

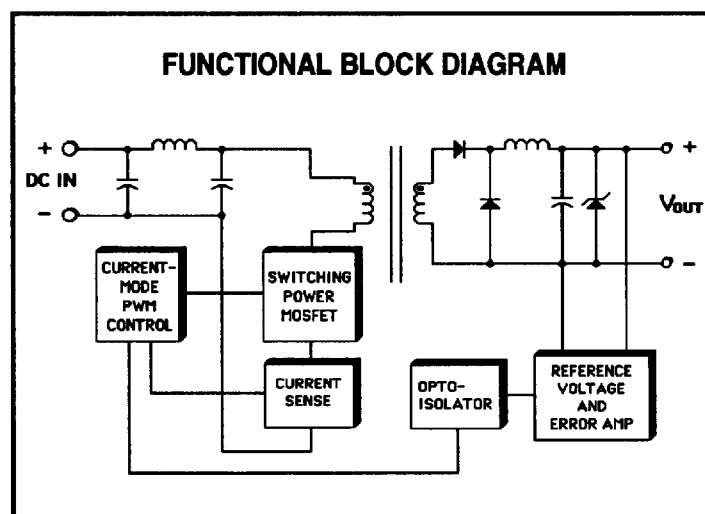
POWER GENERAL

HD1-40 SERIES

40W SINGLE OUTPUT DC-DC CONVERTERS —4 WIDE INPUT RANGES, ULTRA-HIGH RELIABILITY—

FEATURES

- 9-25V, 18-36V, 20-60V or 36-72V Input
- 12 Load Sharing Models
- Meets UL1950
- Meets CSA22.2-234/950
- Meets VDE0805/EN60950/IEC950
- Pi Input Filter
- Over-Voltage/Short-Circuit Protection
- Remote Load Sensing
- Remote Shutdown/Output Adjustment
- 2-Year Warranty
- **Minimum 200,000 Hours MTBF**



APPLICATIONS

- Distributed Power Systems
- Telecommunications Equipment
- Portable/Battery-Operated Equipment

All HD1-40 models are supplied in a compact 3.0x3.0x0.88-inch package with an aluminum case, six-sided shielding, and a top-mounted heat sink

GENERAL SPECIFICATIONS

DC INPUT VOLTAGE.....	See Electrical Characteristics table.
EMI SUPPRESSION.....	Pi input filter.
REVERSE VOLTAGE PROTECTION.....	Internal shunt diode.
DC OUTPUT.....	See Electrical Characteristics table.
CONTINUOUS OUTPUT POWER.....	40 watts maximum with <i>maximum</i> base-plate operating temperature of +85°C.
SHORT-CIRCUIT PROTECTION.....	Indefinite.
EFFICIENCY.....	79 percent, minimum. See Electrical Characteristics table.
LINE/LOAD REGULATION.....	See Electrical Characteristics table.
ISOLATION VOLTAGE.....	1500 VDC, input to output, for one minute.
TRANSIENT RESPONSE.....	200 μ s recovery from half-load to full load step change to within 1 percent of regulation band with 5 percent maximum deviation.
NOISE AND RIPPLE.....	5.0V output, 50 mV _{pp} , maximum; 12V and 15V outputs, 75 mV _{pp} , maximum.
OPERATING FREQUENCY.....	300 kHz.

POWER GENERAL

A Division of **Nidec** Corporation

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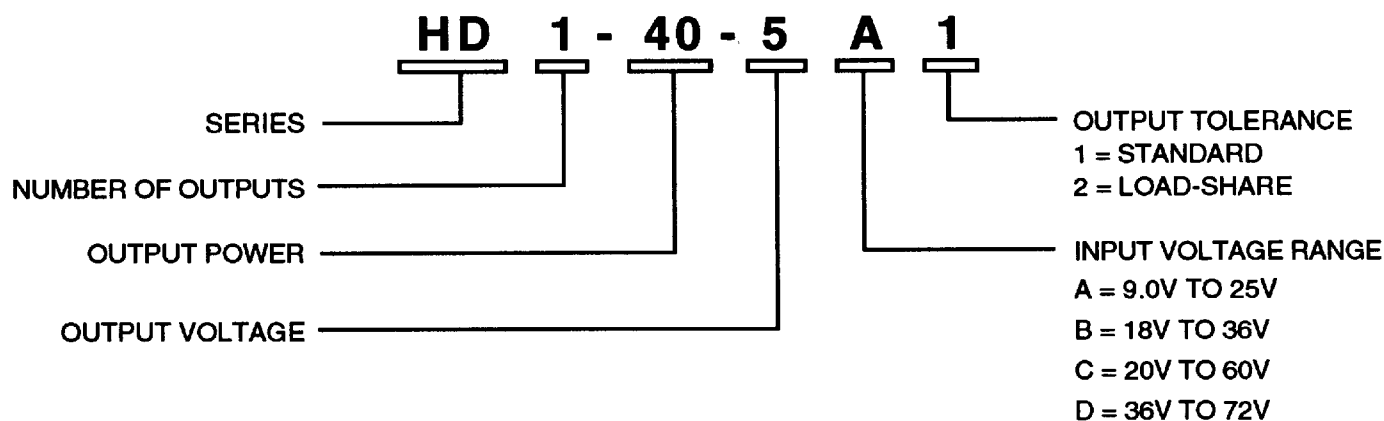
ENVIRONMENTAL OPERATING CHARACTERISTICS

OPERATING TEMPERATURE RANGE-25°C to +85°C. See *Continuous Output Power*, above.
 TEMPERATURE COEFFICIENT±0.02 percent/°C.
 RELATIVE HUMIDITY.....0 to 95 percent, non-condensing.
 ALTITUDE.....0 to 10,000 feet.
 TEMPERATURE RANGE-55°C to +100°C.
 RELATIVE HUMIDITY.....0 to 95 percent, non-condensing.

RELIABILITY

MEAN TIME BETWEEN FAILURES.....>200,000 hours, per "Parts Stress" method in MIL-HDBK 217E (ground benign, +25°C).

MODEL SELECTION GUIDE



HD1-40 SERIES**ELECTRICAL CHARACTERISTICS⁽¹⁾**

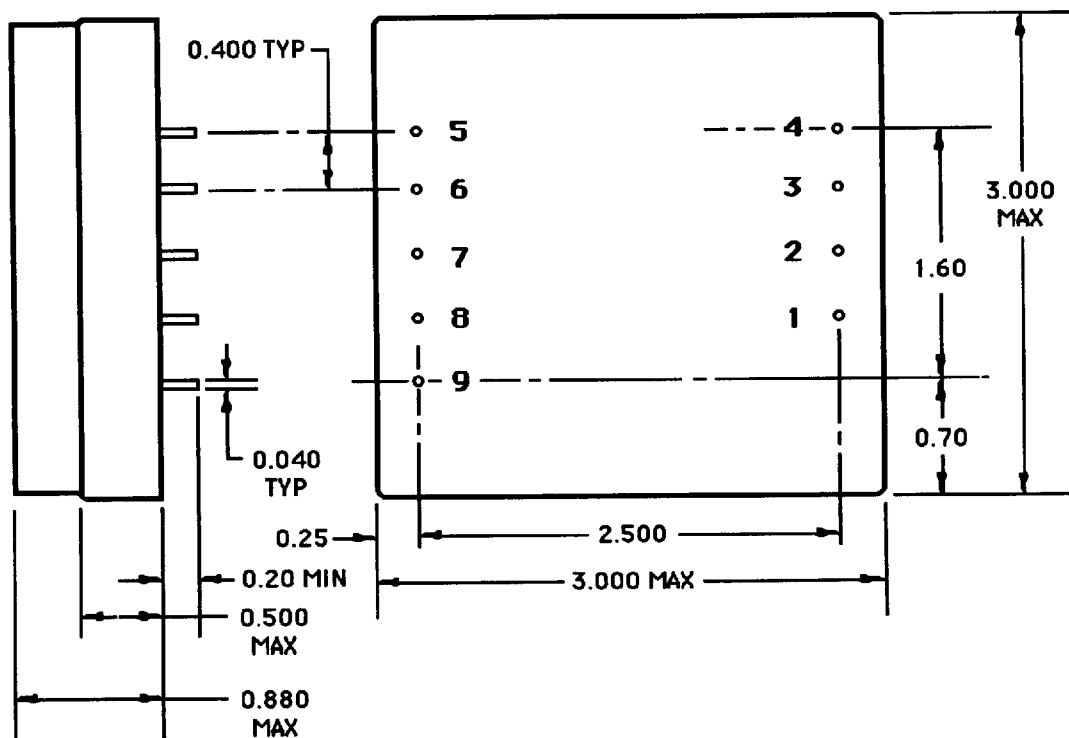
Model Number	DC Input Voltage			Nom. Input Current (A)	Output Voltage (V)	Max. Output Current (A)	Output Voltage Tolerance	Line Reg. (LL-HL)	Load Reg. (NL-FL)	Efficiency
	Min. (V)	Nom. (V)	Max. (V)							
HD1-40-5A1	9.0	12	25	4.20	5.0	8.0	±1.0%	0.3%	0.3%	79%
HD1-40-5A2	9.0	12	25	4.20	5.0	8.0	±0.2%	0.3%	0.5%	79%
HD1-40-12A1	9.0	12	25	4.30	12	3.5	±1.0%	0.3%	0.3%	81%
HD1-40-12A2	9.0	12	25	4.30	12	3.5	±0.2%	0.3%	0.5%	81%
HD1-40-15A1	9.0	12	25	4.50	15	3.0	±1.0%	0.3%	0.3%	83%
HD1-40-15A2	9.0	12	25	4.50	15	3.0	±0.2%	0.3%	0.5%	83%
HD1-40-5B1	18	24	36	2.03	5.0	8.0	±1.0%	0.3%	0.3%	82%
HD1-40-5B2	18	24	36	2.03	5.0	8.0	±0.2%	0.3%	0.5%	82%
HD1-40-12B1	18	24	36	2.10	12	3.5	±1.0%	0.3%	0.3%	83%
HD1-40-12B2	18	24	36	2.10	12	3.5	±0.2%	0.3%	0.5%	83%
HD1-40-15B1	18	24	36	2.26	15	3.0	±1.0%	0.3%	0.3%	83%
HD1-40-15B2	18	24	36	2.26	15	3.0	±0.2%	0.3%	0.5%	83%
HD1-40-5C1	20	36	60	1.40	5.0	8.0	±1.0%	0.3%	0.3%	79%
HD1-40-5C2	20	36	60	1.40	5.0	8.0	±0.2%	0.3%	0.5%	79%
HD1-40-12C1	20	36	60	1.40	12	3.5	±1.0%	0.3%	0.3%	83%
HD1-40-12C2	20	36	60	1.40	12	3.5	±0.2%	0.3%	0.5%	83%
HD1-40-15C1	20	36	60	1.50	15	3.0	±1.0%	0.3%	0.3%	83%
HD1-40-15C2	20	36	60	1.50	15	3.0	±0.2%	0.3%	0.5%	83%
HD1-40-5D1	36	48	72	1.00	5.0	8.0	±1.0%	0.3%	0.3%	83%
HD1-40-5D2	36	48	72	1.00	5.0	8.0	±0.2%	0.3%	0.5%	83%
HD1-40-12D1	36	48	72	1.05	12	3.5	±1.0%	0.3%	0.3%	83%
HD1-40-12D2	36	48	72	1.05	12	3.5	±0.2%	0.3%	0.5%	83%
HD1-40-15D1	36	48	72	1.08	15	3.0	±1.0%	0.3%	0.3%	86%
HD1-40-15D2	36	48	72	1.08	15	3.0	±0.2%	0.3%	0.5%	86%

Notes:

1. Models with part numbers ending in "2" contain additional circuitry that enables load sharing by multiple units. These units have very tight output voltage factory set points.
2. All measurements are at nominal input and nominal load and +25°C, unless otherwise specified.
3. Input current is measured at nominal input voltage, full load and +25°C.
4. External line fuse is recommended: For units with 12V nominal input, use **8A/125V** slow-blow fuse; for units with 24V or 36V nominal input, use **4A/125V** slow-blow fuse; for units with 48V nominal input, use **3A/125V** slow-blow fuse.
5. Peak-to-peak and RMS metering equipment shall have a 20 MHz response with probes and cables maintaining a frequency response of 20 Hz to 20 MHz. Output ripple and spikes are measured directly at the output terminals of the power supply across a 0.1 µF ceramic capacitor without use of the probe ground.

HD1-40 SERIES

MECHANICAL OUTLINE AND PIN CONFIGURATION



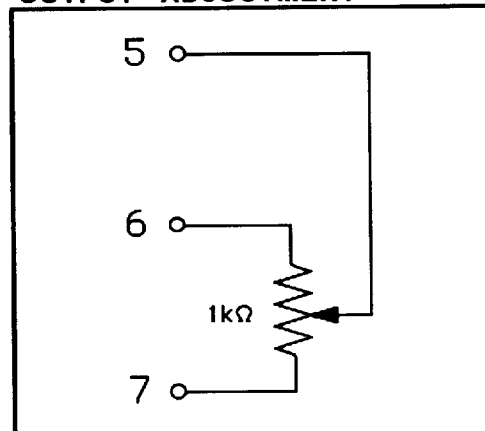
Notes:

1. Dimensions shown are in inches.
2. Tolerance = 0.00 ± 0.01 .
0.000 ± 0.005 .

PIN-OUT

Pin	Designation
1	- V IN
2	+ V IN
3	CASE
4	SHUTDOWN
5	OUTPUT ADJUST
6	+ V OUT
7	- V OUT
8	+ SENSE
9	- SENSE

OUTPUT ADJUSTMENT



Specifications are subject to change without notice.

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