

HiTRON

ON-BOARD DC-DC CONVERTER ENCAPSULATED MODULES 20 WATTS SINGLE & DUAL OUTPUT HDM20-S & HDM20-D SERIES



FEATURES:

- SINGLE & DUAL OUTPUT.
- 2:1 INPUT RANGE.
- 20W ISOLATED OUTPUT.
- SIX-SIDED METAL SHIELD.

SPECIFICATION

INPUT SPECIFICATION

Input Range: 2:1 DC input range
See Ratings Chart.

Input Voltage: Nominal 12/24/48 Vdc.

Input Current: Various with input range & load. See Ratings Chart.

Input Fuse: Use external fuse.

Input Filter: Pi-Network.

Undervoltage Shutdown: 8Vdc.

Isolation Resistor: 1,000 Mega Ohms.

Isolation Voltage: 1,500Vdc.

EMI: Six-sided metal shielding.

Remote On/Off: TTL/CMOS-Compatible Input Control.
Logic input reference to -Input/-Vin.
Logic [1]/Open(or 2.5-7.0Vdc above -Vin)=ON.
Logic [2]/Short(or 0-0.08Vdc above -Vin)=OFF.

OUTPUT SPECIFICATION

Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart.

Voltage Accuracy: Main O/P $\pm 1.0\%$ typ.

Line Regulation: $\pm 0.5\%$ typ.

Load Regulation: Single $\pm 1.0\%$ typ.
Dual $\pm 2.0\%$ typ.

Noise & Ripple: Typ. 100mV for 3.3V/5.0V & 1.0% for others peak to peak.

OVP: Built-in on main output.

Adjustability: VO1 O/P may be optionally be external trimmed $\pm 3.0\%$ with a fixed resistors or trim-pot.

Short Circuit Protection: Power fold back, Self-recovering.

Overload Protection: About 130% of overrange foldback type.

GENERAL SPECIFICATION

Efficiency: Typ.80-81% various with input.

Switching Frequency: Fixed frequency 450K Hz.

Circuit Topology: 450K Hz. Forward Circuit.

Transient Response: Full to 1/2 load <200 μ Sec.

Case: Black coated steel with non-conductive metal base.

Weight: 65.0g (2.40 Oz.).

Power Density: 12.5Watts./ Cubic inch.

Operating Temperature: -40°C to +85°C range. -25°C to +71°C @ full load without derating. Derating linearly 3.5%/ °C from +71°C @ full load to +85°C @ half-load.

Storage Temperature: -55°C to +110°C.

Humidity: Up to 95% RH, Non-condensing.

Temperature Coefficient: 0.02% /°C.

Cooling: Convection cooling up to 60°C @F-L. At least 100LFM moving air is recommended for F-L >+60°C in a confined area.

Commercial Grade: Full load up to +71°C with moving air.

Industrial Grade: +71 to +85°C F-L to H-L with moving air.

NOTE:(1) All measurements are at nominal input, full load and +25°C unless otherwise specified.

(2) Line Regulation measured from High to Low Lines at full load.

(3) Load Regulation measured from Full Load (F-L) to Half-Load (H-L) at nominal input.

(4) Correct fuse size by calculating the max. DC current drain at low Line input & Load and then adding 20-25% for the desired fuse size.

INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

SINGLE OUTPUT

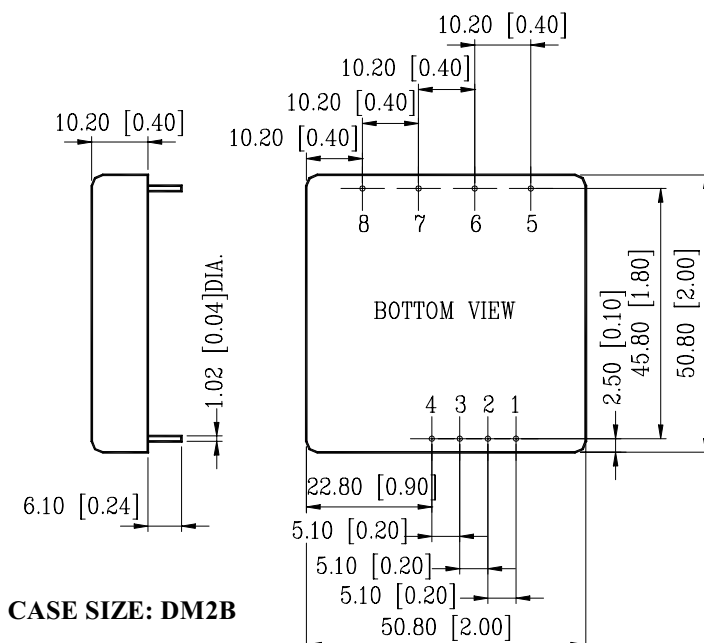
MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT VO1 (Vdc)	OUTPUT VO1(A)	CASE SIZE
		N. L. (mA)	F.L.			
HDM20-12B-S03	9.0- 18.0	20	1,380	3.3V	4.00A	DM2B
HDM20-12B-S05	9.0- 18.0	15	2,080	5.0V	4.00A	DM2B
HDM20-12B-S09	9.0- 18.0	15	2,080	9.0V	2.23A	DM2B
HDM20-12B-S12	9.0- 18.0	15	2,070	12.0V	1.67A	DM2B
HDM20-12B-S15	9.0- 18.0	15	2,070	15.0V	1.34A	DM2B
HDM20-24B-S03	18.0- 36.0	15	690	3.3V	4.00A	DM2B
HDM20-24B-S05	18.0- 36.0	10	1040	5.0V	4.00A	DM2B
HDM20-24B-S09	18.0- 36.0	10	1040	9.0V	2.23A	DM2B
HDM20-24B-S12	18.0- 36.0	10	1035	12.0V	1.67A	DM2B
HDM20-24B-S15	18.0- 36.0	10	1035	15.0V	1.34A	DM2B
HDM20-48B-S03	36.0- 72.0	15	345	3.3V	4.00A	DM2B
HDM20-48B-S05	36.0- 72.0	10	520	5.0V	4.00A	DM2B
HDM20-48B-S09	36.0- 72.0	10	520	9.0V	2.23A	DM2B
HDM20-48B-S12	36.0- 72.0	10	517	12.0V	1.67A	DM2B
HDM20-48B-S15	36.0- 72.0	10	517	15.0V	1.34A	DM2B

DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT (Vdc)		OUTPUT(A)		CASE SIZE
		N. L. (mA)	F.L.	+VO1	-VO2	+VO1	-VO2	
HDM20-12B-D03	9.0- 18.0	25	1380	+3.3V	-3.3V	2.00A	2.00A	DM2B
HDM20-12B-D05	9.0- 18.0	20	2080	+ 5.0V	- 5.0V	2.00A	2.00A	DM2B
HDM20-12B-D12	9.0- 18.0	20	2070	+12.0V	-12.0V	0.83A	0.83A	DM2B
HDM20-12B-D15	9.0- 18.0	20	2070	+15.0V	-15.0V	0.67A	0.67A	DM2B
HDM20-24B-D03	18.0- 36.0	20	690	+3.3V	-3.3V	2.00A	2.00A	DM2B
HDM20-24B-D05	18.0- 36.0	15	1040	+ 5.0V	- 5.0V	2.00A	2.00A	DM2B
HDM20-24B-D12	18.0- 36.0	15	1035	+12.0V	-12.0V	0.83A	0.83A	DM2B
HDM20-24B-D15	18.0- 36.0	15	1035	+15.0V	-15.0V	0.67A	0.67A	DM2B
HDM20-48B-D03	36.0- 72.0	20	345	+3.3V	-3.3V	2.00A	2.00A	DM2B
HDM20-48B-D05	36.0- 72.0	15	520	+ 5.0V	- 5.0V	2.00A	2.00A	DM2B
HDM20-48B-D12	36.0- 72.0	15	517	+12.0V	-12.0V	0.83A	0.83A	DM2B
HDM20-48B-D15	36.0- 72.0	15	517	+15.0V	-15.0V	0.67A	0.67A	DM2B

MECHANICAL DIMENSIONS: MM [INCHES]

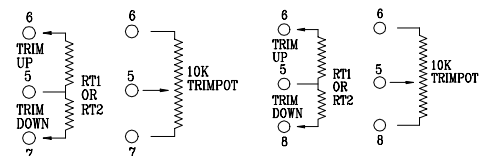
Weight: 65.0g (2.4 Oz.)



CASE SIZE: DM2B

HDM20-S

HDM20-D



PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL
PIN# 1.	Remote ON/OFF	Remote ON/OFF
PIN# 2.	NC	NC
PIN# 3.	- INPUT/-Vin	- INPUT/-Vin
PIN# 4.	+ INPUT	+ INPUT
PIN# 5.	OUTPUT TRIM	OUTPUT TRIM
PIN# 6.	DC-COM	- VO2
PIN# 7.	VO1	DC-COM
PIN# 8.	NC	+VO1

HiTRON

ON-BOARD DC-DC CONVERTER ENCAPSULATED MODULES 20 WATTS TRIPLE OUTPUT HDM20-T SERIES



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- TRIPLE OUTPUT.
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Isolation resistor: 1,000Mega Ohms.

Isolation voltage: 1,500Vdc.

EMI: Six-sided metal shielded.

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Output Voltage: See Ratings Chart.

Output Current: See Ratings Chart

Line Regulation: $\pm 0.5\%$ typ.

Load Regulation: VO1 & VO3 $\pm 2.0\%$ typ.
VO2 $\pm 5.0\%$ typ.

Noise & Ripple: Typ. 100mV for 3.3V/5.0V &
1.0% for others peak to peak.

OVP: Built-in on main output.

Short Circuit Protection: Fold back.

Voltage Accuracy: $\pm 2.0\%$.

Short Circuit Protection: Power fold back,
Self-recovering.

Overload Protection: About 130% of overrange
foldback type.

GENERAL SPECIFICATION

Efficiency: Typ.80% various with input.

Switching Frequency: Fixed frequency 450K Hz.

Circuit Topology: 450K Hz. forward circuit.

Transient Response: Full to 1/2 load < 200 μ Sec.

Case: Black coated steel with non-conductive
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Weight: 65.0g(2.4 Oz.).

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+71°C @ full load without derating. Derating linearly
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Humidity: Up to 95% RH, Non-condensing.

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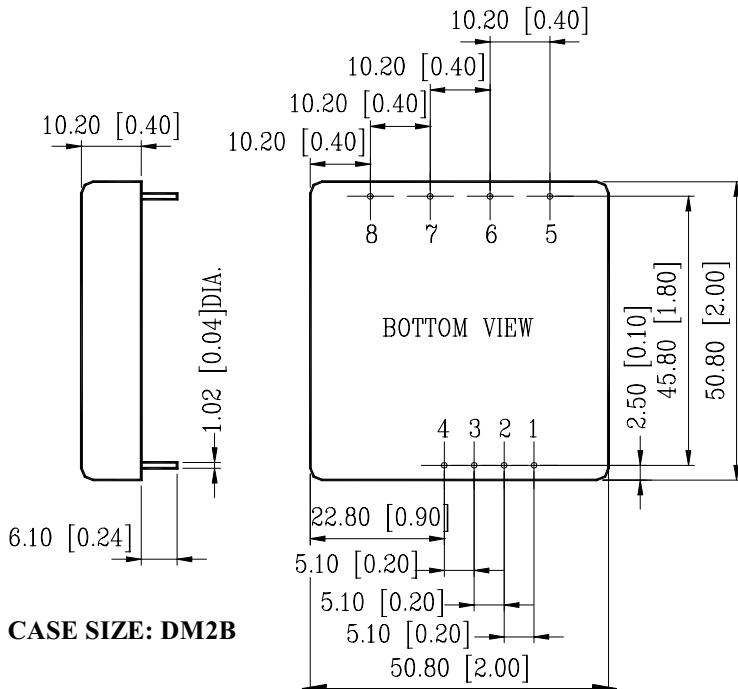
INPUT/OUTPUT & VOLTAGE/CURRENT RATINGS CHART

DUAL OUTPUT

MODEL NO.	INPUT Vdc	INPUT CURRENT		OUTPUT(Vdc)			OUTPUT(A)			CASE SIZE
		N. L. (mA)	F.L.	+VO1	+VO2	-VO3	+VO1	+VO2	-VO3	
HDM20-12B-T3/12	9.0- 18.0	30	1,850	+3.3V	+12.0V	-12.0V	3.00A	0.30A	0.30A	DM2B
HDM20-12B-T3/15	9.0- 18.0	30	1,850	+3.3V	+15.0V	-15.0V	3.00A	0.25A	0.25A	DM2B
HDM20-12B-T3/+12,-5	9.0- 18.0	30	1,850	+3.3V	+12.0V	-5.0V	3.00A	0.30A	0.75A	DM2B
HDM20-12B-T5/12	9.0- 18.0	30	2,070	+5.0V	+12.0V	-12.0V	2.50A	0.31A	0.31A	DM2B
HDM20-12B-T5/15	9.0- 18.0	30	2,060	+5.0V	+15.0V	-15.0V	2.50A	0.25A	0.25A	DM2B
HDM20-12B-T5/+12,-5	9.0- 18.0	30	2,080	+5.0V	+12.0V	-5.0V	2.50A	0.31A	0.75A	DM2B
HDM20-24B-T3/12	18.0- 36.0	30	925	+3.3V	+12.0V	-12.0V	3.00A	0.30A	0.30A	DM2B
HDM20-24B-T3/15	18.0- 36.0	30	925	+3.3V	+15.0V	-15.0V	3.00A	0.25A	0.25A	DM2B
HDM20-24B-T3/+12,-5	18.0- 36.0	30	925	+3.3V	+12.0V	-5.0V	3.00A	0.30A	0.75A	DM2B
HDM20-24B-T5/12	18.0- 36.0	30	1,035	+5.0V	+12.0V	-12.0V	2.50A	0.31A	0.31A	DM2B
HDM20-24B-T5/15	18.0- 36.0	30	1,030	+5.0V	+15.0V	-15.0V	2.50A	0.25A	0.25A	DM2B
HDM20-24B-T5/+12,-5	18.0- 36.0	30	1,040	+5.0V	+12.0V	-5.0V	2.50A	0.31A	0.75A	DM2B
HDM20-48B-T3/12	36.0- 72.0	30	462	+3.3V	+12.0V	-12.0V	3.00A	0.30A	0.30A	DM2B
HDM20-48B-T3/15	36.0- 72.0	30	462	+3.3V	+15.0V	-15.0V	3.00A	0.25A	0.25A	DM2B
HDM20-48B-T3/+12,-5	36.0- 72.0	30	462	+3.3V	+12.0V	-5.0V	3.00A	0.30A	0.75A	DM2B
HDM20-48B-T5/12	36.0- 72.0	30	517	+5.0V	+12.0V	-12.0V	2.50A	0.31A	0.31A	DM2B
HDM20-48B-T5/15	36.0- 72.0	30	515	+5.0V	+15.0V	-15.0V	2.50A	0.25A	0.25A	DM2B
HDM20-48B-T5/+12,-5	36.0- 72.0	30	520	+5.0V	+12.0V	-5.0V	2.50A	0.31A	0.75A	DM2B

MECHANICAL DIMENSIONS: MM[INCHES]

Weight: 65.0g(2.4 Oz.)



PIN ASSIGNMENT

PIN NO.	TRIPLE
PIN #1	Remote ON/OFF
PIN #2	NC
PIN #3	- INPUT/-Vin
PIN #4	+ INPUT
PIN #5	- VO3
PIN #6	DC-COM
PIN #7	+ VO1
PIN #8	+ VO2