

# Power Solutions for Today's Military

Power Systems from **COTS+**™ Building Blocks

## HDM

### Single Output Series 28V Input DC-DC Converter

- ◆ Up to 250W output
- ◆ High density 58W/in<sup>3</sup>
- ◆ Fixed frequency operation
- ◆ Parallel with current sharing
- ◆ Output good signal
- ◆ External synchronization capability (optional)
- ◆ Logic On/Off
- ◆ Conduction cooled
- ◆ Extremely low thermal resistance
- ◆ Ruggedized meets MIL-STD-810C
- ◆ Wide operating temperature -55°C to +95°C
- ◆ No aluminum electrolytic capacitors
- ◆ Competitively priced



Rantec's HDM series is the basic building block used to develop performance based "Power System Solutions" in today's military environment. Its compact size and high performance make it an ideal element for a distributed power system. Modules can also be configured in series or parallel combinations to develop custom solutions. Using fixed frequency switching technology, HDM series converters incorporate power MOSFETs, planar magnetics, and surface mount technology onto a metal clad PC board. The forward converter topology employs fewer components, which translates into enhanced reliability.

SINGLE OUTPUT SERIES (250W MAX.) 28V INPUT								
250W max.	2.1V@60A	3.3V@50A	5V@40A	8V@30A	12V@20A	15V@16A	24V@10A	28V@9A
MODEL	HDM-1S4-2-01	HDM-1S4-3-01	HDM-1S4-5-01	HDM-1S4-8-01	HDM-1S4-12-01	HDM-1S4-15-01	HDM-1S4-24-01	HDM-1S4-28-01

*Consult Rantec for your unique requirements*

**Rantec Power Teaming  
Engineers Offer Technical  
Assistance to:**

- Evaluate Power System Requirements
- Develop Power System Architecture
- Reduce Time to Market



**Rantec Power Systems Inc.**

# HDM

## Single Output Series 28V Input DC-DC Converter

INPUT POWER			
		UNITS	COMMENTS
Voltage Nominal	28	VDC	
Voltage Min	20	VDC	
Brownout	18	VDC	Output Non-Compliant
Voltage Max	32	VDC	
Transients	Module shuts down above 32 Vin. Will withstand MIL-STD-704 80V/50mS transient.		
No Load Power	1.5	Watts	Typical
EMI	Matching EMI filter available		
Turn on time	2.5	mSec.	Typical

INPUT CONTROL			
Turn on time, logic	2	mSec.	See HDMA-106*
Logic disabled power in	0.5	Watts	Typical
Logic disabled current	20	mA	Typical

OUTPUT VOLTAGE					
	MIN	TYP	MAX	UNITS	COMMENTS
Set Point		0.50	1.0	± %	Full Load
Trim Adjust	10			± %	See HDMA-104*
Ripple		1	3	% p-p	

OUTPUT REGULATION					
Line & Load			0.50	%	See HDMA-105*
Dyn Load			5.00	%	Load Change 20-80%
Dyn Load Recovery			250	uSec.	
Temp Coeff			0.02	%/°C	

OUTPUT PROTECTION					
Overvoltage		120		%	
Current Limit		120		%	
Current Share		5		±%	
Auto Temp Shutdown	100	105	110	°C	

OUTPUT STATUS					
Output Good Signal		10		±%	Active Low

OTHER					
	MIN	TYP	MAX	UNITS	COMMENTS
Switching Frequency		300		kHz	Fixed

ISOLATION		
Input-Output	10MΩ minimum @ 500VDC	
Input-Case		
Output-Case	10MΩ minimum @ 50VDC	

FREQUENCY SYNC (OPTIONAL)				
	MIN	RECOMMENDED	MAX	COMMENTS
Frequency	330 KHz	350 KHz	370 KHz	See HDMA-102*
Width	50 ns	100 ns	150 ns	
Amplitude	1 V	1.5 V	2.0 V	

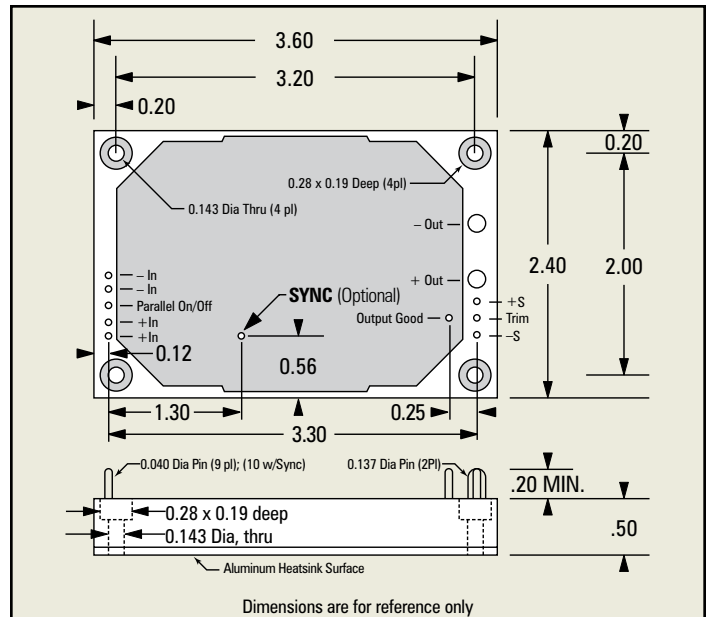
POWER RATING				EFFICIENCY % (TYPICAL)				
VDC	AMPS	MAX WATTS	50W	100W	150W	200W	MAX.	
3.3	50	165	76	78	75	—	—	
5.0	40	200	80	81	81	79	—	
12.0 / 15.0	20 / 16	240	82	87	87	85	84	
24.0 / 28.0	10 / 9	240 - 252	78	84	85	84	83	

Mechanical	
I/O Connection	Wave solderable or inserted into mated sockets
Weight	7 oz. max.
Construction	Fully encapsulated

Environmental	
Cooling	Conductively cooled baseplate +95°C max
Operating Temperature	-55°C to +95°C, baseplate
Storage Temperature	-55°C to +125°C
Humidity	MIL-STD-810C, Meth 507.1, Proc IV (Proc I, II, or III w/optional parylene coating.)
Altitude	up to 70,000 ft
Shock	MIL-S-901C, Grade A, Type A, Class 1 High impact shock
Vibration	MIL-E-5400, Curve IVa, 5 to 2KHz
Salt Fog	MIL-STD-810F, Method 509.4
MTBF	1,300,000 hours @ 55°C baseplate (demonstrated, ground benign)

\*Consult factory for application notes (also available online at [www.rantec.com](http://www.rantec.com))



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