



FDC05-SERIES



UL E193009
TUV R3-50007936
CB JPTUV-003641
CE MARK

- **5 WATTS OUTPUT POWER**
- **2:1 AND 4:1 WIDE INPUT VOLTAGE RANGE**
- **INTERNATIONAL SAFETY STANDARD APPROVAL**
- **SIX-SIDED CONTINUOUS SHIELD**
- **HIGH EFFICIENCY UP TO 83%**
- **STANDARD 2" X 1" X 0.4" PACKAGE**
- **FIXED SWITCHING FREQUENCY**

The FDC05 and FDC05-W series offer 5 Watts of output power from a 2 x 1 x 0.4 inches package without derating to 71°C ambient temperature. FDC05 series have 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC. FDC05-W series have 4:1 ultra wide input voltage of 9-36 and 18-75VDC. The FDC05 and FDC05-W features 1600VDC of isolation, short-circuit protection, as well as six sided shielding. The safety approve with EN60950 and UL1950. All models are particularly suited to telecommunications, industrial, mobile telecom and test equipment applications. According the extended operation temperature range, there are "M1" and "M2" version for special application.

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

OUTPUT SPECIFICATIONS				
Output power		5 Watts max		
Voltage accuracy	Full load and nominal	Vin	± 2%	
Minimum load (Note 1)				10% of FL
Line regulation	LL to HL at Full Load			± 0.2%
Load regulation	10% to 100% FL Single Dual			± 0.2% ± 1%
Cross regulation (Dual)	Asymmetrical load 25%	/	100% FL	± 5%
Ripple and noise	20MHz bandwidth			50mVp-p
Temperature coefficient				±0.02% / °C, max
Transient response recovery time	25% load step change FL to 1/2 FL ±1% error band			Single 200uS Dual 200uS
Over load protection	% of FL at nominal	input	170% typ	
Short circuit protection		Continuous, automatics recovery		
INPUT SPECIFICATIONS				
Input voltage range	FDC05	12V nominal input	24V	9 – 18VDC
	FDC05-W	nominal input	48V	18 – 36VDC
		nominal input	24V	36 – 75VDC
		nominal input	48V	9 – 36VDC
		nominal input		18 – 75VDC
Input filter		Pi type		
Input surge voltage 100mS max	12V input	24V input	36VDC	
	48V input		50VDC 100VDC	
Input reflected ripple	Nominal	Vin and full load	20mA-p-p	
Start up time	Nominal Vin and constant resistor load			600mS typ
Remote ON/OFF (Note 2)				
(Positive logic)	DC-DC ON	Open or 3.5V < Vr < 12V		
	DC-DC OFF	Short or 0V < Vr < 1.2V		
(Negative logic)	DC-DC ON	Short or 0V < Vr < 1.2V		
	DC-DC OFF	Open or 3.5V < Vr < 12V		
Remote off input current	Nominal Vin			2.5mA

GENERAL SPECIFICATIONS			
Efficiency		See table	
Isolation Voltage	Input to Output to Case	1600VDC, min	
Isolation resistance	109ohms, min		
Isolation capacitance	300pF, max		
Switching frequency	Standard "W" series	300KHz, typ 200KHz, typ	
Approvals and standard	IEC60950, UL1950, EN60950		
Case material	Nickel-coated copper		
Base material	Non-conducted black plastic		
Potting material	Epoxy (UL94-V0)		
Dimensions	2.00 X 1.00 X 0.40 Inches (50.8 X 25.4 X 10.2 mm)		
Weight	27g (0.95oz)		
MTBF (Note 3)	3.145 x 10 ⁶ hrs		
ENVIRONMENTAL SPECIFICATIONS			
Operating temperature range (Reference derating curve)	Standard M1 (Note 4) M2 (W series)	-25°C ~ +85°C (with derating) -40°C ~ +85°C (non-derating) -40°C ~ +85°C (with derating)	
Maximum case temperature	+100°C		
Storage temperature range	-55°C ~ +105°C		
Thermal impedance (Note 5) Nature convection	Nature convection	12°C/watt 10°C/watt	
Thermal shock	MIL-STD-810D		
Vibration	10~55Hz, 2G, 30minutes along X,Y and Z		
Relative humidity	5% to 95% RH		
EMC CHARACTERISTICS			
Conducted emissions	EN55022	Level A	
Radiated emissions	EN55022	Level A	
Conducted immunity	EN61000-4-6	Perf. Criteria2	
Radiated immunity	EN61000-4-3	Perf. Criteria2	
Surge	EN61000-4-5	Perf. Criteria2	
Fast transient	EN61000-4-4	Perf. Criteria2	
ESD	EN61000-4-2	Perf. Criteria2	



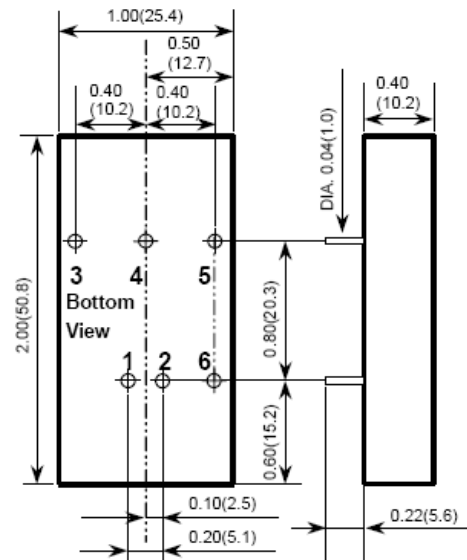
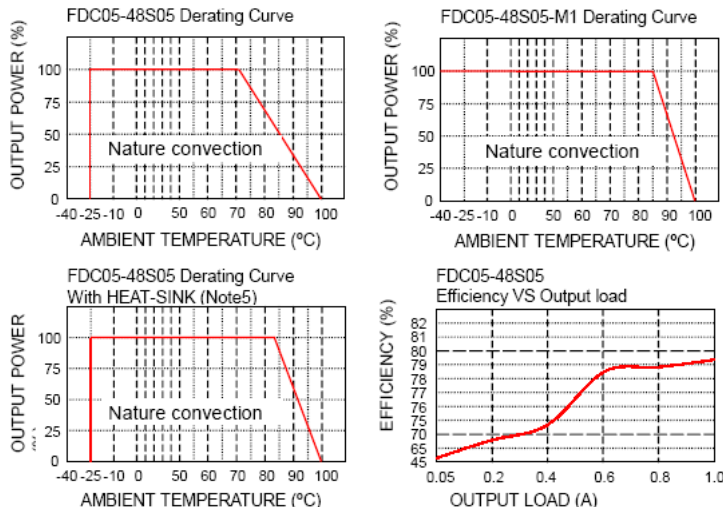
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Model Number	Input Range	Output Voltage	Output Current	Input Current (6)	Eff (7) (%)	Capacitor Load max(8)
FDC05-12S33	9 – 18 VDC	3.3 VDC	1000mA	387mA	75	3700uF
FDC05-12S05	9 – 18 VDC	5 VDC	1000mA	556mA	79	1700uF
FDC05-12S12	9 – 18 VDC	12 VDC	470mA	610mA	81	290uF
FDC05-12S15	9 – 18 VDC	15 VDC	400mA	658mA	80	188uF
FDC05-12D05	9 – 18 VDC	± 5 VDC	± 500mA	595mA	74	± 850uF
FDC05-12D12	9 – 18 VDC	± 12 VDC	± 230mA	597mA	81	± 140uF
FDC05-12D15	9 – 18 VDC	± 15 VDC	± 190mA	609mA	82	± 47uF
FDC05-24S33 (W)	18 – 36 (9 – 36) VDC	3.3 VDC	1000mA	199 (196mA)	73 (74)	3700uF
FDC05-24S05 (W)	18 – 36 (9 – 36) VDC	5 VDC	1000mA	282 (274mA)	78 (80)	1700uF
FDC05-24S12 (W)	18 – 36 (9 – 36) VDC	12 VDC	470mA	305 (301mA)	81 (82)	290uF
FDC05-24S15 (W)	18 – 36 (9 – 36) VDC	15 VDC	400mA	325 (325mA)	81 (81)	188uF
FDC05-24D05	18 – 36 (9 – 36) VDC	± 5 VDC	± 500mA	289 (289mA)	76 (76)	± 850uF
FDC05-24D12 (W)	18 – 36 (9 – 36) VDC	± 12 VDC	± 230mA	295 (295mA)	82 (82)	± 140uF
FDC05-24D15 (W)	18 – 36 (9 – 36) VDC	± 15 VDC	± 190mA	308 (301mA)	81 (83)	± 47uF
FDC05-48S33 (W)	36 – 75 (18 – 75) VDC	3.3 VDC	1000mA	100 (100mA)	73 (73)	3700uF
FDC05-48S05 (W)	36 – 75 (18 – 75) VDC	5 VDC	1000mA	145 (149mA)	76 (74)	1700uF
FDC05-48S12 (W)	36 – 75 (18 – 75) VDC	12 VDC	470mA	151 (151mA)	82 (82)	290uF
FDC05-48S15 (W)	36 – 75 (18 – 75) VDC	15 VDC	400mA	160 (163mA)	82 (81)	188uF
FDC05-48D05 (W)	36 – 75 (18 – 75) VDC	± 5 VDC	± 500mA	149 (149mA)	74 (74)	± 850uF
FDC05-48D12 (W)	36 – 75 (18 – 75) VDC	± 12 VDC	± 230mA	149 (149mA)	81 (81)	± 140uF
FDC05-48D15 (W)	36 – 75 (18 – 75) VDC	± 15 VDC	± 190mA	154 (154mA)	81 (81)	± 47uF

Note

1. The FDC05 (W) series required a minimum 10% 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
2. The ON/OFF control is option function. There are positive logic and negative logic. The pin voltage is referenced to negative input
3. To order positive logic ON-OFF control add the suffix ' P ' (Ex: FDC05-24S05P)
To order negative logic ON-OFF control add the suffix ' N ' (Ex: FDC05-24S05N)
3. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
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. Maximum value at nominal input voltage and full load of standard type.
7. Typical value at nominal input voltage and full load.
8. Test by minimum Vin and constant resistor load.

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



1. All dimensions in Inches (mm)
2. Pin Pitch tolerance ±0.014(0.35)