DC - DC Converters

Features:

- 50 W to 60 W DC / DC Converter
- 2 : 1 input range, Pi input filter
- Isolation input and output
- High performance up to 86%
- Short circuit protection

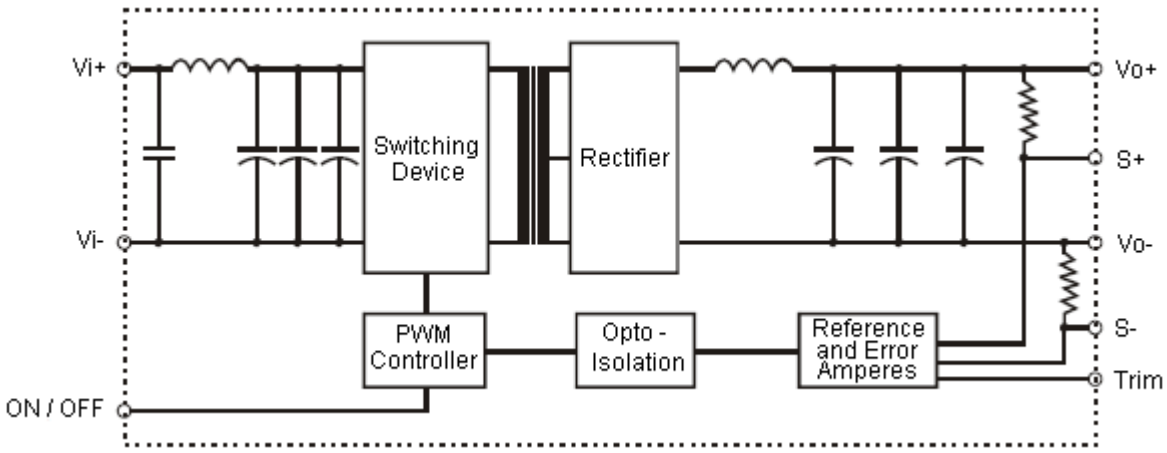
Model List

Model No.	Input Voltage	Output Wattage	Output Voltage	Output Current	EFF. (Minimum)
Single Output Models					
HDD60-12S05T	9 to 18 V dc	60 W	+5 V dc	12,000 mA	79%
HDD60-12S12T			+12 V dc	5,000 mA	82%
HDD60-12S24T			+24 V dc	2,500 mA	84%
HDD60-24S12T	18 to 36 V dc		+12 V dc	5,000 mA	
HDD60-48S12T	36 to 72 V dc				85%
HDD60-48S24T			+24 V dc	2,500 mA	86%

Suffix "T" : Chassis mounting type : (Terminal Block), no heat sink
Use chassis as heat sink or fan force cooling

Circuit Schematic

Block diagram for HDD60 series with single output



Specifications

All specifications typical at nominal line, full load, 25°C unless otherwise noticed

General

Characteristics	Conditions	Minimum	Typical	Maximum	Unit
Switching Frequency	Vi nom, Io nom	-	80	-	KHz
Isolation Voltage	Input / Output	1,500	-	-	V dc
Isolation Resistance	Input / Output, at 500 V dc	1G	-	-	Ω
Ambient Temperature	Operating at Vi nom, Io nom	-25	-	+71	°C
Case Temperature	Operating at Vi nom, Io nom	-	-	+95	
Derating	Vi nom	See derating curve			% / °C
Storage Temperature	Non operational	-25	-	100	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40	-	122,500	-	Hours
Dimension	L88.9 × W139.7 × H35.6 for "P" type				mm
	L88.9 × W139.7 × H32.9 for "T" type				
Cooling	Free air convection				
Case Material	Metal				

Input Specifications

Characteristics	Conditions		Minimum	Typical	Maximum	Unit
Input Voltage Range	Ta minimum to Ta maximum, Io nom		9	12	18	V dc
			18	24	36	
			36	48	72	
No Load Input Current	Vi nom, Io = 0	12 V Models	-	-	20	mA
		24 V Models	-	-	15	
		48 V Models	-	-	10	
Input Voltage w/o Damage	Io nom	12 V Models	-	-	20	V dc
		24 V Models	-	-	40	
		48 V Models	-	-	75	
Input Filter	Pi type					

Output Specifications

Characteristics	Conditions		Minimum	Typical	Maximum	Unit
Output Voltage accuracy	Vi nom, Io nom		-	-	±1	%
Minimum load	Vi nom	Single output model	0	-	-	
Line Regulation	Io nom, Vi minimum to Vi maximum		-	-	±1	
Load Regulation	Vi nom, Io minimum to Io nom	Single output model	-	-	±2	
Transient Recovery Time	25% load, step changed		-	500	-	µs
Temperature Coefficient	Vi nom, Io nom		-	-	±0.02	% / °C
Ripple and Noise	Vi nom, Io nom, BW = 20 MHz		-	-	Vout × ±1%	mV
Voltage Trim Range	Vi nom		-	10	-	%
Efficiency	Vi nom, Io nom, Po / Pi		Up to 86%, see model list			

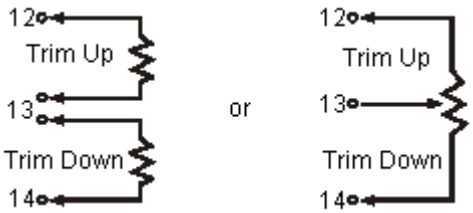
Control and Protection	
Remote ON / OFF	ON : opened or +5.5 V dc applied, reference to input GND
	OFF : -1.8 V dc applied, reference to input GND
Input Reversed	Shunt diode built in, external fuse recommended
Output Short Circuit	Continuous

Mechanism and Pin Configuration

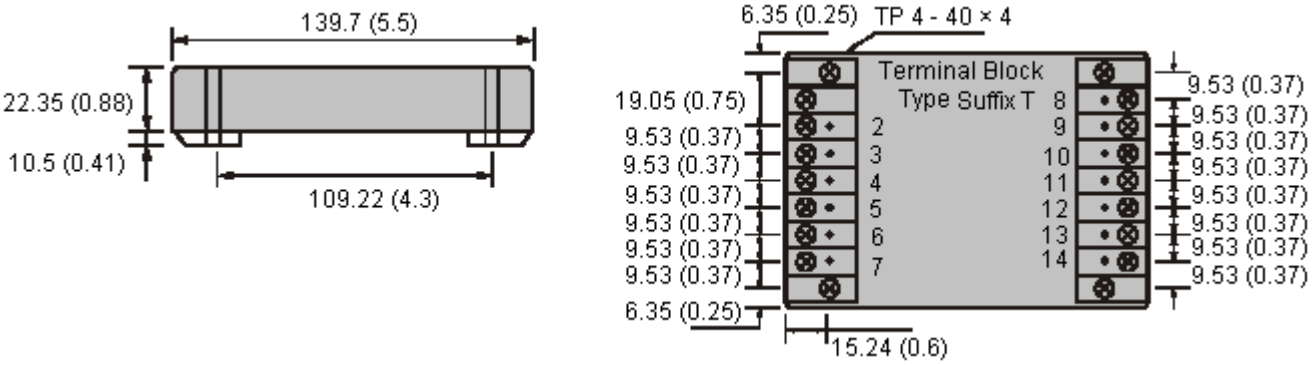
Remote ON / OFF Control

Terminal 6 control
Logic compatibility : .....open collector TTL
Control voltage ON +5.5 V minimum or open circuit
OFF .....+1.8 V maximum
Converter shutdown idle current .....10 mA
Control common ..... input terminal 2

External Output Trimming



Case : HH- T



Bottom View

Dimensions : Millimetres (Inches)

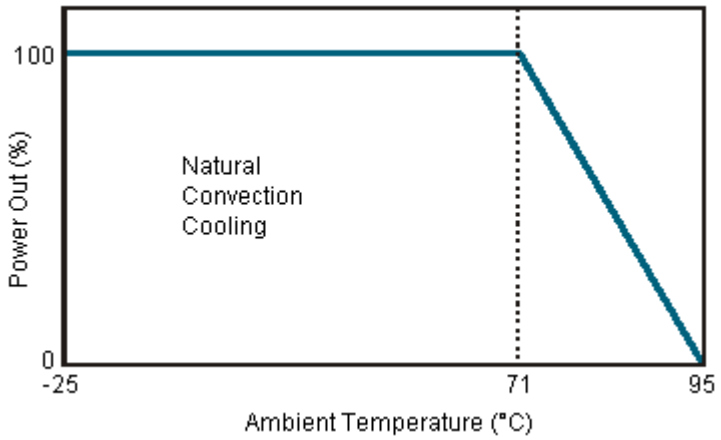
Physical Characteristics

Case Size	88.9 × 139.7 × 32.9 mm 3.5 × 5.5 × 1.29 inches for "T" type
Case Material	Metal
Weight	570 g for "T" type

Pin Assignment

General	
Pin No.	**Single**
1	No Pin
2 and 3	Vi -
4 and 5	Vi +
6	-
7	N. C.
8	Vo -
9	Vo -
10	Vo +
11	Vo +
12	Sensor -
13	Trim
14	Sensor +

Derating



Part Number Table

Description	Part Number
Converter, DC / DC, Chassis, 60 W, 5 V	HDD60-12S05T
Converter, DC / DC, Chassis, 60 W, 12 V	HDD60-12S12T
Converter, DC / DC, Chassis, 60 W, 24 V	HDD60-12S24T
Converter, DC / DC, Chassis, 60 W, 12 V	HDD60-24S12T
Converter, DC / DC, Chassis, 60 W, 12 V	HDD60-48S12T
Converter, DC / DC, Chassis, 60 W, 24 V	HDD60-48S24T