Positive option)
- High operating temperature +85ºC
- Zero load operation
- M1 option: -40ºC to +85ºC (non-derating)
- M2 option: W series: -40ºC to +85ºC (with derating

Specifications:

Input Voltage	12VDC (9 ~ 18) 24VDC (18 ~ 36) 48VDC (36 ~75)
Option **(W)** models	24VDC (9 ~ 36) 48VDC (18 ~ 75)
Input Filter	Pi type
Input Surge Voltage. (100mS)	12V: 36VDC 24V: 50VDC. 48V: 100VDC
Input Reflected Ripple Current	30mA pk-pk (@ nominal input & 100% load
Start Up time	20mS constant resistive load
Remote ON/OFF	DC-DC ON Open or 3.0V < Vr < 12V DC-DC OFF Short or 0V < Vr < 1.2V
(Positive logic)	
(Negative logic)	DC-DC ON Short or 0V < Vr < 1.2V DC-DC OFF Open or 3.0V < Vr < 12V
(**Option**)	Input current of remote control pin: 0.5mA Remote off state input current: 2.5mA
Output power	10 watts
Voltage Accuracy	±1.0%
Minim Load	Zero
Line Regulation	Single ±0.2% Dual ±0.5%
Load Regulation	Single ±0.5% , Dual ±1% (0% -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	3.3V: 3.9V 5.0V: 6.2V 12V: 15V 15V: 18V
Overload Protection	Typically 150% of load
Short Circuit protection	Continuous hicc-up mode

Efficiency	Model dependant 78 ~ 87%
Isolation	1600VDC
Isolation Cap.	300pF
Switching Freq.	Standard 300KHz W series 400KHz
Safety	EN60950-1, UL60950-1
Case Material	Nickel-coated copper
Base Material	Non-conductive black plastic
Potting	Epoxy UL94-V0
Dimensions	50.8 x 25.4 x 10.2mm
Weight	27g
MTBF	1.976 x 10^6 Hrs
Operating Temp	Standard: -25ºC to +85ºC (with derating)
	M1 option: -40ºC to +85ºC (non-derating)
	M2 option: W series: -40ºC to +85ºC with derating
Case Temp	+100ºC maximum case temperature
Thermal Impedance	12ºC / watt Standard convection 10ºC / 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

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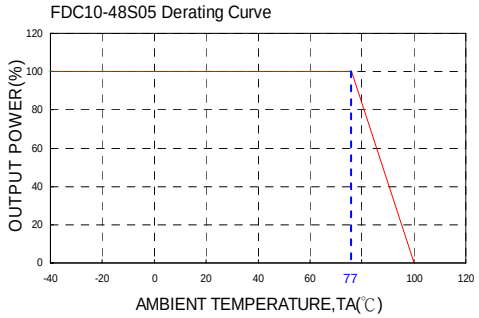
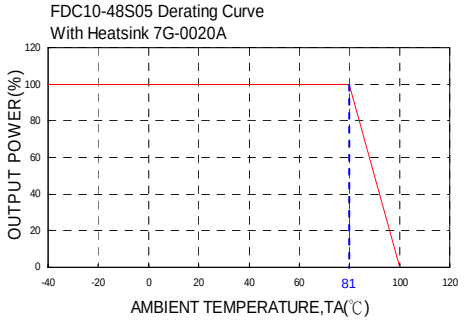
Model	Input V	Output V	Output Current		Output Ripple & Noise	Input Current		Eff (%)	Capacitor Load max
			Min. load	Full load		No load A	Full load A		
FDC10-12S33	9 – 18 V	3.3 V	0mA	2000mA	50mVp-p	17mA	724mA	80	6800uF
FDC10-12S05	9 – 18 V	5 V	0mA	2000mA	50mVp-p	21mA	1082mA	81	4700uF
FDC10-12S12	9 – 18 V	12 V	0mA	830mA	50mVp-p	38mA	1037mA	84	690uF
FDC10-12S15	9 – 18 V	15 V	0mA	670mA	50mVp-p	36mA	1046mA	84	470uF
FDC10-12D05	9 – 18 V	± 5 V	0mA	± 1000mA	75mVp-p	39mA	1042mA	84	± 680uF
FDC10-12D12	9 – 18 V	± 12 V	0mA	± 416mA	75mVp-p	47mA	1053mA	83	± 330uF
FDC10-12D15	9 – 18 V	± 15 V	0mA	± 333mA	75mVp-p	45mA	1041mA	84	± 110uF
FDC10-24S33 (W)	18 – 36 (9 – 36) V	3.3 V	0mA	2000(2500mA)	50mVp-p	15(13mA)	362(465mA)	80(78)	6800uF
FDC10-24S05 (W)	18 – 36 (9 – 36) V	5 V	0mA	2000mA	50mVp-p	22(11mA)	534 (548mA)	82 (80)	4700uF
FDC10-24S12 (W)	18 – 36 (9 – 36) V	12 V	0mA	830mA	50mVp-p	18(16mA)	519 (519mA)	84 (84)	690uF
FDC10-24S15 (W)	18 – 36 (9 – 36) V	15 V	0mA	670mA	50mVp-p	36(26mA)	523 (544mA)	84 (81)	470uF
FDC10-24D05 (W)	18 – 36 (9 – 36) V	± 5 V	0mA	± 1000mA	75mVp-p	28(15mA)	527 (534mA)	83 (82)	± 680uF
FDC10-24D12 (W)	18 – 36 (9 – 36) V	± 12 V	0mA	± 416mA	75mVp-p	24(15mA)	513 (547mA)	85 (80)	± 330uF
FDC10-24D15 (W)	18 – 36 (9 – 36) V	± 15 V	0mA	± 333mA	75mVp-p	31(22mA)	520 (548mA)	84 (80)	± 110uF
FDC10-48S33 (W)	36 – 75 (18 – 75) V	3.3 V	0mA	2000(2500mA)	50mVp-p	11(10mA)	181(239mA)	80(76)	6800uF
FDC10-48S05 (W)	36 – 75 (18 – 75) V	5 V	0mA	2000mA	50mVp-p	14(9mA)	260 (270mA)	84 (81)	4700uF
FDC10-48S12 (W)	36 – 75 (18 – 75) V	12 V	0mA	830mA	50mVp-p	14(9mA)	253 (259mA)	86 (84)	690uF
FDC10-48S15 (W)	36 – 75 (18 – 75) V	15 V	0mA	670mA	50mVp-p	10(11mA)	252 (262mA)	87 (84)	470uF
FDC10-48D05 (W)	36 – 75 (18 – 75) V	± 5 V	0mA	± 1000mA	75mVp-p	16(12mA)	260 (267mA)	84 (82)	± 680uF
FDC10-48D12 (W)	36 – 75 (18 – 75) V	± 12 V	0mA	± 416mA	75mVp-p	19(20mA)	254 (281mA)	86 (78)	± 330uF
FDC10-48D15 (W)	36 – 75 (18 – 75) V	± 15 V	0mA	± 333mA	75mVp-p	16(20mA)	256 (270mA)	85 (81)	± 110uF

Price & Stock Enquiry

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, resistive load
3. Remote ON/OFF control pin voltage is referenced to -Vin.
   To order positive logic ON/OFF control add the suffix-P (eg: FDC10-12S05-P); To order negative logic ON-OFF control add the suffix-N (eg: FDC10-12S05-N)
4. M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard and M2 version.
5. Heat sink is optional and P/N: 7G-0020A.
6. The FDC10 series can meet EN55022 Class A with parallel an external capacitor to the input pins.
   Recommend: 12Vin : 4.7μF/25V 1210 MLCC . 24Vin : 2.2μF/50V 1812 MLCC . 48Vin : 1.5μF/100V 1812 MLCC .
7. An external filter capacitor is required if the module has to meet EN61000-4-5. The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220μF/100V, ESR 48mΩ.





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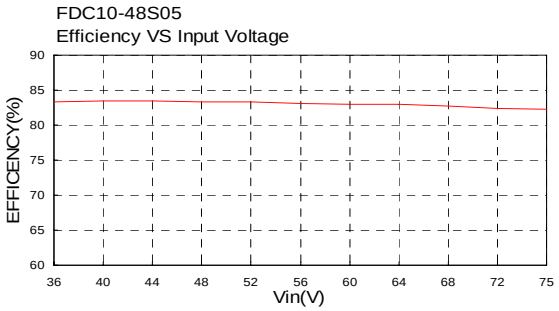
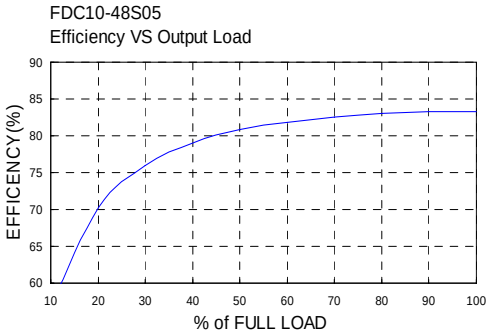
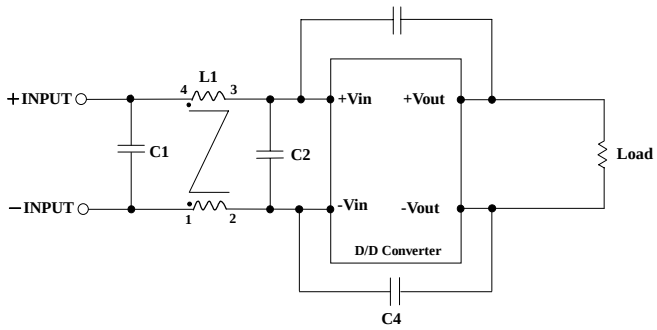
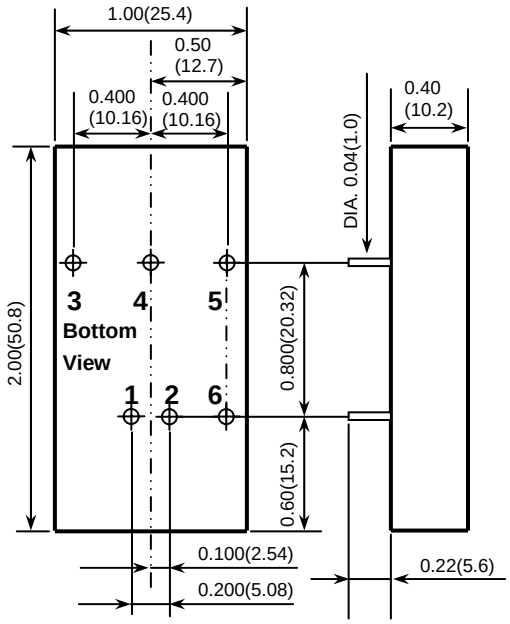








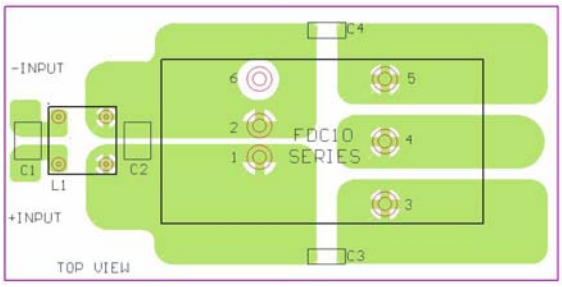
1. All dimensions in Inches (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01(0.25)
3. Pin dimension tolerance ±0.004 (0.1)

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
FDC10-12xxx	3.3uF/50V 1812 MLCC	N/A	1000P/2KV MLCC	1000P/2KV MLCC	325uH Common Choke PMT-050
FDC10-24xxx	2.2uF/50V 1812 MLCC	N/A	1000P/2KV MLCC	1000P/2KV MLCC	325uH Common Choke PMT-050
FDC10-48xxx	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	1000P/2KV MLCC	1000P/2KV MLCC	325uH Common Choke PMT-050

Pin Assignment		
PIN	**Single**	**Dual**
1	+ Input	+ Input
2	- Input	- INPUT
3	+ Output	+ Output
4	NO PIN	COMMON
5	- Output	- Output
6	CTRL (Option)	CTRL (Option)



Recommended EN55022 Class B Filter Circuit Layout