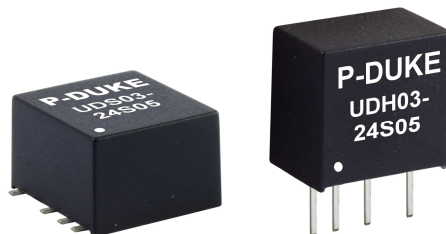


UDS03 UDH03 SERIES

DC-DC CONVERTER

2:1 WIDE INPUT RANGE
UP TO 3 Watts



FEATURES

- ULTRA SMALL SMD PACKAGE, 0.47 x 0.44 x 0.31 INCH
SIP PACKAGE, 0.47 x 0.30 x 0.43 INCH
- NO MINIMUM LOAD REQUIRED
- REGULATED OUTPUT VOLTAGE
- CONTINUOUS SHORT CIRCUIT PROTECTION
- 1600VDC INPUT TO OUTPUT ISOLATION
- SAFETY MEETS UL60950-1, EN60950-1, & IEC60950-1
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- MEASUREMENT EQUIPMENT
- SEMICONDUCTOR EQUIPMENT

TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25°C otherwise noted

Model Number	Input Range VDC	Output Voltage VDC	Output Current @ Full Load mA	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load μF
UDS(H)03-05S3P3	4.5 ~ 13.2	3.3	700	65	75	4400
UDS(H)03-05S05	4.5 ~ 13.2	5	600	65	78	2200
UDS(H)03-05S12	4.5 ~ 13.2	12	250	75	82	1000
UDS(H)03-05S15	4.5 ~ 13.2	15	200	75	80	820
UDS(H)03-05S24	4.5 ~ 13.2	24	125	75	80	330
UDS(H)03-05D05	4.5 ~ 13.2	±5	±300	75	77	±1200
UDS(H)03-05D12	4.5 ~ 13.2	±12	±125	75	80	±520
UDS(H)03-05D15	4.5 ~ 13.2	±15	±100	75	80	±440
UDS(H)03-12S3P3	9 ~ 18	3.3	700	35	76	4400
UDS(H)03-12S05	9 ~ 18	5	600	35	79	2200
UDS(H)03-12S12	9 ~ 18	12	250	40	84	1000
UDS(H)03-12S15	9 ~ 18	15	200	40	83	820
UDS(H)03-12S24	9 ~ 18	24	125	40	82	330
UDS(H)03-12D05	9 ~ 18	±5	±300	40	78	±1200
UDS(H)03-12D12	9 ~ 18	±12	±125	40	82	±520
UDS(H)03-12D15	9 ~ 18	±15	±100	40	81	±440
UDS(H)03-24S3P3	18 ~ 36	3.3	700	18	76	4400
UDS(H)03-24S05	18 ~ 36	5	600	18	78	2200
UDS(H)03-24S12	18 ~ 36	12	250	18	84	1000
UDS(H)03-24S15	18 ~ 36	15	200	18	84	820
UDS(H)03-24S24	18 ~ 36	24	125	20	83	330
UDS(H)03-24D05	18 ~ 36	±5	±300	20	79	±1200
UDS(H)03-24D12	18 ~ 36	±12	±125	20	83	±520
UDS(H)03-24D15	18 ~ 36	±15	±100	20	82	±440
UDS(H)03-48S3P3	36 ~ 75	3.3	700	10	75	4400
UDS(H)03-48S05	36 ~ 75	5	600	10	79	2200
UDS(H)03-48S12	36 ~ 75	12	250	12	83	1000
UDS(H)03-48S15	36 ~ 75	15	200	12	83	820
UDS(H)03-48S24	36 ~ 75	24	125	12	82	400
UDS(H)03-48D05	36 ~ 75	±5	±300	12	77	±1200
UDS(H)03-48D12	36 ~ 75	±12	±125	12	82	±520
UDS(H)03-48D15	36 ~ 75	±15	±100	12	80	±440

PART NUMBER STRUCTURE

UDS03 -	48	S	05
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)
UDS : SMD type	05:4.5~13.2	S:Single	3P3:3.3
UDH : SIP type	12:9~18		05:5
	24:18~36		12:12
	48:36~75		15:15
			24:24
		D: Dual	05:± 5
			12:±12
			15:±15

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	5Vin(nom) 12Vin(nom) 24Vin(nom) 48Vin(nom)	4.5 9 18 36	5 12 24 48	13.2 18 36 75	VDC
Start up time	Constant resistive load Power up		5		ms
Input surge voltage	1 second, max. 5Vin(nom) 12Vin(nom) 24Vin(nom) 48Vin(nom)			15 25 50 100	VDC
Input reflected ripple current ⁽¹⁾	5Vin(nom) 12Vin(nom) 24Vin(nom) 48Vin(nom)		100 75 75 50		mAp-p
Input filter					Capacitor type

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy		-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load	-0.2		+0.2	%
Load regulation	No Load to Full Load Single Dual	-1.0 -1.0		+1.0 +1.0	%
	10% Load to 90% Full Load Single Dual	-0.5 -0.8		+0.5 +0.8	%
Cross regulation	Asymmetrical load 25%/100% FL Dual	-5.0		+5.0	%
Ripple and noise	Measured by 20MHz bandwidth		50		mVp-p
Temperature coefficient		-0.02		+0.02	%/°C
Transient response recovery time	25% load step change		500		µs
Short circuit protection					Continuous, automatic recovery

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute Input to Output	1600			VDC
Isolation resistance	500VDC	1			GΩ
Isolation capacitance				75	pF
Switching frequency		100			kHz
Safety meets					UL60950-1 EN60950-1 IEC60950-1
Case material					Non-conductive black plastic
Base material					None
Potting material					Silicone (UL94 V-0)
Weight					2.1g (0.07oz)
MTBF	MIL-HDBK-217F, Full load				4.406 x 10 ⁶ hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	With derating	-40		105	°C
Storage temperature range		-55		+125	°C
Thermal shock				MIL-STD-810F	
Vibration				MIL-STD-810F	
Relative humidity				5% to 95% RH	

EMC SPECIFICATIONS

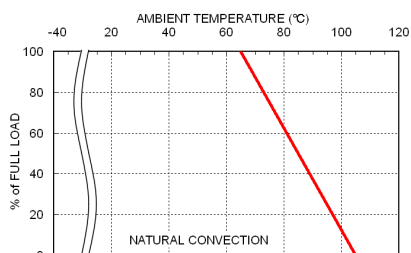
Parameter	Conditions	Level
EMI ⁽¹⁾	EN55022	Class A · Class B
ESD	EN61000-4-2 Air ± 8kV Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10 V/m	Perf. Criteria A
Fast transient ⁽²⁾	EN61000-4-4 ± 2kV	Perf. Criteria A
Surge ⁽²⁾	EN61000-4-5 ±1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

Note:

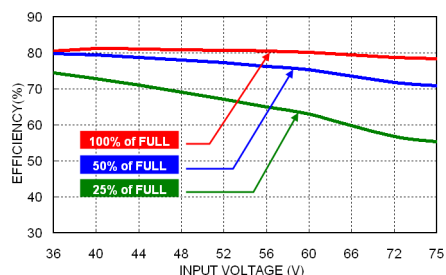
- The standard modules meet EMI Class A or Class B and input reflected ripple current with external components. For further information, please contact with P-DUKE.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220μF/100V.

CAUTION: This power module is not internally fused. An input line fuse must always be used.

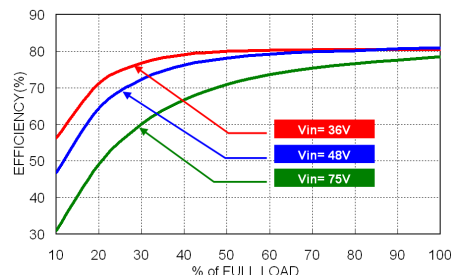
CHARACTERISTIC CURVE



UDS(H)03-48S05 Derating Curve



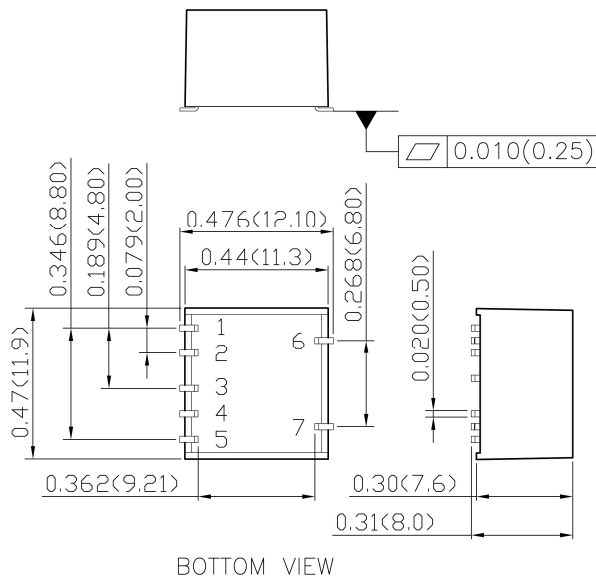
UDS(H)03-48S05 Efficiency vs. Input Voltage



UDS(H)03-48S05 Efficiency vs. Output Load

MECHANICAL DRAWING

UDS03

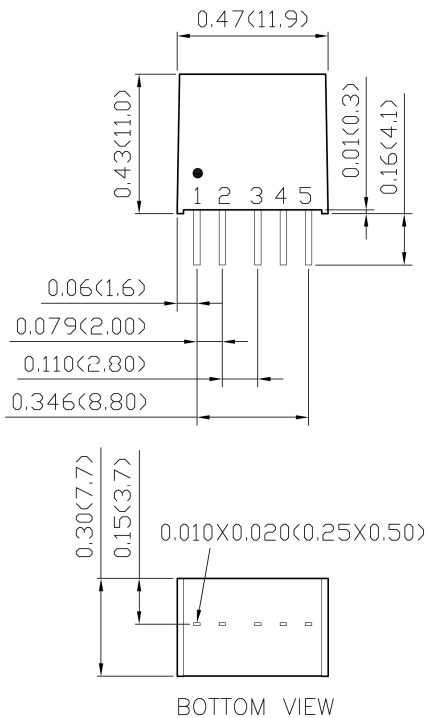


PIN CONNECTION

PIN	SINGLE	DUAL
1	-Vin	-Vin
2	+Vin	+Vin
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout
6	* NC	* NC
7	* NC	* NC

* NC : NO ELECTRICAL CHARACTERISTICS

UDH03



PIN CONNECTION

PIN	SINGLE	DUAL
1	-Vin	-Vin
2	+Vin	+Vin
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout

1. All dimensions in inch (mm)
2. Tolerance : x.xx±0.02 (x.x±0.5)
x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004 (0.1)