FEC40W SERIES

DC / DC Single & Dual Output: 40 Watts

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

Features

- 4:1 wide Input range option 9~36V & 18~75V
- Single & Dual outputs
- Industry Standard 2 x 2 in package
- High efficiency up to 82%
- Regulated output & Short circuit protection
- 1600V isolation
- Five sided continuous copper shield
- Remote ON / OFF- Standard Positive Logic
- Remote ON / OFF- Negative Logic - Option
- High operating temperature +85ºC
- Fixed switching frequency
- Optional heat sink: **P/N : 7G-0026A.**

Specifications:

Input Voltage	**24VDC** (9 ~ 36) **48VDC** (18 ~ 75)
Input Filter	Pi type
Input Surge Voltage. (100mS)	24V: 50VDC. 48V: 100VDC
Input Reflected Ripple Current	20mA pk-pk @ nominal input & 100% load
Start Up time	10mS constant resistive load
Remote ON/OFF (Positive logic – Standard)	DC-DC ON Open or 3.0V < Vr < 12V DC-DC OFF Short or 0V < Vr < 1.2V
(Negative logic – Option)	DC-DC ON Short or 0V < Vr < 1.2V DC-DC OFF Open or 3.0V < Vr < 12V Input current of remote control pin: .5mA Remote off state input current: 10mA for 24Vin 5mA for 48Vin
Output power	40 watts
Voltage Accuracy	±1.0%
Minimum Load	See table
Output Voltage Trim	±10% (single & Dual output)
Line Regulation	Single ±0.2% Dual ±0.2%
Load Regulation	Single ±0.5% , Dual ±1% (Min load -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	1.5V ~ 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 86 ~ 87%
Isolation	1600VDC
Isolation Cap.	25000pF
Switching Freq.	300KHz
Safety	EN60950-1, UL60950-1
Case Material	Nickel-coated copper
Base Material	Non-conductive black plastic
Potting	Epoxy UL94-V0
Dimensions	50.8 x 50.8 x 10.2mm
Weight	60g
MTBF	1.511 x 10^6 Hrs
Operating Temp	-40ºC to +50ºC (without derating) -40ºC to +105ºC (with derating)
Case Temp	+100ºC maximum case temperature
Thermal Impedance	9.2ºC / watt Standard convection 7.6ºC / 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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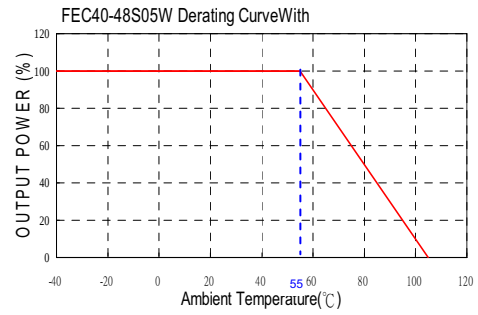
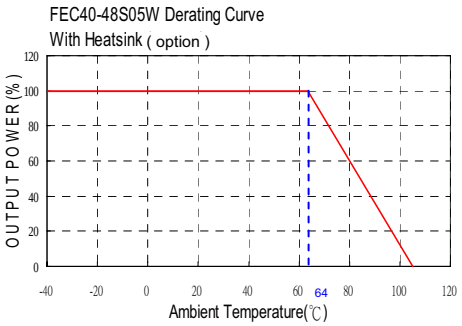
Model	Input V	Output V	Output Current		Output Ripple & Noise	Input Current		Eff (%)	Capacitor Load max
			Min. load	Full load		No load	Full load		
FEC40-24S3P3W	9 – 36 V	3.3 V	0mA	10000mA	50mVp-p	80mA	1677mA	86	25750uF
FEC40-24S05W	9 – 36 V	5 V	0mA	8000mA	50mVp-p	100mA	2008mA	87	13600uF
FEC40-24S12W	9 – 36 V	12 V	50mA	3333mA	75mVp-p	50mA	2008mA	87	2360uF
FEC40-24S15W	9 – 36 V	15 V	50mA	2666mA	75mVp-p	50mA	2008mA	87	1510uF
FEC40-24D12W	9 – 36 V	± 12 V	±65 mA	± 1667mA	120mVp-p	60mA	2032mA	86	± 1200uF
FEC40-24D15W	9 – 36 V	± 15 V	±50 mA	± 1333mA	150mVp-p	60mA	2032mA	86	± 750uF
FEC40-48S3P3W	18 – 75 V	3.3 V	0mA	10000mA	50mVp-p	50mA	838mA	86	25750uF
FEC40-48S05W	18 – 75 V	5 V	0mA	8000mA	50mVp-p	60mA	992mA	88	13600uF
FEC40-48S12W	18 – 75 V	12 V	50mA	3333mA	75mVp-p	30mA	1004mA	87	2360uF
FEC40-48S15W	18 – 75 V	15 V	50mA	2666mA	75mVp-p	30mA	1004mA	87	1510uF
FEC40-48D12W	18 – 75 V	± 12 V	±65 mA	± 1667mA	120mVp-p	30mA	1016mA	86	± 1200uF
FEC40-48D15W	18 – 75 V	± 15 V	±60 mA	± 1333mA	150mVp-p	30mA	1016mA	86	± 750uF

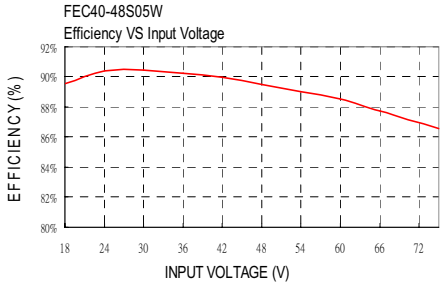
Price & Stock Enquiry

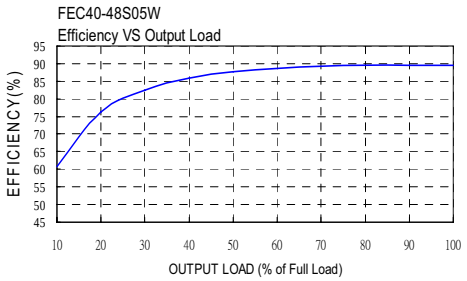
Note

1. MTBF as per BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40ºC. (Ground fixed and controlled environment)
   MIL-STD-217F Notice2 @Ta=25 ºC, Full load(Ground, Benign, controlled environment)
2. Typical values at nominal input voltage and full resistive load.
3. The output requires minimum 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.
4. For the single output: Maximum output deviation is 10% inclusive of remote sense and trim. If remote sense is not being used, the +sense should be connected to its corresponding +OUTPUT and likewise the -sense should be connected to its corresponding –OUTPUT.
5. Load regulation for dual output : Min load to 100% load balanced on all outputs.
6. Cross regulation for dual output : asymmetrical load 25% / 100% FL
7. The ON/OFF pin voltage is referenced to –Vin To order negative logic ON/OFF control add the suffix**-N** (eg: FEC40-24S05W-N).
8. Heat sink is optional and **P/N：7G-0026A.**
9. The FEC40W series can meet EN55022 Class A with parallel an external capacitor to the input pins.
   Recommend : 24Vin : N/A 48Vin :2.2uF/100V*2 PCS 1812 MLCC.
10. An external filter capacitor is required if the module has to meet EN61000-4-5.
    Filter capacitor recommended: Nippon chemi-con KY series, 220μF/100V, ESR 48mΩ.









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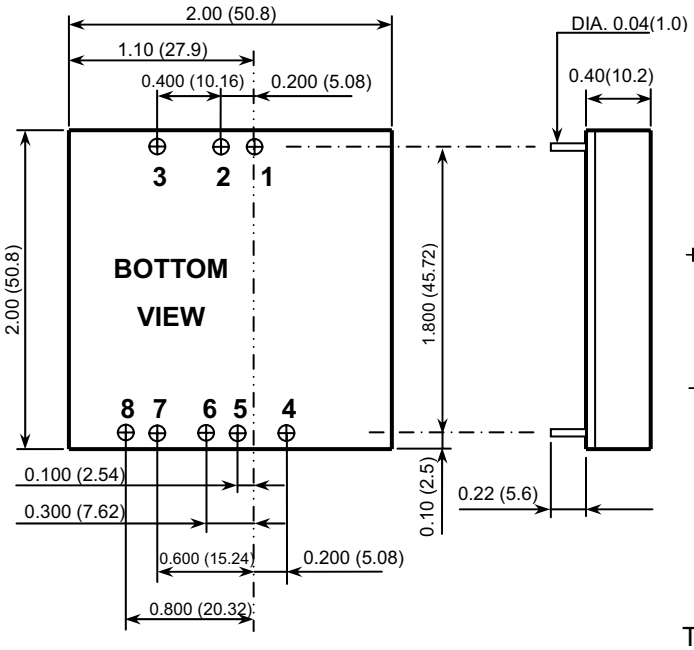
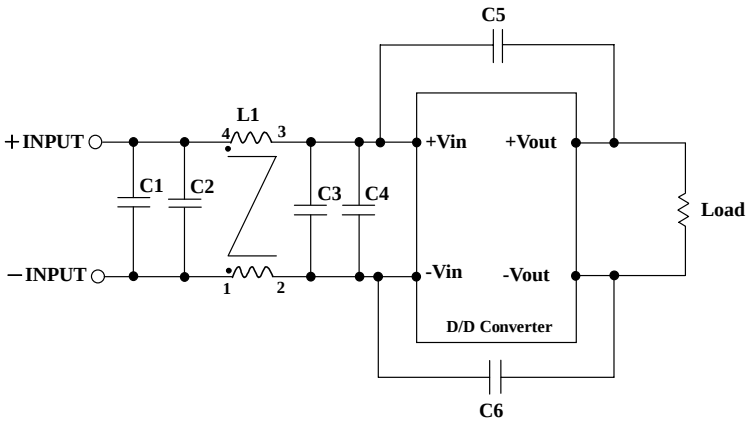


1. All dimensions in Inches (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01(0.25)
3. Pin dimension tolerance ±0.004 (0.1)

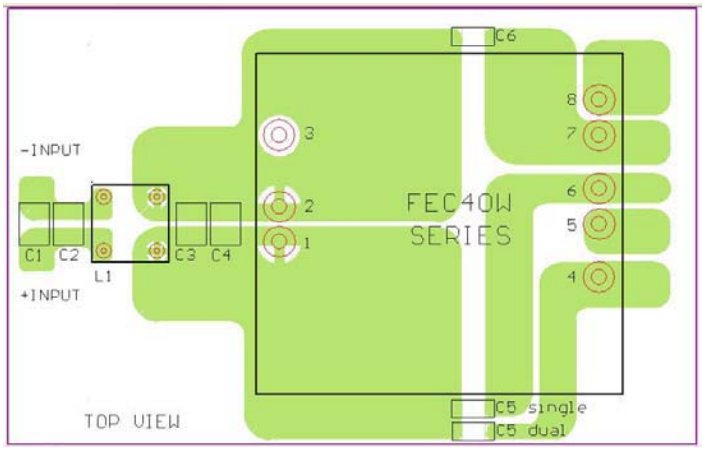


Recommended Filter for EN55022 Class B Compliance

The components used in the above figure, together with the manufacturers' part numbers for these components, are as follows:

	C1	C2	C3	C4	C5 & C6	L1
FEC40-24xxxW	4.7uF/50V 1812 MLCC	N/A	4.7uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	450uH Common Choke PMT-048
FEC40-48xxxW	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	1000pF/2KV MLCC	830uH Common Choke PMT-053

Pin Assignment		
PIN	**SINGLE**	**DUAL**
1	+INPUT	+INPUT
2	-INPUT	-INPUT
3	CTRL	CTRL
4	-SENSE	+OUTPUT
5	+SENSE	COM
6	+OUTPUT	COM
7	-OUTPUT	-OUTPUT
8	TRIM	TRIM



Recommended EN55022 Class B Filter Circuit Layout

EXTERNAL OUTPUT TRIM

Output can be externally trimmed by using the method shown below.
( ) for dual output trim