



FEATURES

- 15 WATTS MAXIMUM OUTPUT POWER
- SINGLE OUTPUT UP TO 4A
- SMALL SIZE AND LOW PROFILE : 1.0 x 1.0 x 0.39 INCH
- HIGH EFFICIENCY UP TO 88%
- 4:1 ULTRA WIDE INPUT VOLTAGE RANGE
- SIX-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY
- INPUT TO OUTPUT ISOLATION:1600VDC
- INDUSTRY STANDARD PIN-OUT FEC15 SERIES COMPATIBLE
- CE MARK MEETS 2006/95/EC, 2011/95/EC AND 2004/108/EC
- SAFETY MEETS UL60950-1, EN60950-1 AND IEC60950-1
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU

APPLICATIONS

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

OPTIONS

Positive logic Remote On/Off, Without trim, Without CTRL pin

DESCRIPTION

LCD15W DC/DC converters provide up to 15 watts of output power in an industry standard package and footprint. These units are specifically designed to meet the power needs of low profile. All models feature with 4:1 ultra wide input voltage of 9~36 VDC and 18~75VDC, comprehensively protected against over-current, over-voltage and input under-voltage protection conditions, and trimmable output voltage.

TECHNICAL SPECIFICATION

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

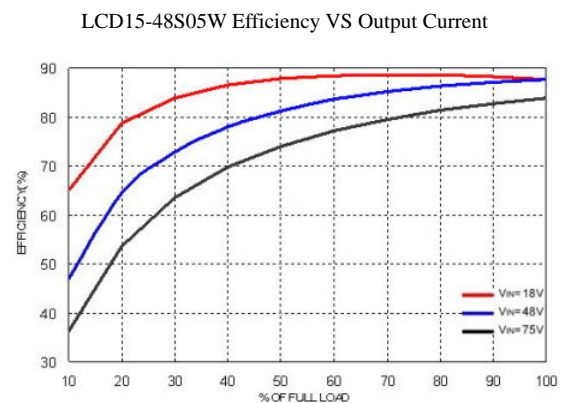
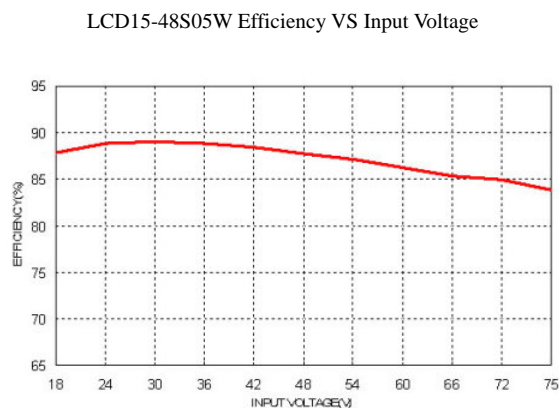
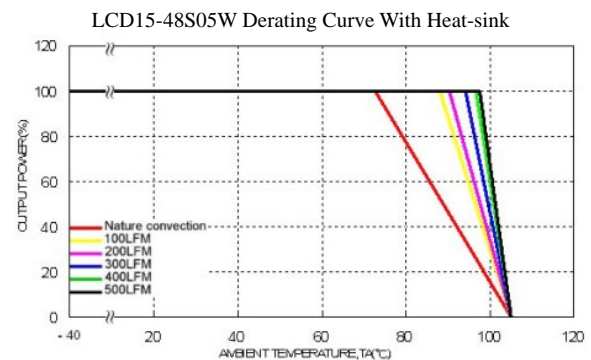
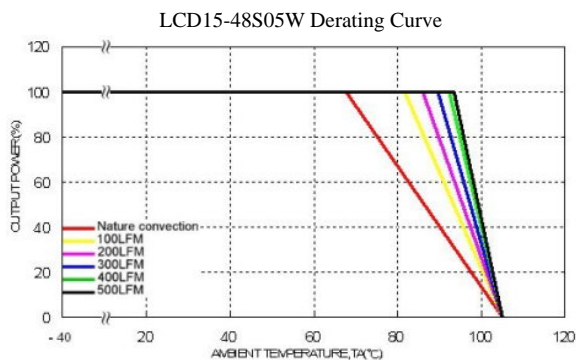
OUTPUT SPECIFICATIONS			
Output power	15 Watts		
Voltage accuracy	±1%		
Minimum load	0%		
Voltage adjustability (Note 6)	±10%		
Line regulation	LL to HL at Full Load	Single Dual	± 0.2% ± 0.5%
Load regulation	No Load to Full Load	Single Dual	± 0.2% ± 1.0%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL ± 5%		
Ripple and noise	20MHz bandwidth (Measured with a 1µF M/C and a 10µF T/C) See table		
Temperature coefficient	±0.02% / °C, max.		
Transient response recovery time	25% load step change 250µs		
Over voltage protection	3.3VDC output	3.7VDC~5.4VDC	
	5VDC output	5.6VDC~7.0VDC	
	12VDC output	13.5VDC~19.6VDC	
	15VDC output	16.8VDC~20.5VDC	
Over load protection	% of FL at nominal input	150%	
Short circuit protection	Continuous, automatics recovery		
GENERAL SPECIFICATIONS			
Efficiency	See table		
Isolation voltage	Input to Output	1600VDC, min. 1minute	
	Input(Output) to Case	1000VDC, min. 1minute	
Isolation resistance	500VDC	10 ⁹ ohms, min.	
Isolation capacitance	1000pF, max.		
Switching frequency	400kHz±10%		
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	1.0 X 1.0 X 0.39 Inch (25.4 X 25.4 X 9.9mm)		
Weight	15g(0.53oz)		
MTBF (Note 1)	MIL-HDBK-217F	1.459x10 ⁶ hrs	
INPUT SPECIFICATIONS			
Input voltage range	24VDC nominal input	9 ~ 36VDC	
	48VDC nominal input	18 ~ 75VDC	
Input filter	Pi type		
Input surge voltage	24VDC input	50VDC 100ms, max.	
	48VDC input	100VDC 100ms, max.	
Input reflected ripple current	30mA _{p-p}		
Start up time	Nominal input and constant resistive load	Power up	30ms, max.
		Remote ON/OFF	30ms, max.
Start-up voltage	24VDC input	9VDC, max.	
	48VDC input	18VDC, max.	
Shutdown voltage	24VDC input	8VDC	
	48VDC input	16VDC	
Remote ON/OFF (Note 7)			
Positive logic(Optional)	DC-DC ON	Open or 3V < Vr < 15V	
	DC-DC OFF	Short or 0V < Vr < 1.2V	
Negative logic(Standard)	DC-DC ON	Short or 0V < Vr < 1.2V	
	DC-DC OFF	Open or 3V < Vr < 15V	
Input current of Remote control pin	Nominal input	-0.5mA~1.0mA	
Remote off state input current	Nominal input	2.5mA	
ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature	-40°C ~ +85°C (with derating)		
Maximum case temperature	+105°C		
Storage temperature range	-55°C ~ +125°C		
Thermal impedance (Note 8)	Natural convection	18.2°C/Watt	
	Natural convection with heat-sink	15.8°C/Watt	
Thermal shock	MIL-STD-810F		
Vibration	MIL-STD-810F		
Relative humidity	5% to 95% RH		
EMC CHARACTERISTICS			
EMI (Note 9)	EN55022	Class A, Class B	
ESD	EN61000-4-2	Air	± 8kV
		Contact	± 6kV
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (Note 10)	EN61000-4-4	± 2kV	Perf. Criteria A
Surge (Note 10)	EN61000-4-5	± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	3 Vr.m.s	Perf. Criteria A

Model Number	Input Range	Output Voltage	Output Current		Output (2) Ripple & Noise	No Load (3) Input Current	Eff (4) (%)	Capacitor (5) Load max
			Min. Load	Full Load				
LCD15-24S3P3W	9 ~ 36 VDC	3.3 VDC	0mA	4000mA	75mVp-p	45mA	86	12000μF
LCD15-24S05W	9 ~ 36 VDC	5 VDC	0mA	3000mA	75mVp-p	70mA	86	6000μF
LCD15-24S12W	9 ~ 36 VDC	12 VDC	0mA	1300mA	100mVp-p	20mA	87	1000μF
LCD15-24S15W	9 ~ 36 VDC	15 VDC	0mA	1000mA	100mVp-p	20mA	87	660μF
LCD15-24D05W	9 ~ 36 VDC	± 5 VDC	0mA	± 1500mA	100mVp-p	20mA	85	± 3000μF
LCD15-24D12W	9 ~ 36 VDC	± 12 VDC	0mA	± 625mA	100mVp-p	20mA	87	± 520μF
LCD15-24D15W	9 ~ 36 VDC	± 15 VDC	0mA	± 500mA	100mVp-p	20mA	88	± 330μF
LCD15-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	4000mA	75mVp-p	25mA	86	12000μF
LCD15-48S05W	18 ~ 75 VDC	5 VDC	0mA	3000mA	75mVp-p	35mA	87	6000μF
LCD15-48S12W	18 ~ 75 VDC	12 VDC	0mA	1300mA	100mVp-p	12mA	87	1000μF
LCD15-48S15W	18 ~ 75 VDC	15 VDC	0mA	1000mA	100mVp-p	12mA	87	660μF
LCD15-48D05W	18 ~ 75 VDC	± 5 VDC	0mA	± 1500mA	100mVp-p	12mA	85	± 3000μF
LCD15-48D12W	18 ~ 75 VDC	± 12 VDC	0mA	± 625mA	100mVp-p	15mA	86	± 520μF
LCD15-48D15W	18 ~ 75 VDC	± 15 VDC	0mA	± 500mA	100mVp-p	20mA	87	± 330μF

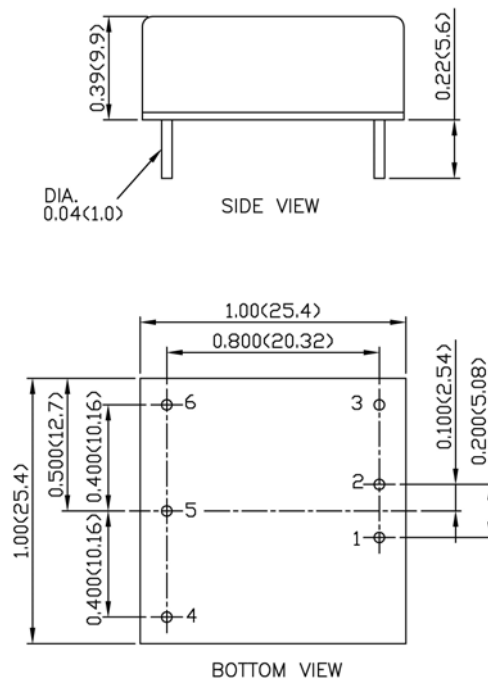
Note

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 and no load.
4. Typical value at nominal input and full load.
5. Test by minimum input and constant resistive load.
6. Trimming allows the user to increase or decrease the output voltage set point of the module. This is accomplished by connecting an external resistor between the TRIM pin and either the +OUTPUT pin or the -OUTPUT pin.
7. The CTRL pin voltage is reference to -INPUT.
The order number please see product standard table.
8. Heat-sink is optional and P/N:7G-0047C-F
9. The LCD15Wseries 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 μF/100V.

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



MECHANICAL DRAWING :



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)

PIN CONNECTION		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
3	CTRL	CTRL
4	+OUTPUT	+OUTPUT
5	TRIM	COMMON
6	-OUTPUT	-OUTPUT

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.

TRIM UP

TRIM DOWN

PRODUCT STANDARD TABLE	
Option	Suffix
Negative logic remote ON/OFF(Standard)	
Positive logic remote ON/OFF	-A
Without CTRL pin	-B
Negative logic remote ON/OFF without TRIM pin	-C
Without CTRL &TRIM pin	-D
Positive logic remote ON/OFF without TRIM pin	-E