

HDD60 SERIES

DC - DC CONVERTER
60W SINGLE OUTPUT



FEATURES

- EFFICIENCY UP TO 88%
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 3 YEARS WARRANTY

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (Typ.)
Single Output Models						
HDD60 - 12S05-X	9~18 VDC	60 WATTS	+ 5 VDC	12000 mA	79%	81%
HDD60 - 12S12-X	9~18 VDC	60 WATTS	+ 12 VDC	5000 mA	82%	84%
HDD60 - 12S15-X	9~18 VDC	60 WATTS	+ 15 VDC	4000 mA	82%	84%
HDD60 - 12S24-X	9~18 VDC	60 WATTS	+ 24 VDC	2500 mA	84%	86%
HDD60 - 24S05-X	18~36 VDC	60 WATTS	+ 5 VDC	12000 mA	80%	82%
HDD60 - 24S12-X	18~36 VDC	60 WATTS	+ 12 VDC	5000 mA	84%	86%
HDD60 - 24S15-X	18~36 VDC	60 WATTS	+ 15 VDC	4000 mA	84%	86%
HDD60 - 24S24-X	18~36 VDC	60 WATTS	+ 24 VDC	2500 mA	85%	87%
HDD60 - 48S05-X	36~72 VDC	60 WATTS	+ 5 VDC	12000 mA	83%	85%
HDD60 - 48S12-X	36~72 VDC	60 WATTS	+ 12 VDC	5000 mA	85%	87%
HDD60 - 48S15-X	36~72 VDC	60 WATTS	+ 15 VDC	4000 mA	85%	87%
HDD60 - 48S24-X	36~72 VDC	60 WATTS	+ 24 VDC	2500 mA	86%	88%

- SUFFIX "X=P" : PCB MOUNTING TYPE, HEAT SINK WILL BE ADDED ON MODULE.
- SUFFIX "X=T" : CHASSIS MOUNTING TYPE:(TERMINAL BLOCK), NO HEAT SINK.
USE CHASSIS AS HEAT SINK OR FAN FORCE COOLING.
INDICATE SUFFIX WHEN ORDER.

SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		80		KHz
Isolation voltage	Input - Output	1,500			VDC
Isolation resistance	Input - Output, @ 500VDC	100			MΩ
Ambient temperature	Operating at Vi nom, Io nom	-40		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 100	°C
Derating	Vi nom	See derating curve			% / °C
Storage temperature	Non operational	-40		+ 100	°C
Relative humidity	Vi nom, Io nom	20		95	% RH
Temperature coefficient	Vi nom, Io min			± 0.02	% / °C
Dimension		L88.9 x W139.7 x H35.6 for "P" type L88.9 x W139.7 x H32.9 for "T" type			mm
Cooling	Free air convection				

INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	9	12	18	VDC
		18	24	36	VDC
		36	48	72	VDC
No load input current	Vi nom, Io = 0	12V		20	mA
		24V		15	mA
		48V		10	mA
Input voltage w/o damage	Io nom	12V		20	VDC
		24V		40	VDC
		48V		75	VDC
Input filter	Pi type				

OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 1	%
Minimum load	Vi nom	0			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io 0 ... Io nom			± 2	%
Transient recovery time	Vi nom, I ~ 0.5 Io nom			500	μs
Ripple & noise	Vi nom, Io nom, BW = 20MHz			Vout x 1%	mV
Voltage trim range	Vi nom		± 10		%
Efficiency	Vi nom, Io nom, Po / Pi	Up to 88%, See model list			

CONTROL AND PROTECTION

Remote ON / OFF	ON: opened or +5.5VDC applied, reference to input GND OFF: -1.8VDC applied, reference to input GND
Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Current limited (Auto-recovery)

PHYSICAL CHARACTERISTICS

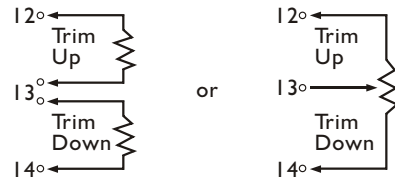
Case size	88.9 x 139.7 x 35.6 mm (3.5 x 5.5 x 1.4 inches) for "P" type 88.9 x 139.7 x 32.9 mm (3.5 x 5.5 x 1.29 inches) for "T" type
Case material	Metal Case / PCB base
Weight	690 g for "P" type / 570 g for "T" type
Potting material	Epoxy

MECHANISM & PIN CONFIGURATION

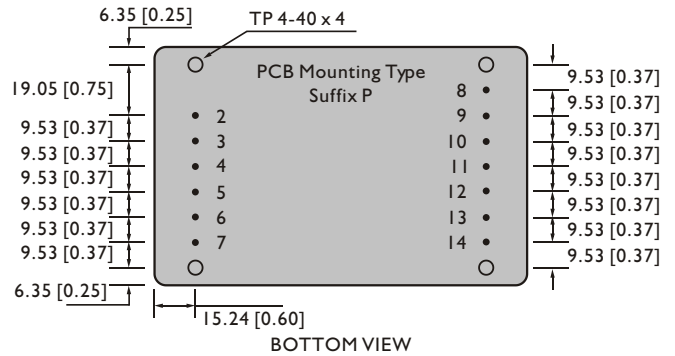
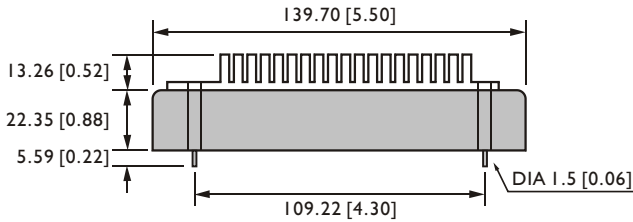
REMOTE ON / OFF CONTROL

TERMINAL 6 CONTROL
 LOGIC COMPATIBILITY :OPEN COLLECTOR TTL
 CONTROL VOLTAGE. ON +5.5V MIN. OR OPEN CIRCUIT.
 OFF +1.8V MAX.
 CONVERTER SHUTDOWN IDLE CURRENT10 mA
 CONTROL COMMONINPUT TERMINAL 2

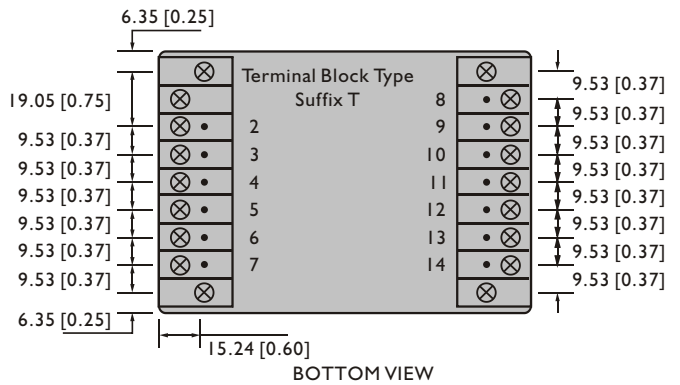
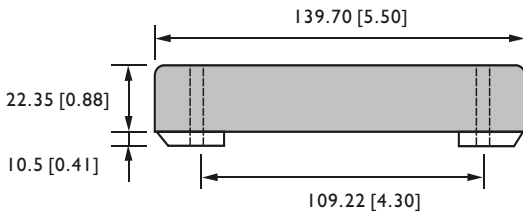
EXTERNAL OUTPUT TRIMMING



Case : P type



Case : T type

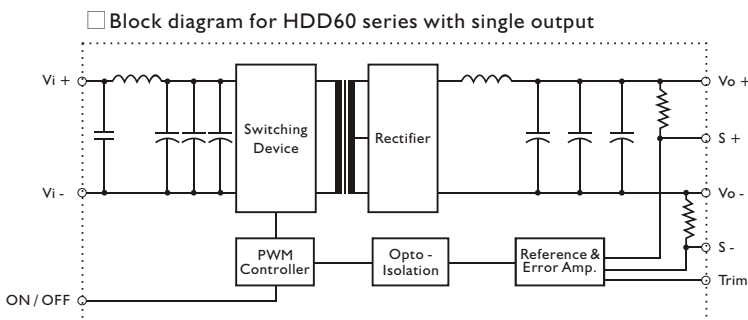


PIN ASSIGNMENT

GENERAL

PIN NO.	SINGLE	PIN NO.	SINGLE
1	NO PIN	8 & 9	Vo -
2 & 3	Vi -	10 & 11	Vo +
4 & 5	Vi +	12	SENSOR -
6	Remote ON/OFF control	13	Trim
7	N. C.	14	SENSOR +

CIRCUIT SCHEMATIC



DERATING

