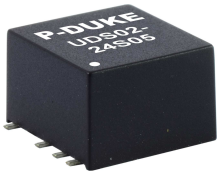
POWER MATE TECHNOLOGY CO., LTD.

UDS02 UDH02 SERIES

DC-DC CONVERTER

2:1 WIDE INPUT RANGE
UP TO 2.01 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℃ 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)02-05S3P3	4.5 ~ 13.2	3.3	500	55	77	3300
UDS(H)02-05S05	4.5 ~ 13.2	5	400	55	80	1680
UDS(H)02-05S12	4.5 ~ 13.2	12	167	65	83	820
UDS(H)02-05S15	4.5 ~ 13.2	15	134	65	82	680
UDS(H)02-05S24	4.5 ~ 13.2	24	83	65	82	220
UDS(H)02-05D05	4.5 ~ 13.2	±5	±200	65	78	±1000
UDS(H)02-05D12	4.5 ~ 13.2	±12	±83	65	82	±470
UDS(H)02-05D15	4.5 ~ 13.2	±15	±67	65	80	±330
UDS(H)02-12S3P3	9 ~ 18	3.3	500	25	77	3300
UDS(H)02-12S05	9 ~ 18	5	400	25	80	1680
UDS(H)02-12S12	9 ~ 18	12	167	25	84	820
UDS(H)02-12S15	9 ~ 18	15	134	32	83	680
UDS(H)02-12S24	9 ~ 18	24	83	32	83	220
UDS(H)02-12D05	9 ~ 18	±5	±200	32	79	±1000
UDS(H)02-12D12	9 ~ 18	±12	±83	32	83	±470
UDS(H)02-12D15	9 ~ 18	±15	±67	32	81	±330
UDS(H)02-24S3P3	18 ~ 36	3.3	500	15	77	3300
UDS(H)02-24S05	18 ~ 36	5	400	15	78	1680
UDS(H)02-24S12	18 ~ 36	12	167	15	84	820
UDS(H)02-24S15	18 ~ 36	15	134	15	84	680
UDS(H)02-24S24	18 ~ 36	24	83	15	82	220
UDS(H)02-24D05	18 ~ 36	±5	±200	15	80	±1000
UDS(H)02-24D12	18 ~ 36	±12	±83	15	83	±470
UDS(H)02-24D15	18 ~ 36	±15	±67	15	82	±330
UDS(H)02-48S3P3	36 ~ 75	3.3	500	8	76	3300
UDS(H)02-48S05	36 ~ 75	5	400	8	79	1680
UDS(H)02-48S12	36 ~ 75	12	167	8	83	820
UDS(H)02-48S15	36 ~ 75	15	134	8	83	680
UDS(H)02- 48S24	36 ~ 75	24	83	8	82	220
UDS(H)02-48D05	36 ~ 75	±5	±200	8	78	±1000
UDS(H)02-48D12	36 ~ 75	±12	±83	8	82	±470
UDS(H)02-48D15	36 ~ 75	±15	±67	8	80	±330

PART NUMBER STRUCTURE

UDS02 - 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)	4.5	5	13.2	VDC
		12Vin(nom)	9	12	18	
		24Vin(nom)	18	24	36	
		48Vin(nom)	36	48	75	
Start up time	Constant resistive load	Power up		5		ms
Input surge voltage	1 second, max.	5Vin(nom)			15	VDC
		12Vin(nom)			25	
		24Vin(nom)			50	
		48Vin(nom)			100	
Input reflected ripple current(1)		5Vin(nom)		50		mAp-p
		12Vin(nom)		50		
		24Vin(nom)		30		
		48Vin(nom)		30		
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	-1.0		+1.0	%
		Dual	-1.0		+1.0	
	10% Load to 90% Full Load	Single	-0.5		+0.5	%
		Dual	-0.8		+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	%/℃
Transient response recovery time	25% load step change			500		μs
Short circuit protection					Continuous, automatics 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					5.735×10^6 hrs

ENVIRONMENTAL SPECIFICATIONS

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

EMC SPECIFICATIONS

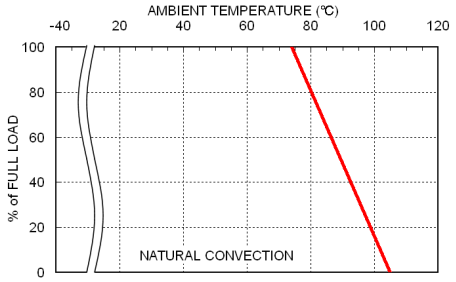
Parameter	Conditions		Level
EMI(1)	EN55022		Class A，Class B
ESD	EN61000-4-2	Air ± 8kV Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (2)	EN61000-4-4	± 2kV	Perf. Criteria A
Surge (2)	EN61000-4-5	±1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10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

Note:

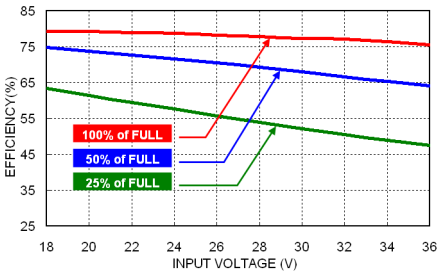
1. The standard modules meet EMI Class A or Class B and input reflected ripple current with external components. For further information, please contact with P-DUKE.
2. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
   The filter capacitor Power Mate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

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

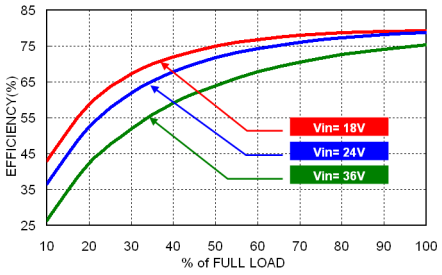
CHARACTERISTIC CURVE



UDS(H)02-24S05 Derating Curve



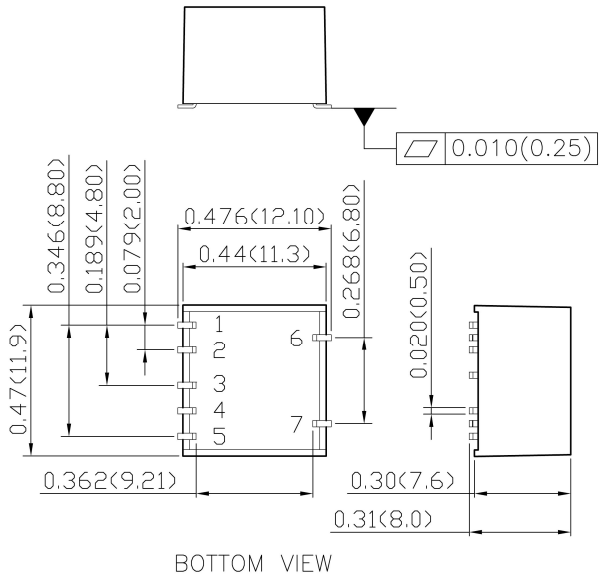
UDS(H)02-24S05 Efficiency vs. Input Voltage



UDS(H)02-24S05 Efficiency vs. Output Load

MECHANICAL DRAWING

UDS02



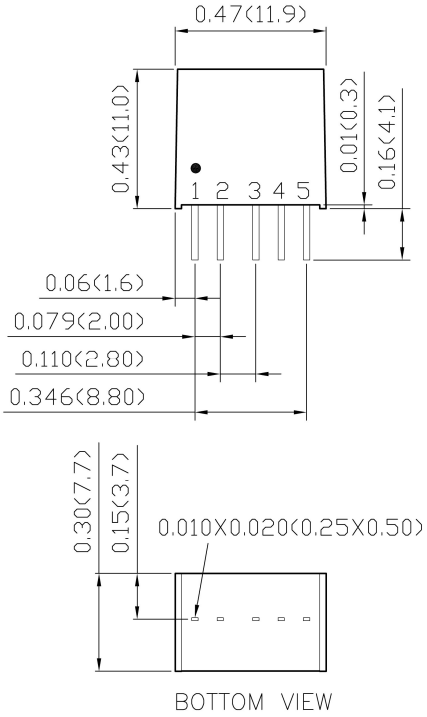
BOTTOM VIEW

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

UDH02



BOTTOM VIEW

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)