



**POWER MATE  
TECHNOLOGY CO.,LTD.**

# DU1P0-SERIES



- 1 WATT UNREGULATED OUTPUT POWER
- SINGLE-IN-LINE PACKAGE (SIP)
- HIGH EFFICIENCY FOR LOW POWER APPLICATION
- UL 94-V0 NON-CONDUCTED CASE
- INTERNAL INPUT & OUTPUT FILTER
- INPUT / OUTPUT ISOLATION UP TO 3KVDC

The DU1P0 series are the standard building blocks for on-board distributed power systems. They are ideally suited to providing single and dual supplies on primarily digital boards with added benefit of galvanic isolation to reduce switching noise. All of the rated power may be drawn from a single pin provided the total load does not exceed 1 watt.

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

| OUTPUT SPECIFICATIONS    |                           |                     |                  |
|--------------------------|---------------------------|---------------------|------------------|
| Output power             |                           | 1 Watt max          |                  |
| Voltage accuracy         | Full load and nominal Vin |                     | ± 5%             |
| Minimum load (Note 1)    |                           |                     | 10% of FL        |
| Line regulation          | LL to HL at Full Load     |                     | 1.3% / 1% of Vin |
| Load regulation          | 20% to 100% FL            | 5V output<br>others | ± 10%<br>± 8%    |
| Ripple and noise         | 20MHz bandwidth           |                     | 100mVp-p         |
| Temperature coefficient  |                           |                     | ±0.1% / °C, max  |
| Short circuit protection |                           |                     | Short term       |
| INPUT SPECIFICATIONS     |                           |                     |                  |
| Input voltage range      | 5V nominal input          | 4.5 – 5.5VDC        |                  |
|                          | 12V nominal input         | 10.8 – 13.2VDC      |                  |
|                          | 15V nominal input         | 13.5 – 16.5VDC      |                  |
|                          | 24V nominal input         | 21.6 – 26.4VDC      |                  |
| Input filter             |                           |                     | Capacitor        |

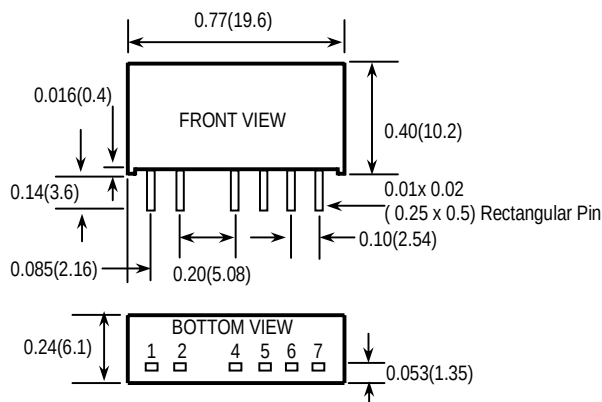
| GENERAL SPECIFICATIONS       |                                        |                                                   |                              |
|------------------------------|----------------------------------------|---------------------------------------------------|------------------------------|
| Efficiency                   |                                        | See table                                         |                              |
| Isolation voltage            | Input to Output                        | Standard Suffix-N                                 | 1000VDC, min<br>3000VDC, min |
| Isolation resistance         |                                        | 10 <sup>9</sup> ohms, min                         |                              |
| Isolation capacitance        |                                        | 30pF, max                                         |                              |
| Switching frequency          |                                        | 60KHz, min                                        |                              |
| Design meet safety standard  |                                        | UL1950, EN60950                                   |                              |
| Case material                |                                        | Non-conductive black plastic                      |                              |
| Base material                |                                        | None                                              |                              |
| Potting material             |                                        | Epoxy (UL94-V0)                                   |                              |
| Dimensions                   |                                        | 0.77 X 0.24 X 0.40 Inch<br>(19.6 X 6.0 X 10.2 mm) |                              |
| Weight                       |                                        | 2.0g (0.071oz)                                    |                              |
| MTBF (Note 2)                |                                        | 1.471 x 10 <sup>7</sup> hrs                       |                              |
| ENVIRONMENTAL SPECIFICATIONS |                                        |                                                   |                              |
| Operating temperature range  |                                        | -25°C ~ +85°C (with derating)                     |                              |
| Storage temperature range    |                                        | -55°C ~ +105°C                                    |                              |
| Thermal shock                |                                        | MIL-STD-810D                                      |                              |
| Vibration                    | 10~55Hz, 2G, 30minutes along X,Y and Z |                                                   |                              |
| Relative humidity            |                                        | 5% to 95% RH                                      |                              |



| Model Number | Input Range     | Output Voltage | Output Current | Input Current <sup>(3)</sup> | Eff <sup>(4)</sup> (%) | Capacitor Load max <sup>(5)</sup> |
|--------------|-----------------|----------------|----------------|------------------------------|------------------------|-----------------------------------|
| DU1P0-05S05  | 4.5 – 5.5 VDC   | 5 VDC          | 200mA          | 298mA                        | 71                     | 6.2uF                             |
| DU1P0-05S12  | 4.5 – 5.5 VDC   | 12 VDC         | 83mA           | 269mA                        | 78                     | 6.2uF                             |
| DU1P0-05S15  | 4.5 – 5.5 VDC   | 15 VDC         | 67mA           | 272mA                        | 78                     | 6.2uF                             |
| DU1P0-05D05  | 4.5 – 5.5 VDC   | ± 5 VDC        | ± 100mA        | 295mA                        | 72                     | 3.0uF                             |
| DU1P0-05D12  | 4.5 – 5.5 VDC   | ± 12 VDC       | ± 42mA         | 273mA                        | 78                     | 3.0uF                             |
| DU1P0-05D15  | 4.5 – 5.5 VDC   | ± 15 VDC       | ± 33mA         | 268mA                        | 78                     | 3.0uF                             |
| DU1P0-12S05  | 10.8 – 13.2 VDC | 5 VDC          | 200mA          | 121mA                        | 73                     | 6.2uF                             |
| DU1P0-12S12  | 10.8 – 13.2 VDC | 12 VDC         | 83mA           | 111mA                        | 79                     | 6.2uF                             |
| DU1P0-12S15  | 10.8 – 13.2 VDC | 15 VDC         | 67mA           | 112mA                        | 79                     | 6.2uF                             |
| DU1P0-12D05  | 10.8 – 13.2 VDC | ± 5 VDC        | ± 100mA        | 119mA                        | 74                     | 3.0uF                             |
| DU1P0-12D12  | 10.8 – 13.2 VDC | ± 12 VDC       | ± 42mA         | 111mA                        | 80                     | 3.0uF                             |
| DU1P0-12D15  | 10.8 – 13.2 VDC | ± 15 VDC       | ± 33mA         | 109mA                        | 80                     | 3.0uF                             |
| DU1P0-15S05  | 13.5 – 16.5 VDC | 5 VDC          | 200mA          | 97mA                         | 73                     | 6.2uF                             |
| DU1P0-15S12  | 13.5 – 16.5 VDC | 12 VDC         | 83mA           | 89mA                         | 79                     | 6.2uF                             |
| DU1P0-15S15  | 13.5 – 16.5 VDC | 15 VDC         | 67mA           | 89mA                         | 79                     | 6.2uF                             |
| DU1P0-15D05  | 13.5 – 16.5 VDC | ± 5 VDC        | ± 100mA        | 95mA                         | 74                     | 3.0uF                             |
| DU1P0-15D12  | 13.5 – 16.5 VDC | ± 12 VDC       | ± 42mA         | 88mA                         | 80                     | 3.0uF                             |
| DU1P0-15D15  | 13.5 – 16.5 VDC | ± 15 VDC       | ± 33mA         | 87mA                         | 80                     | 3.0uF                             |
| DU1P0-24S05  | 21.6 – 26.4 VDC | 5 VDC          | 200mA          | 62mA                         | 71                     | 6.2uF                             |
| DU1P0-24S12  | 21.6 – 26.4 VDC | 12 VDC         | 83mA           | 58mA                         | 76                     | 6.2uF                             |
| DU1P0-24S15  | 21.6 – 26.4 VDC | 15 VDC         | 67mA           | 57mA                         | 78                     | 6.2uF                             |
| DU1P0-24D05  | 21.6 – 26.4 VDC | ± 5 VDC        | ± 100mA        | 61mA                         | 72                     | 3.0uF                             |
| DU1P0-24D12  | 21.6 – 26.4 VDC | ± 12 VDC       | ± 42mA         | 57mA                         | 78                     | 3.0uF                             |
| DU1P0-24D15  | 21.6 – 26.4 VDC | ± 15 VDC       | ± 33mA         | 55mA                         | 79                     | 3.0uF                             |

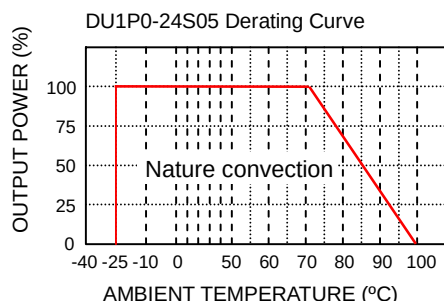
**Note**

1. The DU1P0 series required a minimum 10% 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
2. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment).
3. Maximum value at nominal input voltage and full load of standard type.
4. Typical value at nominal input voltage and full load.
5. Test by minimum Vin and constant resistor load.



1. All dimensions in Inches (mm)

2. Pin pitch tolerance  $\pm 0.014(0.35)$



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

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