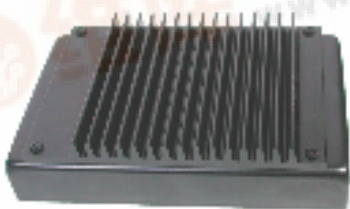


HDD60 SERIES

DC-DC CONVERTER
50 ~ 60W

HDD60 - 12 S 05 X



WATTAGE

12 : 9~18V IN

24 : 18~36V IN

48 : 36~72V IN

05: 5V OUT

12: 12V OUT

15: 15V OUT

24: 24V OUT

512: 5V/12V OUT

S : SINGLE OUTPUT

D : DOUBLE OUTPUT

T : TRIPLE OUTPUT

MODEL LIST

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

HDD60 SERIES

DC-DC CONVERTER 50 ~ 60W

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (MIN.)	CASE
Double Output Models						
HDD50 - 12D05-X	9~18 VDC	50 WATTS	5V / 5V	5A / 5A	78%	HH
HDD60 - 12D12-X	9~18 VDC	60 WATTS	12V / 12V	2.5A / 2.5A	80%	HH
HDD60 - 12D15-X	9~18 VDC	60 WATTS	15V / 15V	2A / 2A	80%	HH
HDD60 - 12D512-X	9~18 VDC	55 WATTS	5V / 12V	5A / 2.5A	79%	HH
HDD50 - 24D05-X	18~36 VDC	50 WATTS	5V / 5V	5A / 5A	80%	HH
HDD60 - 24D12-X	18~36 VDC	60 WATTS	12V / 12V	2.5A / 2.5A	82%	HH
HDD60 - 24D15-X	18~36 VDC	60 WATTS	15V / 15V	2A / 2A	82%	HH
HDD60 - 24D512-X	18~36 VDC	60 WATTS	5V / 12V	6A / 2.5A	80%	HH
HDD50 - 48D12-X	36~72 VDC	50 WATTS	5V / 5V	5A / 5A	80%	HH
HDD60 - 48D12-X	36~72 VDC	60 WATTS	12V / 12V	2.5A / 2.5A	84%	HH
HDD60 - 48D15-X	36~72 VDC	60 WATTS	15V / 15V	2A / 2A	84%	HH
HDD60 - 48D512-X	36~72 VDC	60 WATTS	5V / 12V	6A / 2.5A	81%	HH
Triple Output Models						
HDD55 - 12T512-X	9~18 VDC	55 WATTS	+5V / $\pm 12V$	+5A / $\pm 1.25A$	78%	HH
HDD55 - 24T512-X	18~36 VDC	55 WATTS	+5V / $\pm 12V$	+5A / $\pm 1.25A$	79%	HH
HDD55 - 48T512-X	36~72 VDC	55 WATTS	+5V / $\pm 12V$	+5A / $\pm 1.25A$	80%	HH

--SUFFIX "X=P" : PCB MOUNTING TYPE, HEATSINK WILL BE ADDED ON MODULE.

--SUFFIX "X=T" : CHASSIS MOUNTING TYPE:(TERMINAL BLOCK), NO HEATSINK. USE CHASSIS AS HEATSINK OR FAN FORCE COOLING. INDICATE SUFFIX WHEN ORDER.

--SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICED.

FEATURES

- * 50W to 60W DC/DC CONVERTER
- * 2:1 INPUT RANGE, PI INPUT FILTER
- * ISOLATION INPUT AND OUTPUT
- * HIGH PERFORMANCE UP TO 86%
- * SHORT CIRCUIT PROTECTION
- * 2 YEARS WARRANTY



HDD60 SERIES

DC-DC CONVERTER 50 ~ 60W

SPECIFICATION

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

GENERAL SPECIFICATION

- * Switching frequency: >80KHz (typ.)
- * Isolation voltage: 1,500VDC
- * Isolation resistance: >1G Ω (min.)
- * Operating ambient temperature: -25 to +71°C
- * Storage temperature: -25 to +100°C
- * Max. Case temperature: 95°C
- * M.T.B.F.: 122,500Hrs at @ GF40, according to MIL-HDBK-217F
- * Cooling: Free air convection
- * Transient recovery time: 500 μ S, 25% load step change
- * Temperature coefficient: $\pm 0.02\%$ / °C
- * Dimension: 88.9 X 140 X 22.4mm

INPUT SPECIFICATIONS

- * Input voltage range / frequency: 9 ~ 18VDC for 12V
18 ~ 36VDC for 24V
36 ~ 72VDC for 48V
- * Input filter: Pi type

OUTPUT SPECIFICATIONS

- * Output voltage accuracy: $\pm 1\%$ at Vo_nom
- * Minimum load: No load for +5V, 20% for ± 12 V for triple
- * Line regulation: $\pm 1\%$ at Vo_nom
- * Load regulation: $\pm 2\%$ at Vo_nom for single output models
 $\pm 2\%$ at Vo_nom for dual output models
- * Ripple & noise: $\pm 1\%$ mV (max.)
- * Efficiency: Up to 86%, see model list
- * Voltage trim range: $\pm 10\%$ at Vo_nom
- * Derating: See table 1
- * Case material: Metal

CONTROL AND PROTECTION

- * Remote on/off: ON : Open or +5.5VDC(Min.)
OFF : +1.8VDC(Max.)
- * Output short circuit: Continuous

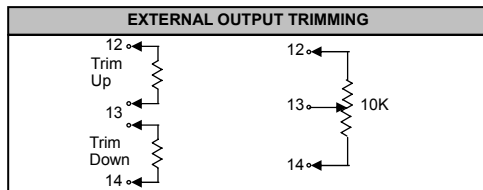


HDD60 SERIES

DC-DC CONVERTER 50 ~ 60W

MECHANISM & PIN CONFIGURATION

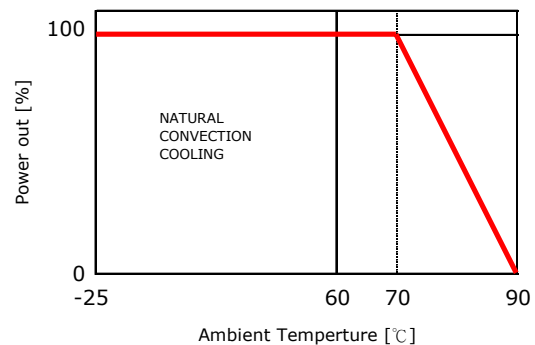
REMOTE ON / OFF CONTROL
TERMINAL 6 CONTROL LOGIC COMPATIBILITY :OPEN COLLECTOR TTL CONTROL VOLTAGE: ON +5.5V MIN. OR OPEN CIRCUIT. OFF+1.8V MAX. CONVERTER SHUTDOWN IDLE CURRENT10 mA CONTROL COMMONINPUT TERMINAL 2



PHYSICAL CHARACTERISTICS

CASE SIZE	88.9 X 140 X 22.4mm 5.5 x 3.5 x 0.88inches
CASE MATERIAL	Metal
WEIGHT	550 g

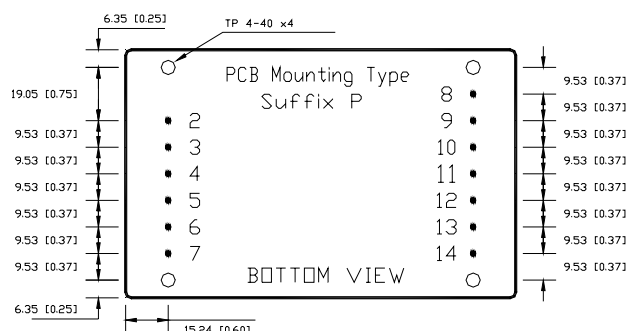
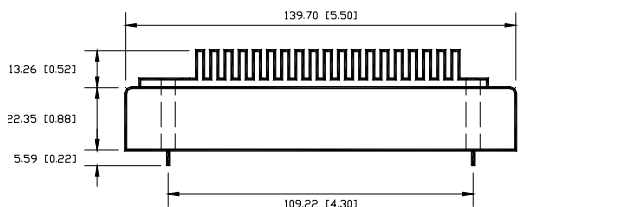
Derating: [TABLE 1]



PIN ASSIGNMENT

PIN NO.	SINGLE	DUAL	TRIPLE
1	NO PIN	NO PIN	NO PIN
2 & 3	Vi-	Vi-	Vi-
4 & 5	Vi+	Vi+	Vi+
6	REMOTE ON/OFF CONTROL		
7	N.C.	N.C.	N.C.
8	Vo-	SENSE1 -	SENSE1 -
9	Vo-	Vo1 -	Vo1 -
10	Vo+	Vo1 +	Vo1 +
11	Vo+	SENSE1 +	SENSE1 +
12	SENSE-	Vo2 -	Vo2 -
13	Trim	Trim	Com2 & 3
14	SENSE+	Vo2 +	Vo3 +

CASE: HH-P-60



CASE: HH-T

