



LCD20W SERIES

DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 20Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- 1600VDC INPUT TO OUTPUT ISOLATION
- SMALL SIZE AND LOW PROFILE : 1.0 x 1.0 x 0.39 INCH
- SIX-SIDED CONTINUOUS SHIELD
- MEET EN55022 CLASS A WITHOUT EXTERNAL COMPONENTS
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- DISTRIBUTED POWER ARCHITECTURES
- SEMICONDUCTOR EQUIPMENT

1600VDC ISOLATION	REMOTE CONTROL	UVP	OCP	SCP	OVP	LOW STANDBY POWER
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TECHNICAL SPECIFICATION

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

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load (1)
	VDC	VDC	mA	mA	%	µF
LCD20-24S3P3W	9 ~ 36	3.3	4500	10	89	7000
LCD20-24S05W	9 ~ 36	5	4000	10	89	5000
LCD20-24S12W	9 ~ 36	12	1670	6	89	850
LCD20-24S15W	9 ~ 36	15	1330	6	89	700
LCD20-24S24W	9 ~ 36	24	833	10	91	220
LCD20-24D12W	9 ~ 36	±12	±833	6	89	±500
LCD20-24D15W	9 ~ 36	±15	±667	6	90	±350
LCD20-24D24W	9 ~ 36	±24	±417	12	91	±100
LCD20-48S3P3W	18 ~ 75	3.3	4500	10	90	7000
LCD20-48S05W	18 ~ 75	5	4000	10	90	5000
LCD20-48S12W	18 ~ 75	12	1670	4	89	850
LCD20-48S15W	18 ~ 75	15	1330	4	90	700
LCD20-48S24W	18 ~ 75	24	833	8	91	220
LCD20-48D12W	18 ~ 75	±12	±833	4	89	±500
LCD20-48D15W	18 ~ 75	±15	±667	4	90	±350
LCD20-48D24W	18 ~ 75	±24	±417	10	91	±100

PART NUMBER STRUCTURE

Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Option	Assembly Option
LCD20 - 48 S 05 W - A HS	24: 9~36 48: 18~75	S: Single D: Dual	3P3: 3.3 05: 5 12: 12 15: 15 24: 24 12: ±12 15: ±15 24: ±24	4:1	□: Negative logic remote ON/OFF(Standard) A: Positive logic remote ON/OFF B: Without Ctrl pin C: Negative logic remote ON/OFF without Trim pin D: Without Ctrl & Trim pin E: Positive logic remote ON/OFF without Trim pin	□: No assembly HS: Heat-sink HC: Heat-sink with Clamp

GENERAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output Input(Output) to Case	1600 1000			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					1500	pF
Switching frequency		3.3Vout, 5Vout Others	248 297	275 330	303 363	kHz
Safety approvals	Pending: LCD20-□□S24W, LCD20-□□D24W					UL60950-1 EN60950-1 IEC60950-1
Case material						Nickel-coated copper
Base material						FR4 PCB
Potting material						Silicone (UL94 V-0)
Weight						15g (0.53oz)
MTBF	MIL-HDBK-217F, Full load					1.469 x 10 ⁶ hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating With derating	-40 +60		+60 +101	°C
Maximum case temperature						105 °C
Storage temperature range						-55 to +125 °C
Thermal impedance	Natural convection (20LFM)	Without heat-sink With heat-sink	17.6 14.8			°C/W
Thermal shock						MIL-STD-810F
Vibration						MIL-STD-810F
Relative humidity						5% to 95% RH

EMC SPECIFICATIONS

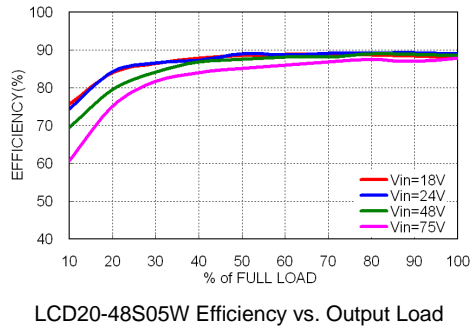
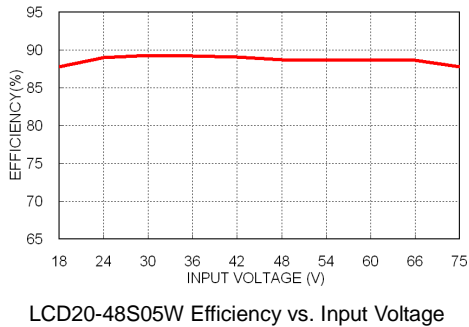
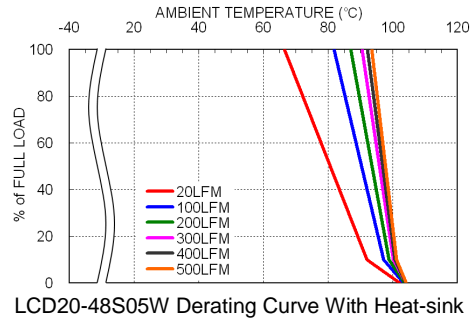
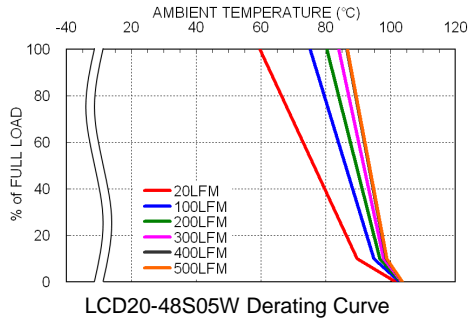
Parameter	Conditions		Level
EMI ⁽³⁾	EN55022		Class A, Class B
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient ⁽⁴⁾	EN61000-4-4	± 2kV	Perf. Criteria A
Surge ⁽⁴⁾	EN61000-4-5	± 2kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

Note:

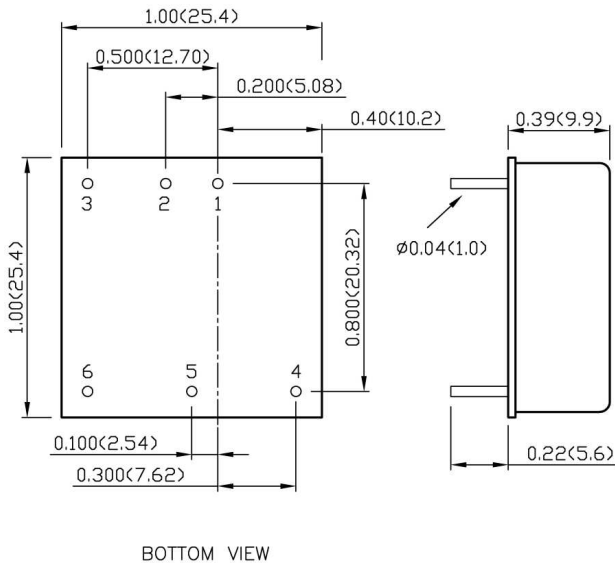
- Test by minimum input and constant resistive load.
- Trimming allows the user to increase or decrease the output voltage set point of the module. This is accomplished by connecting an external resistor between the Trim pin and either +Vout pin or -Vout pin.
- The standard modules meet EN55022 Class A without external components and meet Class B with external components.
For further information, please contact with P-DUKE.
- 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, 220μF/100V.

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

CHARACTERISTIC CURVE



MECHANICAL DRAWING

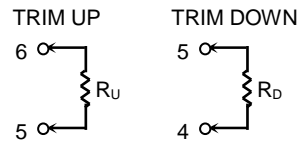


PIN CONNECTION

PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	+Vout	+Vout
5	Trim	Common
6	-Vout	-Vout

EXTERNAL OUTPUT TRIMMING

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



1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.xx±0.5)
x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)