FDC40 SERIES

DC / DC Single, Dual & Triple Output: 40 Watts

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

Features

- 2:1 Input range: 12V, 24V and 48VDC
- Single, Dual and Triple outputs
- Industry Standard 2 x 2.0in package
- High efficiency up to 89%
- Regulated output & Short circuit protection
- 1600V isolation
- Five sided continuous copper shield
- High operating temperature +85ºC
- Fixed switching frequency
- Remote ON / OFF standard
- Output voltage trim

Specifications:

Input Voltage	**12VDC** (9 ~ 18) **24VDC** (18 ~ 36) **48VDC** (36 ~ 75)
Input Filter	Pi type
Input Surge Voltage. (100mS)	12V: 36VDC, 24V: 50VDC, 48V:100VDC
Input Reflected Ripple Current	40mA pk-pk @ nominal input & 100% load
Start Up time	25mS 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: 30mA
Output power	40 watts
Voltage Accuracy	Single & Dual ±2% Auxiliary: ±5%
Voltage Trim	Singles only: ±10% via external resistor
Minimum Load	3.3V output 20% minimum Other models 10% minimum
Line Regulation	Single ±0.5% Dual: ±1% Triple Main: ±1% Aux: ±5%
Load Regulation	Single ±0.5% , Dual ±1% Triple Main: ±1%, Triple Aux: ±5%
Cross Regulation	Triple main: ±1% Dual , Triple, Aux: ±5% Asymmetrical load: Min load-100% load
Ripple & noise	See table, 20MHZ bandwidth
Temp. Coefficient	±0.02% / ºC
Transient Response	500uS (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 81 ~ 89%
Isolation	1600VDC
Isolation Cap.	500pF
Switching Freq.	185KHz
Safety	EN60950-1, UL60950-1
Case Material	Nickel-coated copper
Base Material	Non-conductive black plastic
Potting	Epoxy UL94-V0
Dimensions	77 x 66.5 x 10.2mm
Weight	125g
MTBF	1.590 x 10^6 Hrs
Operating Temp	-40ºC to +85ºC (with derating)
Case Temp	+100ºC maximum case temperature
Thermal Impedance	7.28ºC / watt Standard convection 1.62ºC / watt with 500LFM
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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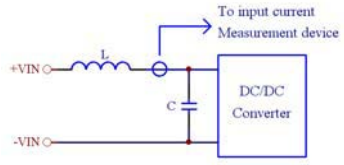
Model	Input V	Output V	Output Current	Output Ripple & Noise	Input Current	Eff (%)	Capacitor Load max
FDC40-12S33	9 – 18 V	3.3 V	10000mA	50mVp-p	3530mA	82	25800uF
FDC40-12S05	9 – 18 V	5 V	8000mA	50mVp-p	4120mA	85	13600uF
FDC40-12S12	9 – 18 V	12 V	3400mA	120mVp-p	4150mA	86	2400uF
FDC40-12S15	9 – 18 V	15 V	2700mA	150mVp-p	4120mA	86	1550uF
FDC40-12D05	9 – 18 V	± 5 V	+7000 / -1000mA	75mVp-p	4330mA	81	12000 / 1700uF
FDC40-12D12	9 – 18 V	± 12 V	± 1800mA	120mVp-p	4550mA	83	± 1200uF
FDC40-12D15	9 – 18 V	± 15 V	± 1400mA	150mVp-p	4430mA	83	± 750uF
FDC40-12D3305	9 – 18 V	3.3 / 5V	4000 / 4000mA	75mVp-p	3730mA	78	10300 / 6800uF
FDC40-12T0512	9 – 18 V	5 / ± 12 V	4000 / ± 850mA	50 / 120mVp-p	4490mA	79	6800 / ± 590uF
FDC40-12T0515	9 – 18 V	5 / ± 15 V	4000 / ± 680mA	50 / 150mVp-p	4430mA	80	6800 / ± 380uF
FDC40-24S33	18 – 36 V	3.3 V	10000mA	50mVp-p	1660mA	87	25800uF
FDC40-24S05	18 – 36 V	5 V	8000mA	50mVp-p	1990mA	88	13600uF
FDC40-24S12	18 – 36 V	12 V	3400mA	120mVp-p	2000mA	89	2400uF
FDC40-24S15	18 – 36 V	15 V	2700mA	150mVp-p	1990mA	89	1550uF
FDC40-24D05	18 – 36 V	± 5 V	+7000 / -1000mA	75mVp-p	2160mA	81	12000 / 1700uF
FDC40-24D12	18 – 36 V	± 12 V	± 1800mA	120mVp-p	2200mA	86	± 1200uF
FDC40-24D15	18 – 36 V	± 15 V	± 1400mA	150mVp-p	2140mA	86	± 750uF
FDC40-24D3305	18 – 36 V	3.3 / 5V	4000 / 4000mA	75mVp-p	1840mA	79	10300 / 6800uF
FDC40-24T0512	18 – 36 V	5 / ± 12 V	4000 / ± 850mA	50 / 120mVp-p	2220mA	80	6800 / ± 590uF
FDC40-24T0515	18 – 36 V	5 / ± 15 V	4000 / ± 680mA	50 / 150mVp-p	2160mA	82	6800 / ± 380uF
FDC40-48S33	36 – 75 V	3.3 V	10000mA	50mVp-p	850mA	85	25800uF
FDC40-48S05	36 – 75 V	5 V	8000mA	50mVp-p	980mA	89	13600uF
FDC40-48S12	36 – 75 V	12 V	3400mA	120mVp-p	1000mA	89	2400uF
FDC40-48S15	36 – 75 V	15 V	2700mA	150mVp-p	1000mA	88	1550uF
FDC40-48D05	36 – 75 V	± 5 V	+7000 / -1000mA	75mVp-p	1060mA	84	12000 / 1700uF
FDC40-48D12	36 – 75 V	± 12 V	± 1800mA	120mVp-p	1100mA	86	± 1200uF
FDC40-48D15	36 – 75 V	± 15 V	± 1400mA	150mVp-p	1070mA	86	± 750uF
FDC40-48D3305	36 – 75 V	3.3 / 5V	4000 / 4000mA	75mVp-p	910mA	80	10300 / 6800uF
FDC40-48T0512	36 – 75 V	5 / ± 12 V	4000 / ± 850mA	50 / 120mVp-p	1060mA	83	6800 / ± 590uF
FDC40-48T0515	36 – 75 V	5 / ± 15 V	4000 / ± 680mA	50 / 150mVp-p	1060mA	83	6800 / ± 380uF

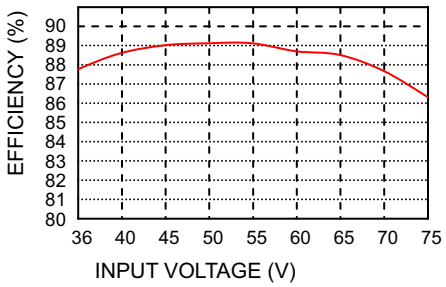
Price & Stock Enquiry

Notes:

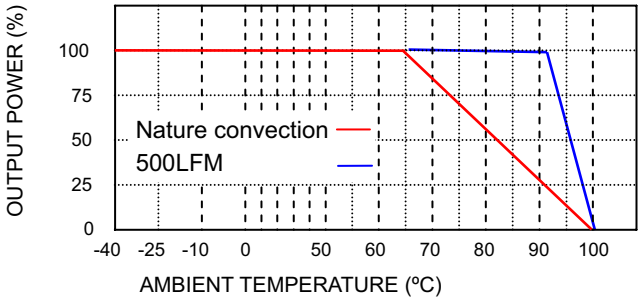
1. Maximum output deviation is 10% inclusive of remote sense and trim. If remote sense is not being used, the +Vsense should be connected to its corresponding +OUTPUT and likewise the sense should be connected to its corresponding –OUTPUT.
2. The FDC40 series required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
3. Cross regulation:
   Dual output—Asymmetrical load 25% to 100% full load
   Triple output – 3.3V / 5V 100% load and one of auxiliary 100% load, other auxiliary load change from 25% to 100% load
4. Please add an external filter at converter input terminals when measuring input reflected ripple, as Figure 1.
   L : Simulated source impedance of 12uH. C: Nippon chemi-con KMF series, 220µF/100V
5. The ON-OFF control pin voltage is reference to negative input.
6. MTBF as per BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40ºC.
   (Ground fixed and controlled environment)
7. Typical values at nominal input voltage and full resistive I load



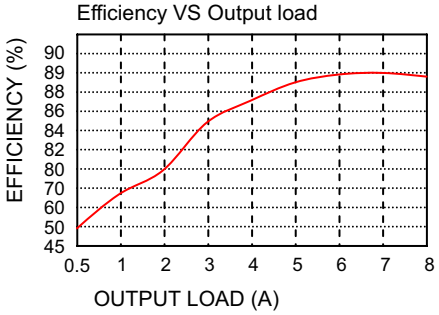
FDC40-48S05
Efficiency VS Input Voltage



FDC40-48S05 Derating Curve



FDC40-48S05
Efficiency VS Output load



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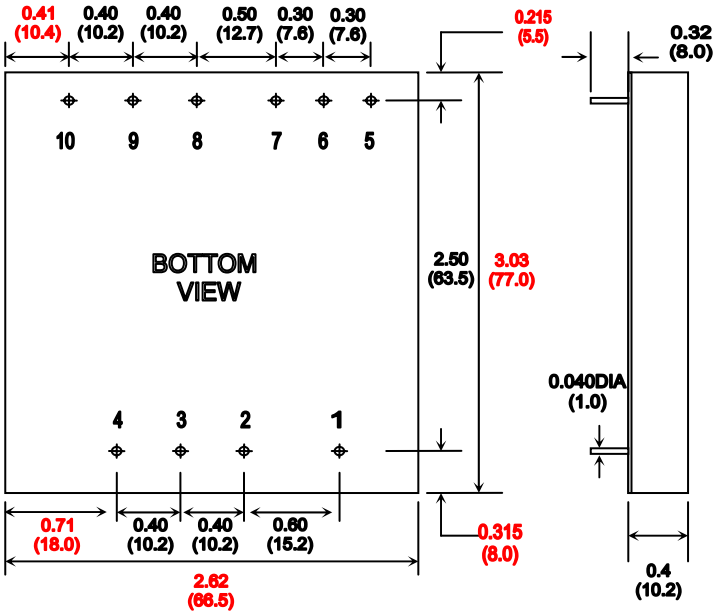
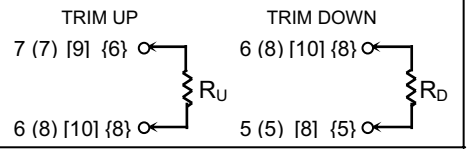


1. All dimensions in Inches (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.014(0.35)

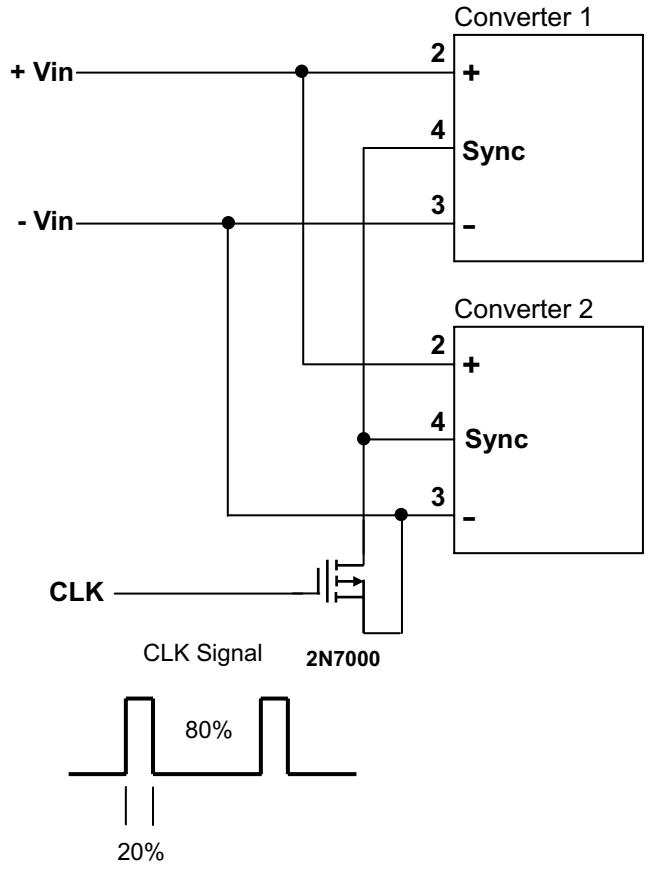
EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.
( ) for dual output trim
[ ] for triple output trim
{ } XXD3305 only trim 3.3V



Pin Assignment

PIN	SINGLE	DUAL	TRIPLE	3.3V / 5V
1	CTRL	CTRL	CTRL	CTRL
2	+ INPUT	+ INPUT	+ INPUT	+ INPUT
3	- INPUT	- INPUT	- INPUT	- INPUT
4	SYNC	SYNC	SYNC	SYNC
5	+SENSE	+ OUTPUT	+ AUX	+3.3V
6	TRIM	COMMON	COMMON (AUX)	COMMON
7	-SENSE	- OUTPUT	- AUX	+ 5V
8	+ OUTPUT	TRIM	+ OUTPUT(PRIMARY)	TRIM
9	- OUTPUT	NC	COMMON(PRIMARY)	NC
10	NO PIN	NC	TRIM	NC



Application of synchronization

1. The unit is capable of external synchronization from an independent time base with a switching rate between 200kHz and 215kHz
2. The amplitude of the synchronizing pulse train is TTL compatible
3. The duty cycle of the CLK should be 20% high and 80% low
4. Synchronization is referenced to negative input (-Vin)

ON/OFF Control application