POWER MATE TECHNOLOGY CO.,LTD.

FDC60-SERIES

- 60 WATTS OUTPUT POWER
- 2:1 WIDE INPUT VOLTAGE RANGE
- DESIGN MEET SAFETY STANDARD
- SIX-SIDED CONTINUOUS SHIELD
- HIGH EFFICIENCY UP TO 90%
- 3.94" X 2.76" X 0.75" PACKAGE
- FIXED SWITCHING FREQUENCY

The FDC60 series offer 60 watts of output power from a 3.94 x 2.76 x 0.75 inch package. The FDC60 series have 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC. The FDC60 features 1600VDC of isolation, short-circuit and over-voltage protection, as well as six sided shielding. Designed meets the safety of EN60950 and UL60950. All models are particularly suited to telecommunications, industrial, mobile telecom and test equipment applications.

TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25ºC otherwise noted

OUTPUT SPECIFICATIONS

Output power		60 Watts, max.
Voltage accuracy	Full load and nominal Vin	± 2%
Voltage adjustability		± 10%
Minimum load	FDC60-XXD3305 3.3V output Others	800mA, min 10% of FL
Line regulation	LL to HL at Full Load	± 0.5%
Load regulation	10% to 100% FL	± 0.5%
Cross regulation (Note5)		± 5%
Ripple and noise	20MHz bandwidth (Measured with a 104pF/50V MLCC)	See table
Temperature coefficient		±0.02% / ºC, max.
Transient response recovery time	25% load step change	500µS
Over voltage protection Zener diode clamp	3.3V output 5V output 12V output 15V output	3.9VDC 6.2VDC 15VDC 18VDC
Short circuit protection		Hiccup, automatics recovery

GENERAL SPECIFICATIONS

Efficiency	See table
Isolation voltage	1600VDC, min.
Isolation resistance	10^9 ohms, min.
Isolation capacitance	1500pF, max.
Switching frequency	200KHz, typ.
Design meet safety standard	IEC60950-1, UL60950-1, EN60950-1
Case material	Nickel-coated copper
Base material	FR4 PCB
Potting material	Epoxy (UL94-V0)
Dimensions	3.94 X 2.76 X 0.75 Inches (100.2 X 70.1 X 19.0 mm)
Weight	280g (9.86oz)
MTBF (Note 1)	1.533 x 10^6 hrs

INPUT SPECIFICATIONS

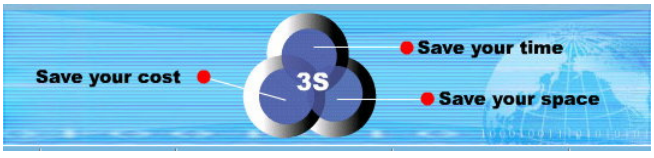
Input voltage range	12V nominal input 24V nominal input 48V nominal input	9 – 18VDC 18 – 36VDC 36 – 75VDC
Input filter		Pi type
Input surge voltage 100mS max	12V input 24V input 48V input	36VDC 50VDC 100VDC
Input reflected ripple current	Nominal Vin and full load	40mAp-p
Start up time	Nominal Vin and constant resistive load — Power up	25mS, typ.
Remote ON/OFF Remote off input current	DC-DC ON DC-DC OFF Nominal input	Open or 3.5V < Vr < 12V Short or 0V < Vr < 1.2V 30mA

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	-25ºC ~ +71ºC (with derating)
Maximum case temperature	+95ºC
Storage temperature range	-25ºC ~ +100ºC
Thermal impedance	5.29ºC/watt
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative humidity	5% to 95% RH

EMC CHARACTERISTICS

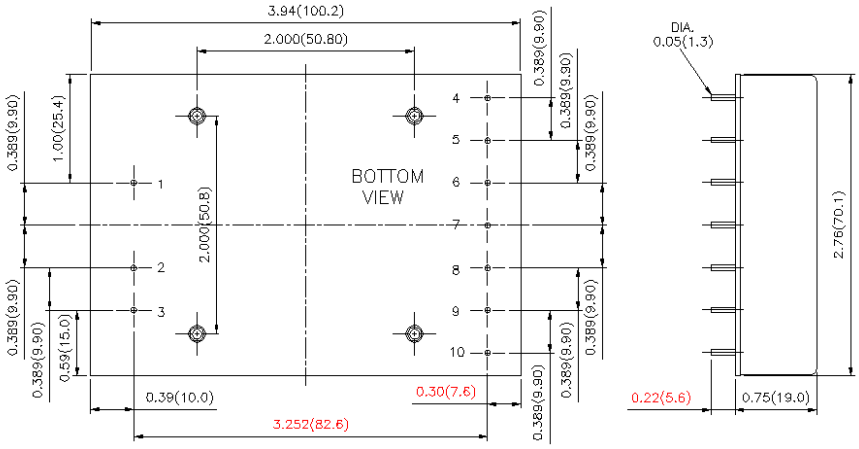
Conducted emissions	EN55022	Class A
Radiated emissions	EN55022	Class A

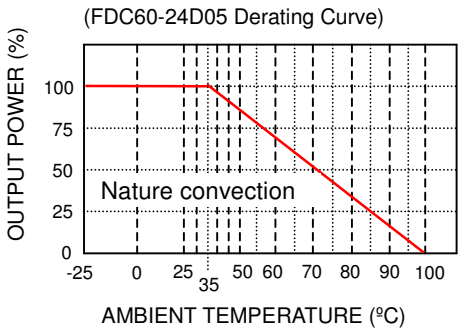


60 WATTS DC-DC CONVERTER

Model Number	Input Range	Output Voltage	Output Current	Output Ripple & Noise	Input Current (2)	Eff (3) (%)	Capacitor(4) Load max
FDC60-12S33	9 – 18 VDC	3.3 VDC	15A	50mVp-p	5430mA	80	38700μF
FDC60-12S05	9 – 18 VDC	5 VDC	12A	75mVp-p	6330mA	83	20400μF
FDC60-12S12	9 – 18 VDC	12 VDC	5A	120mVp-p	6250mA	84	3550μF
FDC60-12S15	9 – 18 VDC	15 VDC	4A	150mVp-p	6250mA	84	2300μF
FDC60-12D05	9 – 18 VDC	± 5 VDC	+10 / -2A	75mVp-p	6500mA	81	17000 / 3400μF
FDC60-12D12	9 – 18 VDC	± 12 VDC	± 2.5A	120mVp-p	6250mA	84	± 900μF
FDC60-12D15	9 – 18 VDC	± 15 VDC	± 2A	150mVp-p	6250mA	84	± 600μF
FDC60-12D3305	9 – 18 VDC	3.3 / 5VDC	6 / 6A	50mVp-p / 75mVp-p	5770mA	76	16000 / 10200μF
FDC60-24S33	18 – 36 VDC	3.3 VDC	15A	50mVp-p	2750mA	79	38700μF
FDC60-24S05	18 – 36 VDC	5 VDC	12A	75mVp-p	3090mA	85	20400μF
FDC60-24S12	18 – 36 VDC	12 VDC	5A	120mVp-p	2980mA	88	3550μF
FDC60-24S15	18 – 36 VDC	15 VDC	4A	150mVp-p	2940mA	89	2300μF
FDC60-24D05	18 – 36 VDC	± 5 VDC	+10 / -2A	75mVp-p	3130mA	84	17000 / 3400μF
FDC60-24D12	18 – 36 VDC	± 12 VDC	± 2.5A	120mVp-p	3050mA	86	± 900μF
FDC60-24D15	18 – 36 VDC	± 15 VDC	± 2A	150mVp-p	3010mA	87	± 600μF
FDC60-24D3305	18 – 36 VDC	3.3 / 5VDC	6 / 6A	50mVp-p / 75mVp-p	2700mA	81	16000 / 10200μF
FDC60-48S33	36 – 75 VDC	3.3 VDC	15A	50mVp-p	1310mA	83	38700μF
FDC60-48S05	36 – 75 VDC	5 VDC	12A	75mVp-p	1520mA	86	20400μF
FDC60-48S12	36 – 75 VDC	12 VDC	5A	120mVp-p	1470mA	89	3550μF
FDC60-48S15	36 – 75 VDC	15 VDC	4A	150mVp-p	1450mA	90	2300μF
FDC60-48D05	36 – 75 VDC	± 5 VDC	+10 / -2A	75mVp-p	1540mA	85	17000 / 3400μF
FDC60-48D12	36 – 75 VDC	± 12 VDC	± 2.5A	120mVp-p	1450mA	90	± 900μF
FDC60-48D15	36 – 75 VDC	± 15 VDC	± 2A	150mVp-p	1450mA	90	± 600μF
FDC60-48D3305	36 – 75 VDC	3.3 / 5VDC	6 / 6A	50mVp-p / 75mVp-p	1310mA	83	16000 / 10200μF

Note
1. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40ºC. (Ground fixed and controlled environment)
2. Maximum value at nominal input voltage and full load.
3. Typical value at nominal input voltage and full load.
4. Test by minimum Vin and constant resistive load.
5. Cross regulation:
   Dual output—Asymmetrical load 25% to 100% full load





Mounting inserts screw type : No.4-40UNC X 0.24(6.0)deep
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)
3. Pin dimension tolerance ±0.004(0.1)

PIN CONNECTION

PIN	SINGLE	DUAL	D3305	PIN	SINGLE	DUAL	D3305
1	+ INPUT	+ INPUT	+ INPUT	6	+OUTPUT	+OUTPUT	+3.3V
2	- INPUT	- INPUT	- INPUT	7	- OUTPUT	COM	COM
3	CTRL	CTRL	CTRL	8	- OUTPUT	COM	COM
4	TRIM	TRIM	TRIM	9	NO PIN	- OUTPUT	+ 5V
5	+OUTPUT	+OUTPUT	+3.3V	10	NO PIN	- OUTPUT	+ 5V

EXTERNAL OUTPUT

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