Features

- Wide 2 : 1 Input Voltage Range(9~18V,18~36V,36~75V)
- Remote On/Off
- Input / Output Isolation Voltage: 1.5kVDC
- Extended Operating Temperature Range: -40°C to+85°C
- Output Short Circuit Protection:
  Continuous & Auto Recovery
- Over Voltage Protection: Clamp Mode
- Shielded Metal Case with Insulated Baseplate
- Lead Free Design, RoHS Compliant
- 6 pin DIP Package with Industry-Standard Footprint
- Customer Design Available

RoHS compliant

Description

The HUB12 Series are isolated 12W DC/DC converters. Designed with highly efficiency, allow the operating temperature range of these units to be -40°C to +85°C in a 6 pin DIP package with industry-standard footprint. Further features include wide 2 : 1 input voltage range, remote on/off control, short-circuit protection and over voltage protection.

Applications

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network, Industry control system, everywhere where isolated, tightly regulated voltages and compact size are required.

Technical Specification

All specifications are typical at nominal input, full load and 25°C unless otherwise stated.

Model Number	Input Voltage Range	Output Voltage (Vdc)	Output Current (mA)		Input Current (mA)		Eff. (2) (%)	Capacitive Load, max. (3) (uF)
			Min. Load (1)	Full. Load	No Load	Full Load		
HUB12-12S0	9~18V Nominal:12Vdc	3.3	0	3500	10	1318	77	4700
HUB12-12S1		5	0	2400	20	1282	82	3300
HUB12-12S2		12	0	1000	22	1220	86	680
HUB12-12S3		15	0	800	21	1235	85	330
HUB12-12D1		±5	0	±1200	19	1282	82	1000
HUB12-12D2		±12	0	±500	27	1220	86	220
HUB12-12D3		±15	0	±400	31	1235	85	200
HUB12-24S0	18~36V Nominal:24Vdc	3.3	0	3500	11	659	77	4700
HUB12-24S1		5	0	2400	10	641	82	3300
HUB12-24S2		12	0	1000	13	602	87	680
HUB12-24S3		15	0	800	12	610	86	330
HUB12-24D1		±5	0	±1200	10	633	83	1000
HUB12-24D2		±12	0	±500	15	602	87	147
HUB12-24D3		±15	0	±400	17	610	86	133
HUB12-48S0	36~75V Nominal:48Vdc	3.3	0	3500	3	325	78	3300
HUB12-48S1		5	0	2400	6	321	82	1680
HUB12-48S2		12	0	1000	7	301	87	220
HUB12-48S3		15	0	800	6	305	86	147
HUB12-48D1		±5	0	±1200	6	316	83	680
HUB12-48D2		±12	0	±500	8	301	87	68
HUB12-48D3		±15	0	±400	9	305	86	100

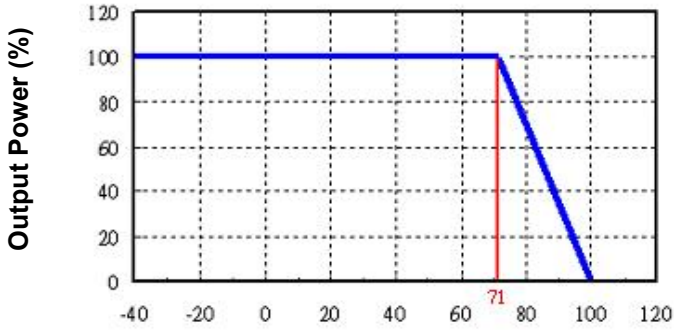
Input Specifications		
Input Voltage	12V nominal input	9-18V
	24V nominal input	18-36V
	48V nominal input	36-75V
Input filter		Pi Type
Input surge voltage (100ms max.)	12V nominal input	25V
	24V nominal input	50V
	48V nominal input	100V
Input reflected ripple current	Nominal Vin and full load	130mAp-p max.
Start up time	Nominal Vin and constant resistive load	550ms typ.
Remote ON/OFF	Converter: ON	Open or 3.5V < Vr < 12V
	Converter: OFF	Short (4) or 0V < Vr < 1.2V
Sourcing current of remote control pin	Nominal Vin	< 0.2 mA
Idle input current (at Remote OFF state)	Nominal Vin	< 3 mA
Environmental Specifications		
Operating ambient temperature		-40°C to +85°C (with derating)
Maximum case temperature		+100°C
Storage temperature range		-55°C to +105°C
Relative humidity		5% to 95% RH
Temperature coefficient		±0.02% / °C max.
Output Specifications		
Output power		12 Watts max.
Voltage accuracy	Full load and nominal Vin	±1%
Minimum load		See table
Line regulation	LL to HL at full load	±0.5%
Load Regulation	25% load to full load Single	±0.5%
	Balanced load Dual	±0.5%
	Unbalanced load 25% to 100% full load	±5%
Ripple and Noise	20MHz bandwidth	100mVp-p max.
Over voltage protection (Zener Diode Clamp)	3.3Vout models	3.9V
	5Vout models	6.2V
	12Vout models	15V
	15Vout models	18V
Capacitive load		See table
Over load protection	% of full load at nominal input	150% typ.
Short circuit protection		Continuous, automatic recovery
Transient response settling time	50% load step change	2000μs typ.
Transient response over shoot	di/dt=0.8A/μs	≤ ±5% of Vo

General Specifications		
Efficiency	Nominal input	See table
Isolation voltage	Input to output	1500VDC
Isolation resistance	500VDC	10^9 Ohms min.
Isolation capacitance		500pF typ.
Switching frequency		300kHz typ.
Reliability, calculated MTBF		1.96×10^6 Hrs

Physical Specifications	
Case material	Nickel-coated copper
Base material	Non-conductive black plastic
Potting material	Silicon rubber (UL94V-0)
Dimensions	2.0 × 1.0 × 0.4 Inch (50.8 × 25.4 × 10.2 mm)
Weight	30g (1.06oz) typ.

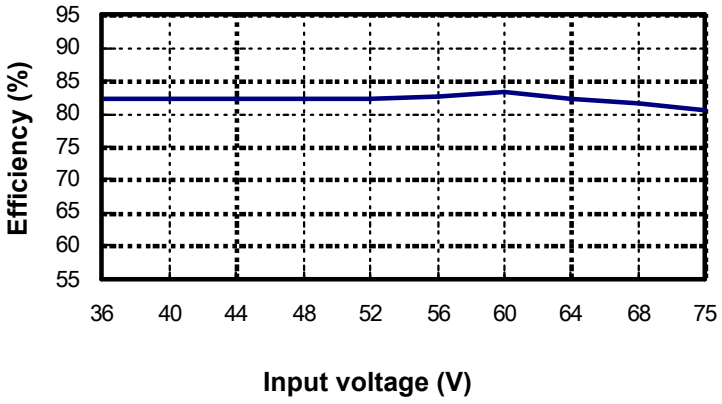
HUB12 Series

Power Derating Curve (5)



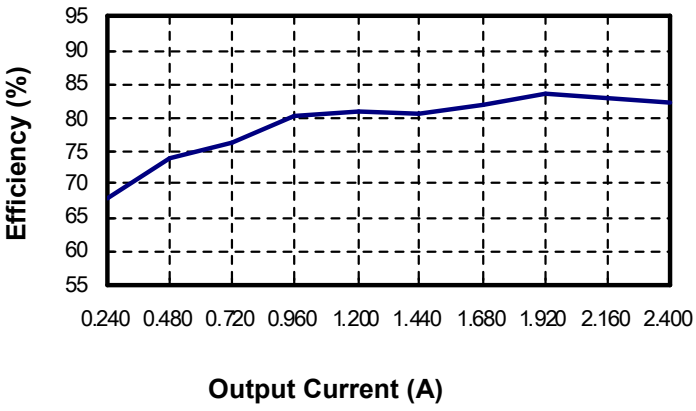
HUB12-48S1

Input voltage vs. Efficiency

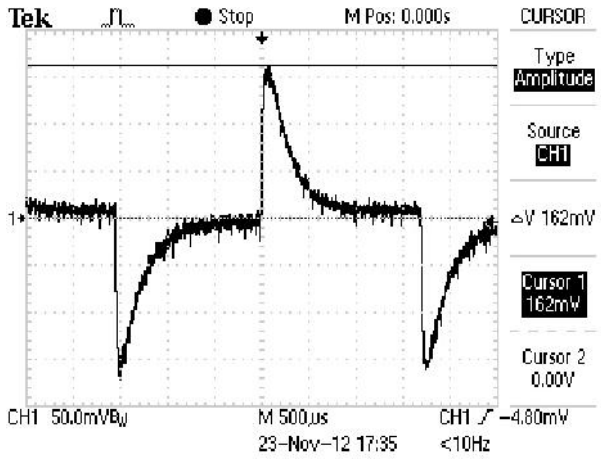


HUB12-48S1

Output Current vs. Efficiency

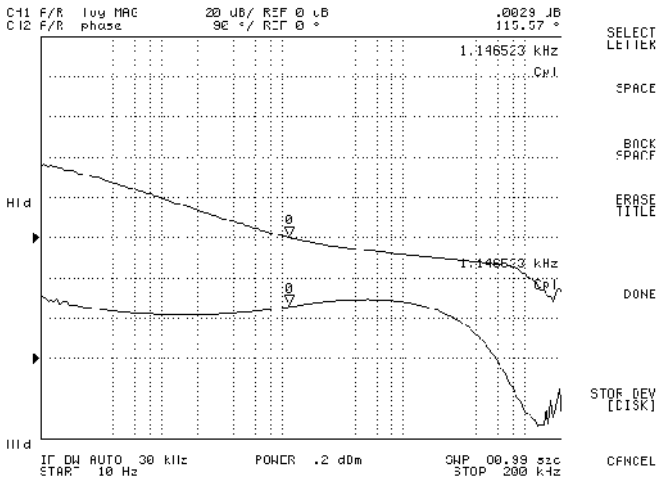


HUB12-48S1



Transient Response at 50%~100% Max Load

HUB12-48S1

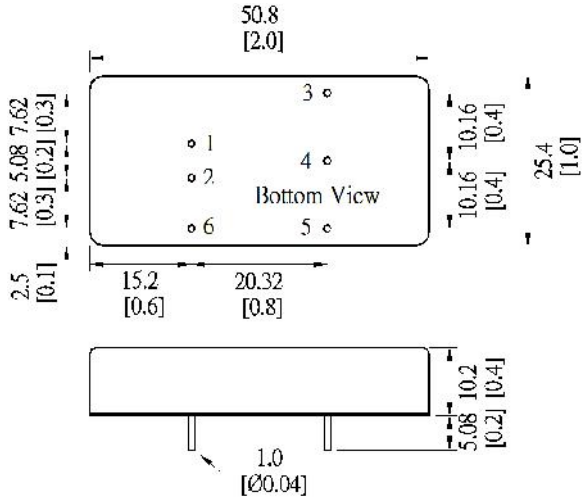


Loop Gain & Phase at Vi=48V,Full Load

Note

1. Io below this value will not damage these converters, however, they may not meet all listed specifications.
2. Typical value, tested at nominal input and full load.
3. For each output.
4. Short to -Vin (Pin 2).
5. Based on HUB12-48S1.

Mechanical Dimensions



Unit: mm [inch]
Tolerance:±0.5[0.02]

Pin Assignment		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Common
5	-Vout	-Vout
6	Remote On/Off (optional)	

Specifications subject to change without noticed.