HPD15 SERIES

Single, dual and triple output



- **2.0 x 2.0 x 0.4 inch package (singles and duals)**
- **2:1 wide input voltage range**
- **30 models available including 2.1V and 3.3V outputs**
- **Indefinite short circuit protection**
- **EN55022 conducted emissions level A**
- **Designed to meet EN60950 and IEC950**

The HPD15 series of DC/DC converters offer 15 Watts of output power in a high density 2 x 2 inch case. A range comprises 30 models with 2:1 wide input voltages of 9-18V, 18-36V and 36-72VDC. Single, dual and triple outputs are available with 2.1V and 3.3V single outputs suitable for low voltage logic requirements. Standard features of the HPD15 series include indefinite short circuit protection and undervoltage lockout. The series meets EN55022 level A conducted and radiated emissions. In addition to this, all outputs are regulated and isolated from the input. Typical applications are on board logic or analog circuits supplied by telecom distribution power voltages, cellular and telecommunications systems.

[2 YEAR WARRANTY]

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	±0.3% ±1.5%
Cross regulation	Duals: asymmetrical load 10% to 100% FL Triples: asymmetrical load 10% to 100% FL	4.0% max. 5.0% max.
Load regulation	Singles and duals: 10% to 100% FL Triples: 10% to 100% FL	±0.2% ±4.0%
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	1.5% pk-pk, max. 20mV rms
Temperature coefficient		±0.02%/°C
Short circuit protection	Hiccup mode See Note 4	Indefinite
INPUT SPECIFICATIONS		
Input voltage range	12VDC nominal 24VDC nominal 48VDC nominal	9 to 18VDC 18 to 36VDC 36 to 72VDC
Input current		See table
Undervoltage lockout (dual and triple outputs)	12V nominal 24V nominal 48V nominal	8.5VDC 17VDC 34VDC
Start-up time		200ms

EMC CHARACTERISTICS		
Conducted emissions Radiated emissions	EN55022, FCC part 15 EN55022, FCC part 15	Level A Level A
GENERAL SPECIFICATIONS		
Efficiency	See table	78% typ.
Isolation voltage	Input/output	500VDC
Isolation resistance	Input/output	$10^9\Omega$
Isolation capacitance	Input/output	1nF
Switching frequency	Fixed	180 to 220kHz
Approvals and standards	Designed to meet	EN60950 IEC950
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 +50°C -25°C to +50°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.)

15 Watt
Wide input DC/DC converters

INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT	TYPICAL EFFICIENCY	REGULATION (Typ.)		MODEL NUMBER
					LINE	LOAD	
9-18VDC	2.1V	3000mA	807mA	65%	±0.3%	±0.2%	HPD15-12S2V1
9-18VDC	3.3V	3000mA	1213mA	68%	±0.3%	±0.2%	HPD15-12S3V3
9-18VDC	5.0V	3000mA	1689mA	74%	±0.3%	±0.2%	HPD15-12S05
9-18VDC	12V	1200mA	1558mA	77%	±0.3%	±0.2%	HPD15-12S12
9-18VDC	15V	1000mA	1602mA	78%	±0.3%	±0.2%	HPD15-12S15
9-18VDC	±5.0V	±900mA	986mA	76%	±0.3%	±0.2%	HPD15-12D05
9-18VDC	±12V	±600mA	1530mA	78%	±0.3%	±0.2%	HPD15-12D12
9-18VDC	±15V	±450mA	1424mA	79%	±0.3%	±0.2%	HPD15-12D15
9-18VDC	5V/±12V	1500mA/±300mA	1570mA	78%	±1.5%	±4.0%	HPD15-12T05-12
9-18VDC	5V/±15V	1500mA/±240mA	1570mA	78%	±1.5%	±4.0%	HPD15-12T05-15
18-36VDC	2.1V	3000mA	403mA	65%	±0.3%	±0.2%	HPD15-24S2V1
18-36VDC	3.3V	3000mA	606mA	68%	±0.3%	±0.2%	HPD15-24S3V3
18-36VDC	5.0V	3000mA	822mA	76%	±0.3%	±0.2%	HPD15-24S05
18-36VDC	12V	1200mA	769mA	78%	±0.3%	±0.2%	HPD15-24S12
18-36VDC	15V	1000mA	781mA	80%	±0.3%	±0.2%	HPD15-24S15
18-36VDC	±5.0V	±900mA	487mA	77%	±0.3%	±0.2%	HPD15-24D05
18-36VDC	±12V	±600mA	759mA	79%	±0.3%	±0.2%	HPD15-24D12
18-36VDC	±15V	±450mA	712mA	79%	±0.3%	±0.2%	HPD15-24D15
18-36VDC	5V/±12V	1500mA/±300mA	785mA	78%	±1.5%	±4.0%	HPD15-24T05-12
18-36VDC	5V/±15V	1500mA/±240mA	785mA	78%	±1.5%	±4.0%	HPD15-24T05-15
36-72VDC	2.1V	3000mA	201mA	65%	±0.3%	±0.2%	HPD15-48S2V1
36-72VDC	3.3V	3000mA	303mA	68%	±0.3%	±0.2%	HPD15-48S3V3
36-72VDC	5.0V	3000mA	400mA	78%	±0.3%	±0.2%	HPD15-48S05
36-72VDC	12V	1200mA	384mA	78%	±0.3%	±0.2%	HPD15-48S12
36-72VDC	15V	1000mA	390mA	80%	±0.3%	±0.2%	HPD15-48S15
36-72VDC	±5.0V	±900mA	243mA	77%	±0.3%	±0.2%	HPD15-48D05
36-72VDC	±12V	±600mA	379mA	79%	±0.3%	±0.2%	HPD15-48D12
36-72VDC	±15V	±450mA	356mA	79%	±0.3%	±0.2%	HPD15-48D15
36-72VDC	5V/±12V	1500mA/±300mA	392mA	78%	±1.5%	±4.0%	HPD15-48T05-12
36-72VDC	5V/±15V	1500mA/±240mA	392mA	78%	±1.5%	±4.0%	HPD15-48T05-15

Notes

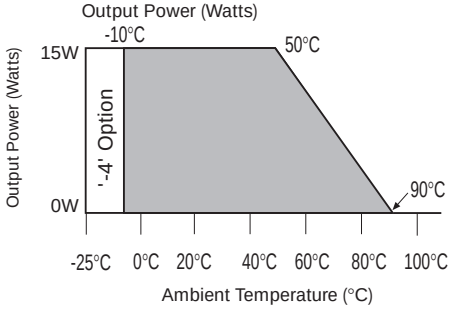
1 Cross regulation:
Duals: output 1, full load, 6.0%; output 2, minimum load, 6.0%.
Triples: output 1, full load, 3.0%; output 2 vs. output 3, 3.0%;
Triples: outputs 2 and 3 vs. output 1, 6.0%.

2 Extended operating temperature range is available as an option. To specify a HPD15 that operates down to -25°C, add the suffix '-4' to the model number, **e.g. HPD15-24S05-4**.

3 An alternate pin-out version is available as an option. See mechanical drawings for details. To specify an HPD15 with the alternative pin-out (center pins), add the suffix '-C' to the model number, **e.g. HPD15-24S05-C**.

4 All 2.1V and 3.3V outputs, 1 minute max.

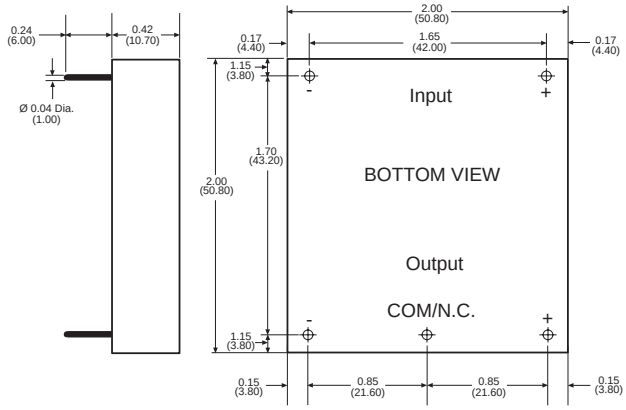
DERATING CURVE



15 Watt
Wide input DC/DC converters

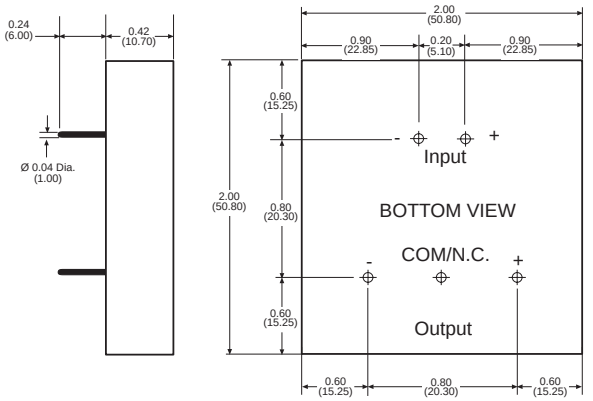
PIN CONNECTIONS		
PIN NUMBER	**SINGLE/DUAL OUTPUTS**	**TRIPLE OUTPUT**
1	+ Input	+ Input
2	- Input	- Input
3	+ Vout	+ Output (V2)
4	Common	+ 5V
5	- Vout	Common
6	-	- Output (V3)

Pinout (single, dual)



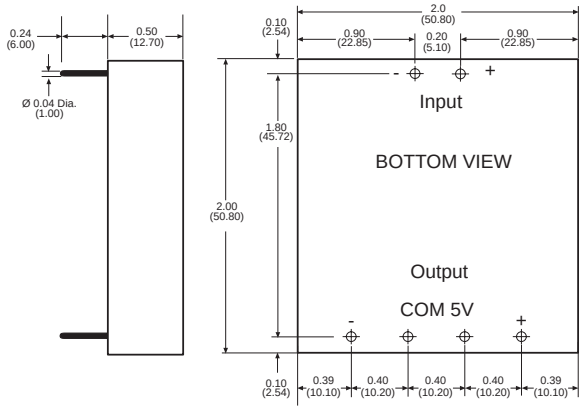
ALL DIMENSIONS IN INCHES (mm)
Tolerance : ±0.008 (0.2) max. on pin placement
±0.02 (0.5) max. on outer dimensions

Pinout (Single, Dual)



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