chanhvinh.com

IHL02 series

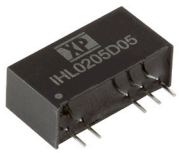
XP Power

2W

DC-DC converters

The IHL02 series is a low cost, high isolation, high working voltage DC-DC converter with excellent common mode transient immunity (CMTI).

The low input to output capacitance of just 10pF, high continuous working voltage rating and 2.5mm isolation barrier, make the product ideal for IGBT & MOSFET driver applications.



Features

- Unregulated single & dual outputs
- ±10% input range
- Single outputs 3.3 to 15VDC
- Dual outputs ±5.0 to ±15VDC
- SIP7 package
- 5.2kVDC functional isolation
- 250VAC working voltage
- Bipolar outputs for MOSFET & IGBT drives
- Common mode transient immunity (CMTI) 20kV/µs
- -40°C to +95°C operation
- Full load to +65°C ambient
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Dimensions

19.5 x 7.2 x 10.0mm (0.77" x 0.28" x 0.39")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current		Maximum capacitive load
					No load	Full load	
IHL0205S3V3	4.5-5.5VDC	3.3VDC	500mA	76%	40mA	435mA	1000µF
IHL0205S05		5VDC	400mA	79%		505mA	470µF
IHL0205S09		9VDC	222mA	83%		480mA	470µF
IHL0205S12		12VDC	167mA	84%		475mA	220µF
IHL0205S15		15VDC	133mA	85%		470mA	220µF
IHL0205D05		±5VDC	±200mA	79%		505mA	±220µF
IHL0205D09		±9 VDC	±111mA	82%		490mA	±220µF
IHL0205D12		±12VDC	±83.3mA	83%		480mA	±100µF
IHL0205D15		±15VDC	±66.7mA	84%		475mA	±100µF
IHL0205D1509		+15/-9VDC	+66.7/-111mA	83%		480mA	+100/-220µF

Continued on page 2

Notes:

Input currents measured at nominal input voltage.

chanhvinh.com

IHL02 series

DC-DC converters

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current		Maximum capacitive load
					No load	Full load	
IHL0212S3V3	10.8-13.2V	3.3VDC	500mA	74%	30mA	185mA	1000µF
IHL0212S05		5VDC	400mA	79%		210mA	470µF
IHL0212S09		9VDC	222mA	82%		205mA	470µF
IHL0212S12		12VDC	167mA	82%		205mA	220µF
IHL0212S15		15VDC	133mA	83%		200mA	220µF
IHL0212D05		±5VDC	±200mA	79%		210mA	±220µF
IHL0212D09		±9 VDC	±111mA	81%		205mA	±220µF
IHL0212D12		±12VDC	±83.3mA	83%		200mA	±100µF
IHL0212D15		±15VDC	±66.7mA	83%		200mA	±100µF
IHL0212D1509		+15/-9VDC	+66.7/-111mA	80%		210mA	+100/-220µF
IHL0215S3V3	13.5-16.5V	3.3VDC	500mA	74%	25mA	150mA	1000µF
IHL0215S05		5VDC	400mA	78%		170mA	470µF
IHL0215S09		9VDC	222mA	81%		165mA	470µF
IHL0215S12		12VDC	167mA	82%		165mA	220µF
IHL0215S15		15VDC	133mA	83%		160mA	220µF
IHL0215D05		±5VDC	±200mA	79%		170mA	±220µF
IHL0215D09		±9 VDC	±111mA	81%		165mA	±220µF
IHL0215D12		±12VDC	±83.3mA	83%		160mA	±100µF
IHL0215D15		±15VDC	±66.7mA	82%		165mA	±100µF
IHL0215D1509		+15/-9VDC	+66.7/-111mA	81%		165mA	+100/-220µF
IHL0224S3V3	21.6-26.4VDC	3.3VDC	500mA	73%	20mA	95mA	1000µF
IHL0224S05		5VDC	400mA	78%		105mA	470µF
IHL0224S09		9VDC	222mA	81%		105mA	470µF
IHL0224S12		12VDC	167mA	81%		105mA	220µF
IHL0224S15		15VDC	133mA	81%		105mA	220µF
IHL0224D05		±5VDC	±200mA	79%		105mA	±220µF
IHL0224D09		±9 VDC	±111mA	80%		105mA	±220µF
IHL0224D12		±12VDC	±83.3mA	81%		105mA	±100µF
IHL0224D15		±15VDC	±66.7mA	82%		100mA	±100µF
IHL0224D1509		+15/-9VDC	+66.7/-111mA	80%		105mA	+100/-220µF

Notes:

Input currents measured at nominal input voltage.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5		5.5	VDC	5V nominal
	10.8		13.2		12V nominal
	13.5		16.5		15V nominal
	21.6		26.4		24V nominal
Input reflected ripple		20		mA pk-pk	Through 12µH inductor and 47µF capacitor
Input surge			9	VDC for 100ms	5V nominal
			18		12V nominal
			20		15V nominal
			30		24V nominal

IHL02 series

DC-DC converters

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Initial set accuracy			±5	%	At full load
Minimum load	10			%	Minimum load required to meet specified regulation
Line regulation			±1.2	%/1%	Output changes by max of 1.2% for each 1% change in input voltage
Load regulation			12/10	%	For IHL0205S3V3 and IHL0205S05/other models. From 10% to full load, see application note
Cross regulation		±5		%	On dual output models, when one output is at 25% load and other is varied from 10% load to full load
Ripple & noise			150	mV pk-pk	20MHz bandwidth. Measured using 10µF electrolytic in parallel with 0.1µF ceramic capacitor
Short circuit protection	Continuous, auto recovery				
Maximum capacitive load	See models and ratings table				
Temperature coefficient			0.03	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		80		%	See models and ratings table
Isolation: input to output	5200			VDC	Functional (100% production test for 60s)
Isolation working voltage			250	VAC rms	400 VDC
Isolation resistance	10^9			Ω	
Isolation capacitance		7		pF	
Switching frequency	50		100	kHz	
Power density			1.44 (23.7)	W/cm³ (W/in³)	
Mean time between failure	3.3			Mhrs	MIL-HDBK-217F, +25°C GB
Case material	Non-conductive black plastic (UL94V-0)				
Pin material	C5191R-H solder coated phospher bronze				
Potting material	Epoxy (UL94V-0)				
Solder process			260		1.5mm from case, 10 s max
Weight		2.7 (0.006)	g (lb)		

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+95	°C	Derate Linearly from 100% at +65°C to no load at +95°C
Storage temperature	-40		+125	°C	
Case temperature			+100	°C	
Humidity	2.5		95	%RH	Non-condensing
Cooling	Natural convection				

Safety approvals

Safety agency	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

chanhvinh.com

IHL02 series

DC-DC converters

Emissions - EMC

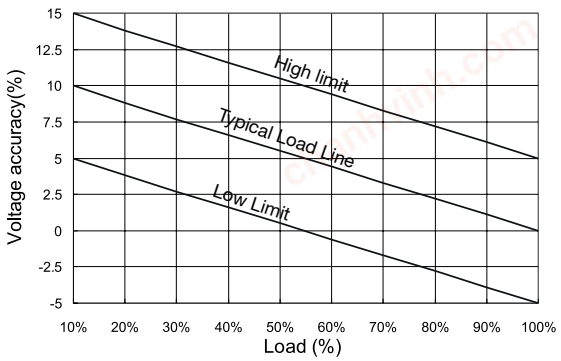
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class B	See application note
Radiated	EN55032	Class B	

Immunity - EMC

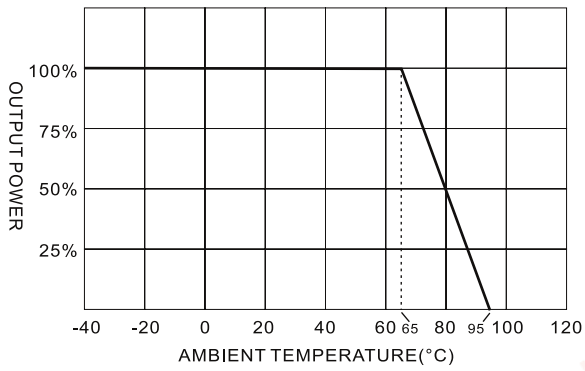
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	±6/±8kV	A	Contact/air discharge
Radiated immunity	EN61000-4-3	10Vrms	A	
EFT/Burst	EN61000-4-4	2kV	A	External components required, see application notes
Conducted immunity	EN61000-4-6	10 Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	
CMTI		20kV/µs		1500VDC

Application notes

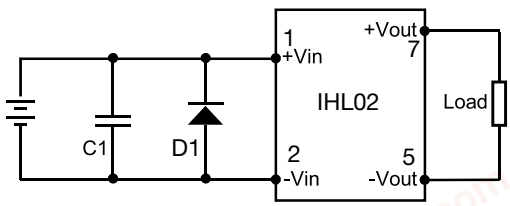
Regulation



Derating curve



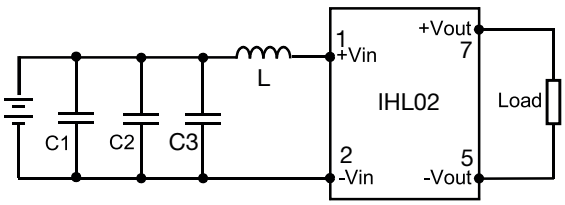
EFT filter



Model	C1	D1
IHL0205XXXX	330µF/50V	SMDJ9.0 A
IHL0212XXXX	330µF/50V	SMDJ13 A
IHL0215XXXX	330µF/50V	SMDJ18 A
IHL0224XXXX	1000µF/35V	SMDJ24 A

Input components C1 and D1 are used to help meet EFT and surge test requirements for the module.

EMI filter



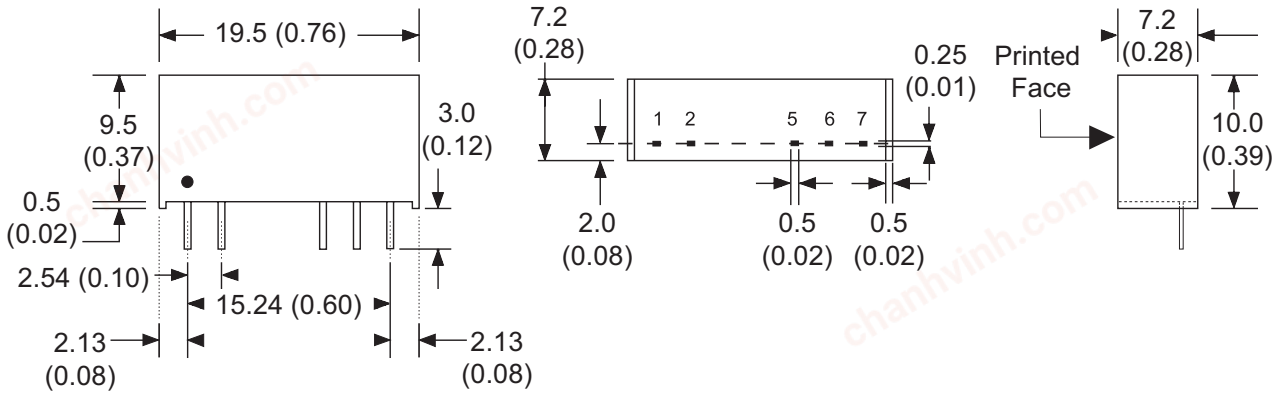
Model	C1	L	C2	C3
IHL0205XXXX	1206, 4.7µF/ 16V	6.8µH		
IHL0212XXXX	1206, 22µF/ 25V	6.8µH		
IHL0215XXXX	1206, 22µF/ 25V	6.8µH		
IHL0224XXXX	1210, 10µF/ 35V	10µH	1210, 10µF/ 35V	1210, 10µF/ 35V

Input filter components (C1,C2, C3 and L) are used to help meet conducted emissions requirements for the module. These components should be mounted as close as possible to the module, and all leads should be minimised to decrease radiated noise.

chanhvinh.com

IHL02 series

Mechanical details



Pin connections		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Common
7	+Vout	+Vout

Notes:

1. All dimensions are in mm (inches)
2. Weight: 2.7 (0.006) g (lb) approx.
3. Pin pitch tolerance: ±0.35 (±0.014)
4. Pin diameter: 0.5 ±0.05 (0.02 ±0.002)
5. Case tolerance: ±0.5 (±0.02)