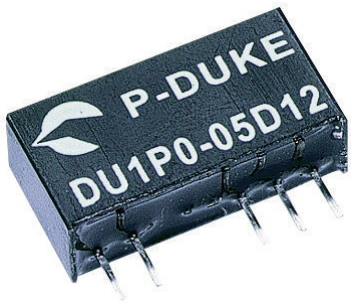
POWER MATE TECHNOLOGY CO., LTD.

DU1P0 SERIES

1 WATTS DC-DC CONVERTER



FEATURES

- 1 WATT UNREGULATED OUTPUT POWER
- OUTPUT CURRENT UP TO 0.2A
- SINGLE -IN-LINE PACKAGE (SIP)
- HIGH EFFICIENCY FOR LOW POWER APPLICATION
- INPUT RANGE FROM 4.5VDC TO 5.5VDC, 10.8VDC TO 13.2 VDC, 13.5VDC TO 16.5VDC AND 21.6VDC TO 26.4VDC
- UL 94-V0 NON-CONDUCTED CASE
- INTERNAL INPUT & OUTPUT FILTER
- INPUT TO OUTPUT ISOLATION UP:3kVDC, MIN.
- SUFFIX-N ISOLATION LEVEL REINFORCE
- CE MARK MEETS 2006/95/EC, 2011/95/EC AND 2004/108/EC
- SAFETY MEETS UL60950-1, EN60950-1 AND IEC60950-1
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU

APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

OPTION

3kVDC ISOLATION

DESCRIPTION

The DU1P0 series are the standard building blocks for on-board distributed power systems. They are ideally suited to provide single and dual supplies on primarily digital boards with added benefit of galvanic isolation to reduce switching noise.

TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS			
Output power			1 Watt, max.
Voltage accuracy			± 5%
Minimum load (Note 5)			10% of FL
Line regulation	LL to HL at Full Load		1.3% / 1% of Vin
Load regulation	20% to 100% FL	5V output others	± 10% ± 8%
Ripple and noise	20MHz bandwidth		See table
Temperature coefficient			±0.1% / ºC, max.
Short circuit protection (Note 6)			1 Sec, max.
GENERAL SPECIFICATIONS			
Efficiency			See table
Isolation voltage	Input to Output	Standard Suffix-N	1000VDC, min. 1minute 3000VDC, min. 1minute
Isolation resistance	500VDC		10^9 ohms, min.
Isolation capacitance			30pF, max.
Switching frequency			60kHz, min.
Design meet safety standard			IEC60950-1, UL60950-1, EN60950-1
Case material			Non-conductive black plastic
Base material			None
Potting material			Epoxy (UL94-V0)
Dimensions			0.77 X 0.24 X 0.40 Inch (19.6 X 6.1 X 10.2 mm)
Weight			2.0g (0.071oz)
MTBF (Note 1)	BELLCORE TR-NWT-000332 MIL-HDBK-217F		1.471×10^7 hrs 1.238×10^7 hrs

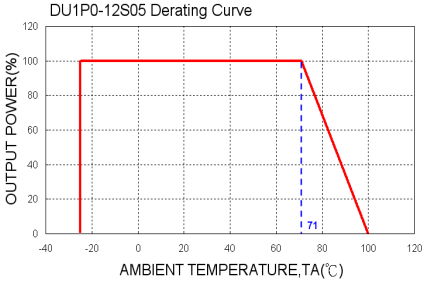
INPUT SPECIFICATIONS		
Input voltage range	5VDC nominal input 12VDC nominal input 15VDC nominal input 24VDC nominal input	4.5 ~ 5.5VDC 10.8 ~ 13.2VDC 13.5 ~ 16.5VDC 21.6 ~ 26.4VDC
Input filter		C type
ENVIRONMENTAL SPECIFICATIONS		
Operating ambient temperature		-25ºC ~ +85ºC (with derating)
Storage temperature range		-55ºC ~ +125ºC
Thermal shock		MIL-STD-810F
Vibration		MIL-STD-810F
Relative humidity		5% to 95% RH

Model Number	Input Range	Output Voltage	Output Current		Output [3] Ripple & Noise	No load[2] Input Current	Eff [3] (%)	Capacitor Load max[4]
			Min. load	Full load				
DU1P0-05S05	4.5 ~ 5.5 VDC	5 VDC	20mA	200mA	100mVp-p	42mA	77	330μF
DU1P0-05S12	4.5 ~ 5.5 VDC	12 VDC	8.3mA	83mA	100mVp-p	32mA	82	330μF
DU1P0-05S15	4.5 ~ 5.5 VDC	15 VDC	6.7mA	67mA	100mVp-p	35mA	81	330μF
DU1P0-05D05	4.5 ~ 5.5 VDC	± 5 VDC	± 10mA	± 100mA	100mVp-p	40mA	78	±150μF
DU1P0-05D12	4.5 ~ 5.5 VDC	± 12 VDC	± 4.2mA	± 42mA	100mVp-p	35mA	82	±150μF
DU1P0-05D15	4.5 ~ 5.5 VDC	± 15 VDC	± 3.3mA	± 33mA	100mVp-p	40mA	81	±150μF
DU1P0-12S05	10.8 ~ 13.2 VDC	5 VDC	20mA	200mA	100mVp-p	17mA	77	330μF
DU1P0-12S12	10.8 ~ 13.2 VDC	12 VDC	8.3mA	83mA	100mVp-p	17mA	82	330μF
DU1P0-12S15	10.8 ~ 13.2 VDC	15 VDC	6.7mA	67mA	100mVp-p	18mA	79	330μF
DU1P0-12D05	10.8 ~ 13.2 VDC	± 5 VDC	± 10mA	± 100mA	100mVp-p	18mA	77	±150μF
DU1P0-12D12	10.8 ~ 13.2 VDC	± 12 VDC	± 4.2mA	± 42mA	100mVp-p	18mA	81	±150μF
DU1P0-12D15	10.8 ~ 13.2 VDC	± 15 VDC	± 3.3mA	± 33mA	100mVp-p	18mA	82	±150μF
DU1P0-15S05	13.5 ~ 16.5 VDC	5 VDC	20mA	200mA	100mVp-p	20mA	73	330μF
DU1P0-15S12	13.5 ~ 16.5 VDC	12 VDC	8.3mA	83mA	100mVp-p	18mA	79	330μF
DU1P0-15S15	13.5 ~ 16.5 VDC	15 VDC	6.7mA	67mA	100mVp-p	18mA	80	330μF
DU1P0-15D05	13.5 ~ 16.5 VDC	± 5 VDC	± 10mA	± 100mA	100mVp-p	18mA	75	±150μF
DU1P0-15D12	13.5 ~ 16.5 VDC	± 12 VDC	± 4.2mA	± 42mA	100mVp-p	16mA	80	±150μF
DU1P0-15D15	13.5 ~ 16.5 VDC	± 15 VDC	± 3.3mA	± 33mA	100mVp-p	16mA	80	±150μF
DU1P0-24S05	21.6 ~ 26.4 VDC	5 VDC	20mA	200mA	100mVp-p	12mA	72	330μF
DU1P0-24S12	21.6 ~ 26.4 VDC	12 VDC	8.3mA	83mA	100mVp-p	12mA	78	330μF
DU1P0-24S15	21.6 ~ 26.4 VDC	15 VDC	6.7mA	67mA	100mVp-p	10mA	78	330μF
DU1P0-24D05	21.6 ~ 26.4 VDC	± 5 VDC	± 10mA	± 100mA	100mVp-p	12mA	75	±150μF
DU1P0-24D12	21.6 ~ 26.4 VDC	± 12 VDC	± 4.2mA	± 42mA	100mVp-p	10mA	78	±150μF
DU1P0-24D15	21.6 ~ 26.4 VDC	± 15 VDC	± 3.3mA	± 33mA	100mVp-p	10mA	79	±150μF

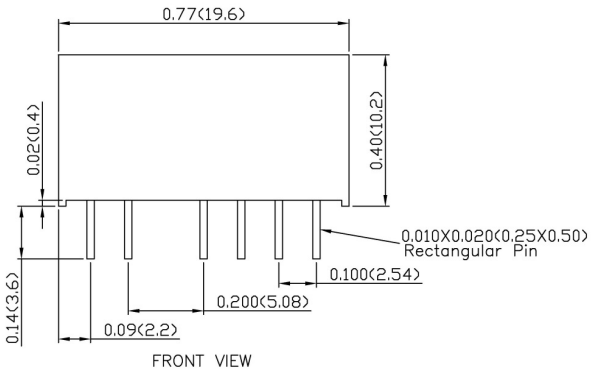
Note

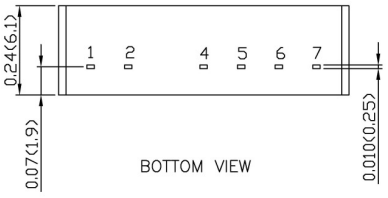
1. BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40ºC.
   MIL-HDBK-217F Notice2 @Ta=25 ºC, Full load(Ground, Benign, controlled environment).
2. Typical value at nominal input voltage and no load.
3. Typical value at nominal input voltage and full load.
4. Test by minimum Vin and constant resistive load.
5. The output requires a minimum loading on the output to maintain specified regulation.
   Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
6. **CAUTION:** This power module is not internally fused. An input line fuse must always be used.

DU1P0-12S05 Derating Curve



MECHANICAL DRAWING :



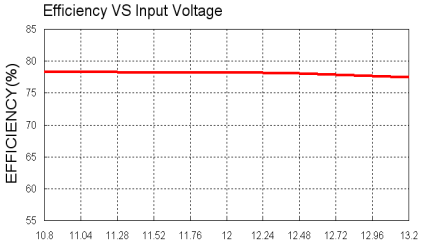


STANDARD		
PIN	SINGLE	DUAL
1	+INPUT	+INPUT
2	-INPUT	-INPUT
4	-OUTPUT	-OUTPUT
5	NC	COMMON
6	+OUTPUT	+OUTPUT

"SUFFIX-N" Models		
PIN	SINGLE	DUAL
1	+INPUT	+INPUT
2	-INPUT	-INPUT
5	-OUTPUT	-OUTPUT
6	NC	COMMON
7	+OUTPUT	+OUTPUT

1. All dimensions in Inch (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01 (0.25)
3. Pin dimension tolerance ±0.004 (0.1)

DU1P0-12S05
Efficiency VS Input Voltage



DU1P0-12S05
Efficiency VS Output Load