

FDC05(W) SERIES

DC / DC Single & Dual Output: 5 Watts



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 +85°C
- Zero load operation
- **M1** option: -40°C to +85°C (non-derating)
- **M2** option: **W series**: -40°C to +85° with derating

Specifications:

Input Voltage	12VDC (9 ~ 18) 24VDC (18 ~ 36) 48VDC (36 ~ 75)	Efficiency	Model dependant 76 ~ 83%
Option (W) models	24VDC (9 ~ 36) 48VDC (18 ~ 75)	Isolation	1600VDC
Input Filter	Pi type	Isolation Cap.	300pF
Input Surge Voltage. (100mS)	12V: 36VDC 24V: 50VDC. 48V: 100VDC	Switching Freq.	Standard 300KHz W series 400KHz
Input Reflected Ripple Current	20mA pk-pk (@ nominal input & 100% load	Safety	EN60950-1, UL60950-1
Start Up time	450mS constant resistive load	Case Material	Nickel-coated copper
Remote ON/OFF (Positive logic)	DC-DC ON Open or 3.0V < Vr < 12V DC-DC OFF Short or 0V < Vr < 1.2V	Base Material	Non-conductive black plastic
(Negative logic)	DC-DC ON Short or 0V < Vr < 1.2V DC-DC OFF Open or 3.0V < Vr < 12V	Potting	Epoxy UL94-V0
(Option)	Input current of remote control pin: 0.5mA Remote off state input current: 2.5mA	Dimensions	50.8 x 25.4 x 10.2mm
Output power	5 watts	Weight	27g
Voltage Accuracy	±1.0%	MTBF	3.145 x 10 ⁶ Hrs
Minim Load	Zero	Operating Temp	Standard: -25°C to +85°C (with derating) M1 option: -40°C to +85°C (non-derating) M2 option: W series : -40°C to +85° with derating
Line Regulation	Single ±0.2% Dual ±0.5%	Case Temp	+100°C maximum case temperature
Load Regulation	Single ±0.2% , Dual ±1% (0% -100% load)	Thermal Impedance	12°C / watt Standard convection 10°C / watt with optional heatsink
Cross Regulation	±5% Asymmetrical load: 25-100% load)	Thermal shock	MIL-STD-810F
Ripple & noise	See table. 20MHZ bandwidth	Vibration	10-55Hz, 10G, 30min along X, Y,Z
Temp. Coefficient	±0.02% / °C	Humidity	5-95% RH
Transient Response	200uS (25% load step change)	EMC	EN55022 Class A Consult office for Class B design
Overload Protection	Typically 150% of load	ESD	EN61000-4-2
Short Circuit protection	Continuous hiccup mode	Radiated Immunity	EN61000-4-3
		Fast Transients	EN61000-4-4
		Surge	EN61000-4-5
		Conducted Immunity	EN61000-4-6

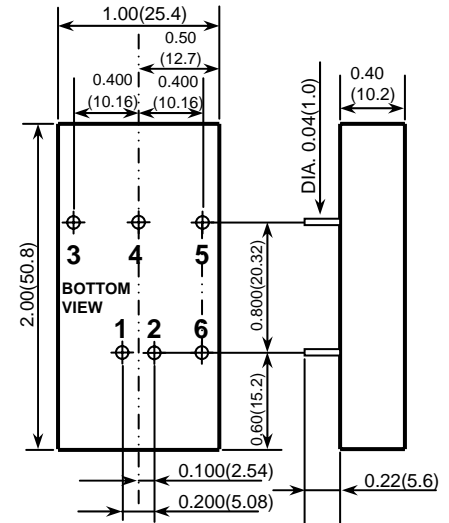
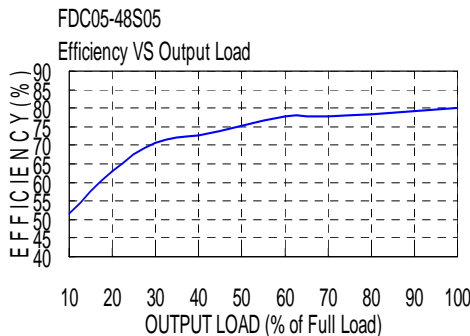
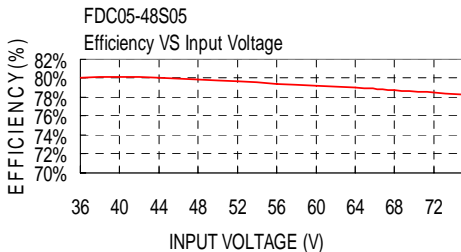
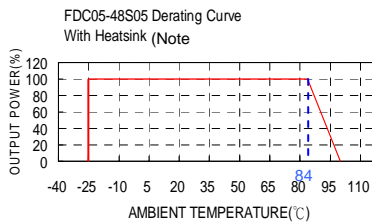
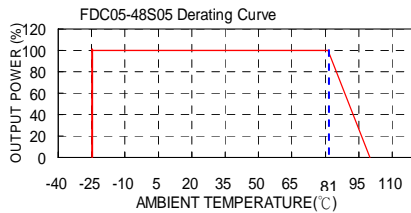
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Model	Input V	Output V	Output Current		Output Ripple & Noise	Input Current		Eff (%)	Capacitor Load max
			Min. load	Full load		No load	Full load		
FDC05-12S33	9 – 18 V	3.3 V	0mA	1000mA	50mVp-p	10mA	382mA	76	3700uF
FDC05-12S05	9 – 18 V	5 V	0mA	1000mA	50mVp-p	10mA	556mA	79	1700uF
FDC05-12S12	9 – 18 V	12 V	0mA	470mA	50mVp-p	10mA	610mA	81	290uF
FDC05-12S15	9 – 18 V	15 V	0mA	400mA	50mVp-p	15mA	658mA	80	188uF
FDC05-12D05	9 – 18 V	± 5 V	0mA	± 500mA	50mVp-p	20mA	556mA	79	± 850uF
FDC05-12D12	9 – 18 V	± 12 V	0mA	± 230mA	50mVp-p	15mA	597mA	81	± 140uF
FDC05-12D15	9 – 18 V	± 15 V	0mA	± 190mA	50mVp-p	20mA	609mA	82	± 47uF
FDC05-24S33 (W)	18 – 36 (9 – 36) V	3.3 V	0mA	1000mA	50mVp-p	15(5mA)	199 (188mA)	73 (77)	3700uF
FDC05-24S05 (W)	18 – 36 (9 – 36) V	5 V	0mA	1000mA	50mVp-p	15(5mA)	282 (274mA)	78 (80)	1700uF
FDC05-24S12 (W)	18 – 36 (9 – 36) V	12 V	0mA	470mA	50mVp-p	10(5mA)	305 (301mA)	81 (82)	290uF
FDC05-24S15 (W)	18 – 36 (9 – 36) V	15 V	0mA	400mA	50mVp-p	20(5mA)	325 (325mA)	81 (81)	188uF
FDC05-24D05 (W)	18 – 36 (9 – 36) V	± 5 V	0mA	± 500mA	50mVp-p	15(5mA)	278 (274mA)	79 (80)	± 850uF
FDC05-24D12 (W)	18 – 36 (9 – 36) V	± 12 V	0mA	± 230mA	50mVp-p	20(5mA)	295 (295mA)	82 (82)	± 140uF
FDC05-24D15 (W)	18 – 36 (9 – 36) V	± 15 V	0mA	± 190mA	50mVp-p	20(10mA)	308 (301mA)	81 (83)	± 47uF
FDC05-48S33 (W)	36 – 75 (18 – 75) V	3.3 V	0mA	1000mA	50mVp-p	5(5mA)	100 (100mA)	73 (73)	3700uF
FDC05-48S05 (W)	36 – 75 (18 – 75) V	5 V	0mA	1000mA	50mVp-p	10(10mA)	145 (145mA)	76 (76)	1700uF
FDC05-48S12 (W)	36 – 75 (18 – 75) V	12 V	0mA	470mA	50mVp-p	10(10mA)	151 (151mA)	82 (82)	290uF
FDC05-48S15 (W)	36 – 75 (18 – 75) V	15 V	0mA	400mA	50mVp-p	10(10mA)	160 (163mA)	82 (81)	188uF
FDC05-48D05 (W)	36 – 75 (18 – 75) V	± 5 V	0mA	± 500mA	50mVp-p	10(5mA)	141 (141mA)	78 (78)	± 850uF
FDC05-48D12 (W)	36 – 75 (18 – 75) V	± 12 V	0mA	± 230mA	50mVp-p	10(10mA)	149 (149mA)	81 (81)	± 140uF
FDC05-48D15 (W)	36 – 75 (18 – 75) V	± 15 V	0mA	± 190mA	50mVp-p	10(10mA)	154 (154mA)	81 (81)	± 47uF

Notes:

1. MTBF Calculation per BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
2. Typical values at nominal input voltage and full load
3. Ripple & Noise test by minimum Vin and constant resistive load.
4. The ON/OFF control pin voltage is referenced to -Vin
 - To order positive logic ON/OFF control add the suffix-P eg: FDC05-48S05-P. To order negative logic ON/OFF control add the suffix -N (eg: FDC05-48S05-N)
5. M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard and M2 version.
6. Heat sink is optional and P/N: 7G-0020A.
7. An external filter capacitor is required if the module has to meet EN61000-4-5.
8. The filter capacitor suggest: Nippon chemi-con KY series, 220µF/100V, ESR 48mΩ.



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 Output	Dual Output
1	+ Input	+ Input
2	- Input	- Input
3	+ Output	+ Output
4	NO PIN	COMMON
5	- Output	- Output
6	CTRL (Option)	CTRL (Option)