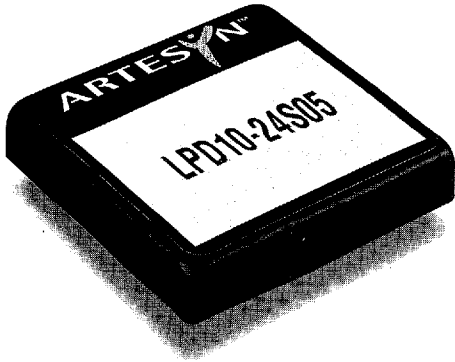


## LPD10 SERIES

Single, dual and triple output



[ 2 YEAR WARRANTY ]

- 4:1 wide input voltage range
- 30 models available including 2.1V and 3.3V outputs
- Input reflected ripple according to CEPT
- Indefinite short circuit protection
- EN55022 conducted emissions level B
- Designed to meet EN60950 and IEC950

The LPD10 series of DC/DC converters offer 10 Watts output power in a 2 x 2 inch package. The series, comprising 30 models boasts a high efficiency of typically 80% in combination with 4:1 wide input voltage range. 2.1V and 3.3V single outputs are available along with standard single, dual and triple outputs. All models feature short circuit protection as standard. The dual and triple output models of the LPD series provide undervoltage lockout. The LPD10 series complies with the rigorous EN55022 level B conducted emissions. The optimized thermal design and the copper case allow operation in ambient temperatures up to +70°C without derating or additional heatsink. The LPD10 series is ideal for low voltage logic applications, and the technical features of the series make them ideal for telecommunication and automation applications where high reliability and low emissions performance are essential.

### SPECIFICATION All specifications are typical at nominal input, full load at 25°C unless otherwise stated

OUTPUT SPECIFICATIONS		
Line regulation	LL to HL, singles and duals LL to HL, triple output	±0.1% ±1.0%
Load regulation	Singles and duals: 10% to 100% FL Triples: 10% to 100% FL	±0.1% ±3.0%
Cross regulation	Duals: asymmetrical load 10% to 100% FL Triples: asymmetrical load 10% to 100% FL	4.0% max. 5.0% max.
Voltage accuracy		±2.0%
Minimum load	2.1V, 3.3V, 5V Single 12V, 15V Duals & triples, each output	50mA max. 20mA max. 10% FL
Overshoot	At start-up	3.0% max.
Ripple and noise	20MHz bandwidth	1.0% pk-pk, max. 20mV rms
Temperature coefficient		±0.02%/°C
Short circuit protection	Hiccup mode See Note 4	Continuous automatic recovery
INPUT SPECIFICATIONS		
Input voltage range	5VDC nominal, FL 24VDC nominal, FL 48VDC nominal, FL	4.5 to 9VDC 10 to 36VDC 20 to 72VDC
Input current		See table
Undervoltage lockout	Dual and triple outputs 24V nominal 48V nominal	9.5VDC max. 18.5VDC max.
Start-up time		200ms

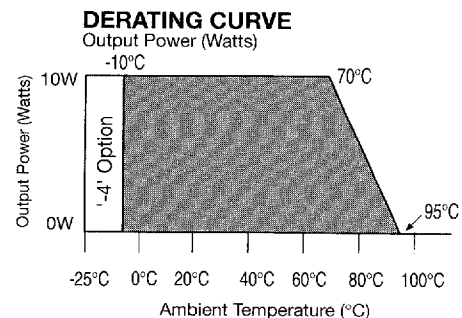
EMC CHARACTERISTICS		
Conducted noise	EN55022, FCC part 15	Level B
Radiated noise	EN55022, FCC part 15	Level B
GENERAL SPECIFICATIONS		
Efficiency	See table	80% typ.
Isolation voltage	Input/output	500VDC
Isolation resistance	Input/output	10 <sup>9</sup> Ω
Isolation capacitance	Input/output	1nF
Switching frequency	Fixed	180 to 220kHz
Approvals and standards (pending)	Safety VDE0805, EN60950, IEC950 UL1950, CSA C22.2 No. 950	
Case material	Black coated, metal case	
Material flammability	UL94V-0	
Weight	65g (2.29oz)	
MTBF	MIL-HDBK-217F	300,000 hours
ENVIRONMENTAL SPECIFICATIONS		
Thermal performance	Operating ambient (See derating curve) Extended temp., option, See Note 2 Non-operating amb. Case Derating Cooling	-10°C to +70°C -25°C to +70°C -25°C to +95°C +95°C max. See derating curve Free air convection cooled
Relative humidity	Non-condensing	30% to 95%
Altitude	Operating Non operating	10,000 feet max. 40,000 feet max.
Vibration	5Hz to 500Hz	2.5G rms (approx.)

# 10 Watt Wide input DC/DC converters

INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT	TYPICAL EFFICIENCY	REGULATION (TYP.)		MODEL NUMBER
					LINE	LOAD	
4.5-9VDC	2.1V	2000mA	1200mA	60%	±0.1%	±0.1%	LPD10-05S2V1
4.5-9VDC	3.3V	2000mA	2095mA	63%	±0.1%	±0.1%	LPD10-05S3V3
4.5-9VDC	5.0V	2000mA	2941mA	68%	±0.1%	±0.1%	LPD10-05S05
4.5-9VDC	12V	800mA	2461mA	78%	±0.1%	±0.1%	LPD10-05S12
4.5-9VDC	15V	660mA	2538mA	78%	±0.1%	±0.1%	LPD10-05S15
4.5-9VDC	±5.0V	±600mA	1538mA	78%	±0.1%	±0.1%	LPD10-05D05
4.5-9VDC	±12V	±400mA	2461mA	78%	±0.1%	±0.1%	LPD10-05D12
4.5-9VDC	±15V	±300mA	2538mA	78%	±0.1%	±0.1%	LPD10-05D15
4.5-9VDC	5V/±12V	1000mA/±200mA	2512mA	78%	±1.0%	±3.0%	LPD10-05T05-12
4.5-9VDC	5V/±15V	1000mA/±160mA	2512mA	78%	±1.0%	±3.0%	LPD10-05T05-15
10-36VDC	2.1V	2000mA	291mA	60%	±0.1%	±0.1%	LPD10-24S2V1
10-36VDC	3.3V	2000mA	381mA	72%	±0.1%	±0.1%	LPD10-24S3V3
10-36VDC	5.0V	2000mA	540mA	77%	±0.1%	±0.1%	LPD10-24S05
10-36VDC	12V	800mA	512mA	78%	±0.1%	±0.1%	LPD10-24S12
10-36VDC	15V	660mA	512mA	78%	±0.1%	±0.1%	LPD10-24S15
10-36VDC	±5.0V	±600mA	52mA	78%	±0.1%	±0.1%	LPD10-24D05
10-36VDC	±12V	±400mA	512mA	78%	±0.1%	±0.1%	LPD10-24D12
10-36VDC	±15V	±300mA	512mA	78%	±0.1%	±0.1%	LPD10-24D15
10-36VDC	5V/±12V	1000mA/±200mA	510mA	80%	±1.0%	±3.0%	LPD10-24T05-12
10-36VDC	5V/±15V	1000mA/±160mA	510mA	80%	±1.0%	±3.0%	LPD10-24T05-15
20-72VDC	2.1V	2000mA	145mA	60%	±0.1%	±0.1%	LPD10-48S2V1
20-72VDC	3.3V	2000mA	190mA	72%	±0.1%	±0.1%	LPD10-48S3V3
20-72VDC	5.0V	2000mA	267mA	78%	±0.1%	±0.1%	LPD10-48S05
20-72VDC	12V	800mA	253mA	79%	±0.1%	±0.1%	LPD10-48S12
20-72VDC	15V	660mA	253mA	79%	±0.1%	±0.1%	LPD10-48S15
20-72VDC	±5.0V	±600mA	253mA	79%	±0.1%	±0.1%	LPD10-48D05
20-72VDC	±12V	±400mA	253mA	79%	±0.1%	±0.1%	LPD10-48D12
20-72VDC	±15V	±300mA	253mA	79%	±0.1%	±0.1%	LPD10-48D15
20-72VDC	5V/±12V	1000mA/±200mA	255mA	80%	±1.0%	±3.0%	LPD10-48T05-12
20-72VDC	5V/±15V	1000mA/±160mA	255mA	80%	±1.0%	±3.0%	LPD10-48T05-15

## Notes

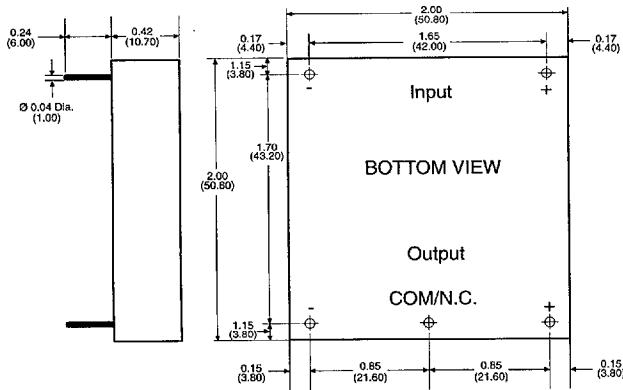
- Cross regulation:  
DUALS: output 1, full load, 4.0%; output 2, minimum load, 4.0%.  
TRIPLES: output 1, full load, 2.0%; output 2 vs. output 3, 2.0%;  
TRIPLES: outputs 2 and 3 vs. output 1, 5.0%.
- Extended operating temperature range is available as an option. To specify a LPD10 that operated down to -25°C, add the suffix '-4' to the model number, e.g. **LPD10-24S05-4**.
- An alternate pin-out version is available as an option. See mechanical drawings for details. To specify a LPD10 with the alternate pin-out (center pins), add the suffix '-C' to the model number, e.g. **LPD10-24S05-C**.
- All 5VDC inputs and 2V1, 3V3 outputs, 1 minute max.



# 10 Watt Wide input DC/DC converters

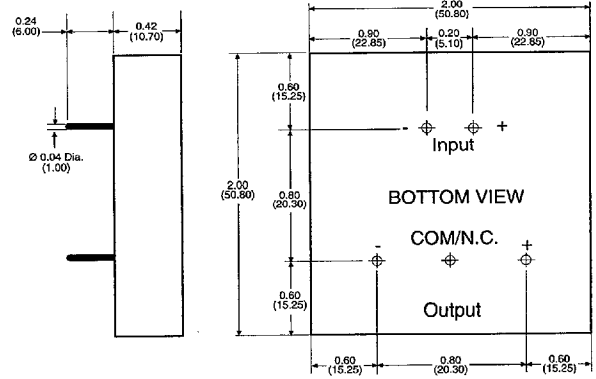
PIN CONNECTIONS		
PIN NUMBER	SINGLE/DUAL OUTPUTS	TRIPLE OUTPUT
1	+ Input	+ Input
2	- Input	- Input
3	+ Vout	+ Output (V2)
4	Common	+ 5V
5	- Vout	Common
6	-	- Output (V3)

Pinout (single, dual)



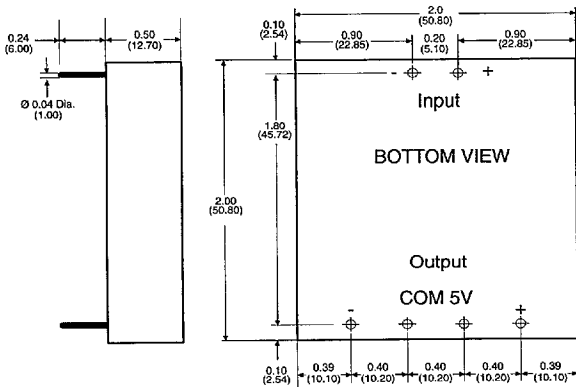
ALL DIMENSIONS IN INCHES (mm)  
Tolerance : ±0.008 (0.2) max. on pin placement  
±0.02 (0.5) max. on outer dimensions

Pinout (Single, Dual)  
Suffix '-C' as an option



ALL DIMENSIONS IN INCHES (mm)  
Tolerance : ±0.008 (0.2) max. on pin placement  
±0.02 (0.5) max. on outer dimensions

Pinout (Triple)



ALL DIMENSIONS IN INCHES (mm)  
Tolerance : ±0.008 (0.2) max. on pin placement  
±0.02 (0.5) max. on outer dimensions