



## FEATURES

- 10 WATTS OUTPUT POWER
- OUTPUT CURRENT UP TO 2.5A
- STANDARD 2.0 X 1.0 X 0.4 INCH PACKAGE
- HIGH EFFICIENCY UP TO 87%
- 2:1 AND 4:1 WIDE INPUT VOLTAGE RANGE
- SIX-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY (300kHz)
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

## OPTIONS

NEGATIVE & POSITIVE LOGIC REMOTE ON/OFF

## APPLICATIONS

Wireless Network  
Telecom/Datacom  
Industry Control System  
Measurement Equipment  
Semiconductor Equipment

## DESCRIPTION

The FDC10 and FDC10-W series offer 10 watts of output power from a 2.0 x 1.0 x 0.4 inch package. FDC10 series have 2:1 wide input voltage of 9 ~ 18, 18 ~ 36 and 36 ~ 75VDC. FDC10-W series have 4:1 ultra wide input voltage of 9 ~ 36 and 18 ~ 75VDC.

## TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25°C otherwise noted.

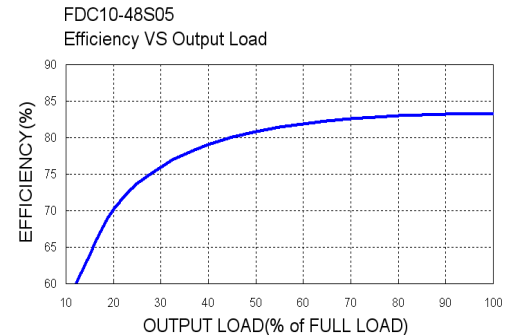
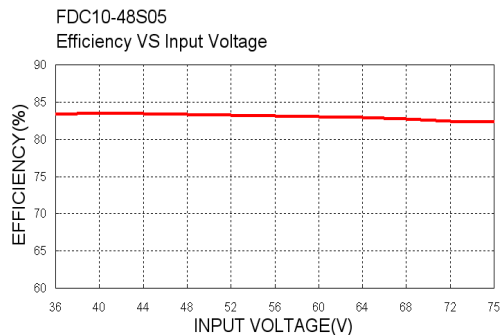
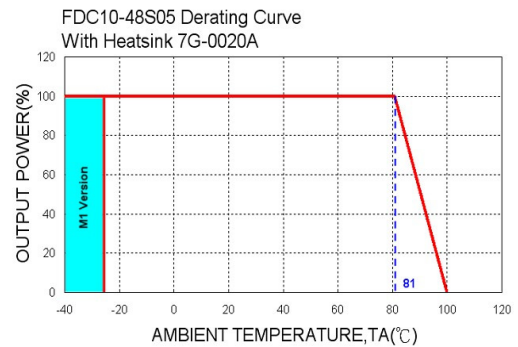
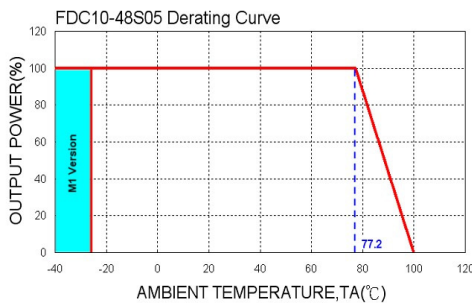
OUTPUT SPECIFICATIONS				INPUT SPECIFICATIONS			
Output power	10 Watts, max.			FDC10	12VDC nominal input	9 ~ 18VDC	
Voltage accuracy	Single / Dual	± 1%		Input voltage range	24VDC nominal input	18 ~ 36VDC	
Minimum load	0%				48VDC nominal input	36 ~ 75VDC	
Line regulation	LL to HL at Full Load	Single / Dual	± 0.2%	FDC10-W	24VDC nominal input	9 ~ 36VDC	
Load regulation	No Load to Full Load	Single / Dual	± 0.5% / ± 1%	Input filter	48VDC nominal input	18 ~ 75VDC	
Cross regulation(Dual)	Asymmetrical load 25% / 100% FL	± 5%		Input surge voltage	12VDC input	36VDC 100ms, max.	
Ripple and noise	20MHz bandwidth	Single / Dual	See table		24VDC input	50VDC 100ms, max.	
Temperature coefficient	±0.02% / °C, max.			Input reflected ripple current	48VDC input	100VDC 100ms, max.	
Transient response recovery time 25% load step change	250µs			Start up time	Nominal input and Constant resistive load	Power up	20ms
Over voltage protection	3.3VDC output	3.9VDC		Remote ON/OFF (Option) (Note 6)			
Zener diode clamp	5VDC output	6.2VDC		(Positive logic)	DC-DC ON	Open or 3.5V < Vr < 12V	
Over load protection	12VDC output	15VDC		(Negative logic)	DC-DC OFF	Short or 0V < Vr < 1.2V	
Short circuit protection	15VDC output	18VDC			DC-DC ON	Short or 0V < Vr < 1.2V	
	15VDC output	18VDC		Input current of remote control pin	Nominal input	-0.5mA ~ +1mA	
	% of FL at nominal input	150%, max.		Remote off state input current	Nominal input	20mA	
	Continuous, automatic recovery			ENVIRONMENTAL SPECIFICATIONS			
GENERAL SPECIFICATIONS				Operating ambient temperature	Standard	-25°C ~ +85°C (with derating)	
Efficiency	See table				M1 (Note 7)	-40°C ~ +85°C (non-derating)	
Isolation voltage	Input to Output	1600VDC, min. 1minute		(Reference derating curve)	M2 (W series)	-40°C ~ +85°C (with derating)	
	Input(Output) to Case	1600VDC, min. 1minute		Maximum case temperature	+105°C		
Isolation resistance	500VDC	10 <sup>9</sup> ohms, min.		Storage temperature range	-55°C ~ +125°C		
Isolation capacitance	300pF, max.			Thermal impedance (Note 8)	Nature convection	12°C/watt	
Switching frequency	300kHz±10%				Nature convection with heat-sink	10°C/watt	
Safety approvals	IEC60950-1, UL60950-1, & EN60950-1			Thermal shock	MIL-STD-810F		
Case material	Nickel-coated copper			Vibration	MIL-STD-810F		
Base material	Non-conductive black plastic			Relative humidity	5% to 95% RH		
Potting material	Epoxy (UL94 V-0)			EMC CHARACTERISTICS			
Dimensions	2.00 X 1.00 X 0.40 Inch (50.8 X 25.4 X 10.2 mm)			EMI (Note 9)	EN55022		Class B
Weight	27g (0.95oz)			ESD	EN61000-4-2	Air Contact	± 8kV / ± 6kV Perf. Criteria B
MTBF (Note 1)	MIL-HDBK-217F	3.342 x 10 <sup>6</sup> hrs		Radiated immunity	EN61000-4-3	10 V/m Perf. Criteria A	
				Fast transient (Note 10)	EN61000-4-4	± 2kV Perf. Criteria B	
				Surge (Note 10)	EN61000-4-5	± 1kV Perf. Criteria B	
				Conducted immunity	EN61000-4-6	10 Vr.m.s Perf. Criteria A	

Model Number	Input Range	Output Voltage	Output Current		Output <sup>(2)</sup> Ripple & Noise	No load <sup>(3)</sup> Input Current	Eff <sup>(4)</sup> (%)	Capacitor <sup>(5)</sup> Load max
			Min. load	Full load				
FDC10-12S33	9 ~ 18 VDC	3.3 VDC	0mA	2000mA	50mVp-p	17mA	80	6800µF
FDC10-12S05	9 ~ 18 VDC	5 VDC	0mA	2000mA	50mVp-p	21mA	81	4700µF
FDC10-12S12	9 ~ 18 VDC	12 VDC	0mA	830mA	50mVp-p	38mA	84	690µF
FDC10-12S15	9 ~ 18 VDC	15 VDC	0mA	670mA	50mVp-p	36mA	84	470µF
FDC10-12D05	9 ~ 18 VDC	± 5 VDC	0mA	± 1000mA	75mVp-p	39mA	84	± 680µF
FDC10-12D12	9 ~ 18 VDC	± 12 VDC	0mA	± 416mA	75mVp-p	47mA	83	± 330µF
FDC10-12D15	9 ~ 18 VDC	± 15 VDC	0mA	± 333mA	75mVp-p	45mA	84	± 110µF
FDC10-24S33 (W)	18 ~ 36 (9 ~ 36) VDC	3.3 VDC	0mA	2000(2500mA)	50mVp-p	15(13mA)	80(78)	6800µF
FDC10-24S05 (W)	18 ~ 36 (9 ~ 36) VDC	5 VDC	0mA	2000mA	50mVp-p	22(11mA)	82 (80)	4700µF
FDC10-24S12 (W)	18 ~ 36 (9 ~ 36) VDC	12 VDC	0mA	830mA	50mVp-p	18(16mA)	84 (84)	690µF
FDC10-24S15 (W)	18 ~ 36 (9 ~ 36) VDC	15 VDC	0mA	670mA	50mVp-p	36(26mA)	84 (81)	470µF
FDC10-24D05 (W)	18 ~ 36 (9 ~ 36) VDC	± 5 VDC	0mA	± 1000mA	75mVp-p	28(15mA)	83 (82)	± 680µF
FDC10-24D12 (W)	18 ~ 36 (9 ~ 36) VDC	± 12 VDC	0mA	± 416mA	75mVp-p	24(15mA)	85 (80)	± 330µF
FDC10-24D15 (W)	18 ~ 36 (9 ~ 36) VDC	± 15 VDC	0mA	± 333mA	75mVp-p	31(22mA)	84 (80)	± 110µF
FDC10-48S33 (W)	36 ~ 75 (18 ~ 75) VDC	3.3 VDC	0mA	2000(2500mA)	50mVp-p	11(10mA)	80(76)	6800µF
FDC10-48S05 (W)	36 ~ 75 (18 ~ 75) VDC	5 VDC	0mA	2000mA	50mVp-p	14(9mA)	84 (81)	4700µF
FDC10-48S12 (W)	36 ~ 75 (18 ~ 75) VDC	12 VDC	0mA	830mA	50mVp-p	14(9mA)	86 (84)	690µF
FDC10-48S15 (W)	36 ~ 75 (18 ~ 75) VDC	15 VDC	0mA	670mA	50mVp-p	10(11mA)	87 (84)	470µF
FDC10-48D05 (W)	36 ~ 75 (18 ~ 75) VDC	± 5 VDC	0mA	± 1000mA	75mVp-p	16(12mA)	84 (82)	± 680µF
FDC10-48D12 (W)	36 ~ 75 (18 ~ 75) VDC	± 12 VDC	0mA	± 416mA	75mVp-p	19(20mA)	86 (78)	± 330µF
FDC10-48D15 (W)	36 ~ 75 (18 ~ 75) VDC	± 15 VDC	0mA	± 333mA	75mVp-p	16(20mA)	85 (81)	± 110µF

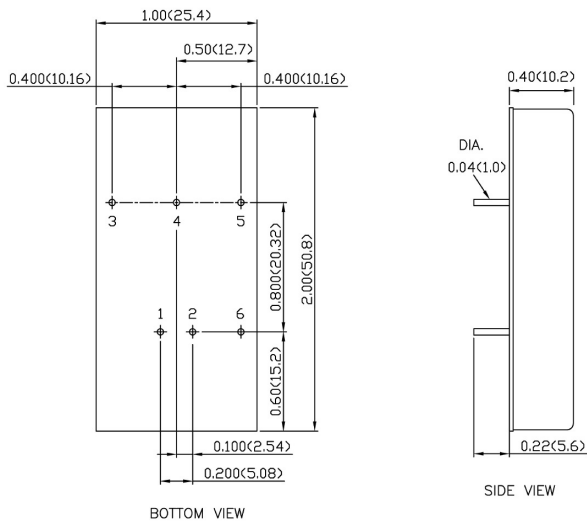
**Note**

1. MIL-HDBK-217F @Ta=25 °C, Full load.
2. Typical value at nominal input and full load. (20MHz BW.)
3. Typical value at nominal input voltage and no load.
4. Typical value at nominal input voltage and full load.
5. Test by minimum input and constant resistive load.
6. The ON/OFF control pin voltage is referenced to -INPUT  
To order positive logic ON/OFF control add the suffix-P (Ex: FDC10-12S05-P);  
To order negative logic ON-OFF control add the suffix-N (Ex: FDC10-12S05-N)
7. M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard and M2 version.
8. Heat-sink is optional and P/N: 7G-0020C-F.
9. The FDC10 series standard module meets EN55022 Class A and Class B with external components.  
For more detail information, please contact with P-DUKE.
10. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.  
The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220 µ F/100V.

**CAUTION:** This power module is not internally fused. An input line fuse must always be used.



**MECHANICAL DRAWING :**



PIN CONNECTION		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
3	+ OUTPUT	+ OUTPUT
4	NO PIN	COMMON
5	- OUTPUT	- OUTPUT
6	CTRL(Optional)	CTRL(Optional)

1. All dimensions in Inch (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)