



### FEATURES

- ◆ Efficiency up to 82%
- ◆ I/O Isolation 4200VAC with Reinforced Insulation, rated for 300VAC Working Voltage
- ◆ Medical Safety to UL/CSA/EN/IEC 60601-1 3<sup>rd</sup> Edition
- ◆ 2 MOOP rated
- ◆ Wide 2:1 Input Voltage Range
- ◆ Fully regulated Output Voltage
- ◆ Low Leakage Current
- ◆ Operating Temp. Range -40°C to +75 °C
- ◆ Input Filter meets EN 55022, class A and FCC, level A
- ◆ Overload Protection
- ◆ 2"x 1" Plastic Package
- ◆ 3 Years Product Warranty

The DT10S/D series is a new range of high performance DC/DC converter modules with a reinforced insulation system. The I/O-isolation voltage is specified for 4200VACrms. The product comes in a compact 2"x1" industry standard package. All 15 models features wide 2:1 input voltage range and fully regulated output voltage. The DT10S/D DC/DC converters offer an economical solution for demanding applications in industrial and medical instrumentation requesting a certified supplementary or reinforced insulation system to comply with industrial or latest medical safety standards.

### Model List

| Model Number | Input Voltage (Range) | Output Voltage | Output Current |            | Input Current |            | Reflected Ripple Current | Max. capacitive Load | Efficiency (typ.) |
|--------------|-----------------------|----------------|----------------|------------|---------------|------------|--------------------------|----------------------|-------------------|
|              |                       |                | Max.           | @Max. Load | @No Load      | @Max. Load |                          |                      |                   |
|              | VDC                   | VDC            | mA             | mA(typ.)   | mA (typ.)     | mA(typ.)   | μF                       | %                    |                   |
| DT10S1205A   | 12<br>(9 ~ 18)        | 5              | 1600           | 877        | 30            | 100        | 1000                     | 76                   |                   |
| DT10S12051A  |                       | 5.1            | 1600           | 907        |               |            |                          | 75                   |                   |
| DT10S1212A   |                       | 12             | 835            | 1044       |               |            |                          | 80                   |                   |
| DT10D1212A   |                       | ±12            | ±417           | 1042       |               |            |                          | 80                   |                   |
| DT10D1215A   |                       | ±15            | ±333           | 1028       |               |            |                          | 81                   |                   |
| DT10S2405A   | 24<br>(18 ~ 36)       | 5              | 2000           | 541        | 20            | 50         | 1000                     | 77                   |                   |
| DT10S24051A  |                       | 5.1            | 2000           | 559        |               |            |                          | 76                   |                   |
| DT10S2412A   |                       | 12             | 835            | 516        |               |            |                          | 81                   |                   |
| DT10D2412A   |                       | ±12            | ±417           | 516        |               |            |                          | 81                   |                   |
| DT10D2415A   |                       | ±15            | ±333           | 508        |               |            |                          | 82                   |                   |
| DT10S4805A   | 48<br>(36 ~ 75)       | 5              | 2000           | 271        | 10            | 25         | 1000                     | 77                   |                   |
| DT10S48051A  |                       | 5.1            | 2000           | 280        |               |            |                          | 76                   |                   |
| DT10S4812A   |                       | 12             | 835            | 258        |               |            |                          | 81                   |                   |
| DT10D4812A   |                       | ±12            | ±417           | 258        |               |            |                          | 81                   |                   |
| DT10D4815A   |                       | ±15            | ±333           | 254        |               |            |                          | 82                   |                   |

# For each output



## Input Specifications

| Parameter                         | Model            | Min.   | Typ. | Max. | Unit |
|-----------------------------------|------------------|--|------|------|------|
| Input Surge Voltage (1 sec. max.) | 12V Input Models | -0.7   | ---  | 25   | VDC  |
|                                   | 24V Input Models | -0.7   | ---  | 50   |      |
|                                   | 48V Input Models | -0.7   | ---  | 100  |      |
| Start-Up Threshold Voltage        | 12V Input Models | 7  | 8    | 9    |      |
|                                   | 24V Input Models | 13   | 15   | 18   |      |
|                                   | 48V Input Models | 30   | 33   | 36   |      |
| Under Voltage Shutdown            | 12V Input Models | ---  | ---  | 8.5  |      |
|                                   | 24V Input Models | ---  | ---  | 16   |      |
|                                   | 48V Input Models | ---  | ---  | 34   |      |
| Short Circuit Input Power         | All Models       | ---  | ---  | 3000 | mW   |
| Internal Power Dissipation        |                  | ---  | ---  | 4000 | mW   |
| Conducted EMI                     |                  | Compliance to EN 55022,class A and FCC part 15,class A |      |      |      |

## Output Specifications

| Parameter                       | Conditions                  | Min. | Typ.  | Max.  | Unit              |
|---------------------------------|-----------------------------|------|-------|-------|-------------------|
| Output Voltage Setting Accuracy | At 50% Load and Nominal Vin | ---  | ---   | ±1.0  | %Vnom.            |
| Output Voltage Balance          | Dual Output, Balanced Loads | ---  | ±0.5  | ±2.0  | %                 |
| Line Regulation                 | Vin=Min. to Max.            | ---  | ±0.3  | ±0.5  | %                 |
| Load Regulation                 | Io=15% to 100%              | ---  | ±0.5  | ±1.0  | %                 |
|                                 | Io=5% to 100%               | ---  | ±0.6  | ±1.2  | %                 |
| Ripple & Noise (20MHz)          | 5V & 5.1V Output Models     | ---  | 75    | 100   | mV <sub>P-P</sub> |
|                                 | Other Output Models         | ---  | 100   | 150   | mV <sub>P-P</sub> |
| Min.Load                        | No minimum Load Requirement |      |       |       |                   |
| Over Load Protection            |                             | 120  | 150   | ---   | %                 |
| Transient Recovery Time         | 25% Load Step Change        | ---  | 300   | 600   | µsec              |
| Transient Response Deviation    |                             | ---  | ±3    | ±5    | %                 |
| Temperature Coefficient         |                             | ---  | ±0.02 | ±0.05 | %/°C              |
| Short Circuit Protection        | Continuous                  |      |       |       |                   |

## Isolation, Safety Standards

| Parameter                          | Conditions   | Min. | Typ. | Max. | Unit            |
|------------------------------------|--|------|------|------|-----------------|
| I/O Isolation Voltage (reinforced) | 60 Seconds   | 4200 | ---  | ---  | VACrms          |
| I/O Isolation Test Voltage         | Flash tested for 1 Second                                      | 6000 | ---  | ---  | V <sub>PK</sub> |
| Leakage Current                    | 240VAC, 60Hz   | ---  | ---  | 10   | µA              |
| I/O Isolation Resistance           | 500 VDC  | 10   | ---  | ---  | GΩ              |
| I/O Isolation Capacitance          | 100KHz, 1V   | ---  | 60   | 80   | pF              |
| Safety Standards                   | cUL/UL60950-1, CSA C22.2 No. 60950-1-03                        |      |      |      |                 |
|                                    | UL60601-1, CSA C22.2 No.601-1,                                 |      |      |      |                 |
|                                    | IEC/EN 60950-1, IEC/EN 60601-1 3 <sup>rd</sup> Edition, 2 MOOP |      |      |      |                 |
| Approvals(Pending)                 | IEC60950-1 CB report, cUL/UL 60950-1 certificate               |      |      |      |                 |
|                                    | UL60601-1 UL certificate                                       |      |      |      |                 |

## General Specifications

| Parameter           | Conditions                        | Min.      | Typ. | Max. | Unit  |
|---------------------|-----------------------------------|-----------|------|------|-------|
| Switching Frequency |                                   | 120       | 150  | 180  | KHz   |
| MTBF(calculated)    | MIL-HDBK-217F@25°C, Ground Benign | 1,000,000 | ---  | ---  | Hours |

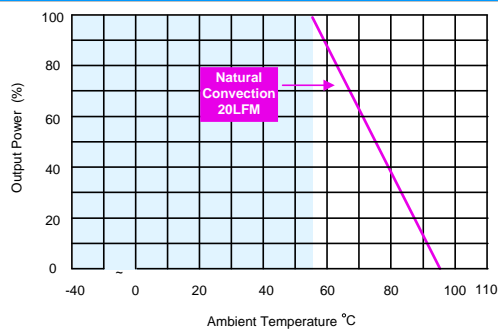
## Input Fuse

| 12V Input Models      | 24V Input Models      | 48V Input Models     |
|-----------------------|-----------------------|----------------------|
| 3000mA Slow-Blow Type | 1500mA Slow-Blow Type | 750mA Slow-Blow Type |

## Environmental Specifications

| Parameter  | Conditions          | Min. | Max. | Unit     |
|--|---------------------|------|------|----------|
| Operating Ambient Temperature Range (See Power Derating Curve) | Natural Convection  | -40  | +75  | °C       |
| Case Temperature   |                     | ---  | +95  | °C       |
| Storage Temperature Range                                      |                     | -50  | +125 | °C       |
| Humidity (non condensing)                                      |                     | ---  | 95   | % rel. H |
| Altitude   |                     | ---  | 4000 | m        |
| Cooling  | Free-Air convection |      |      |          |
| Lead Temperature (1.5mm from case for 10Sec.)                  |                     | ---  | 260  | °C       |

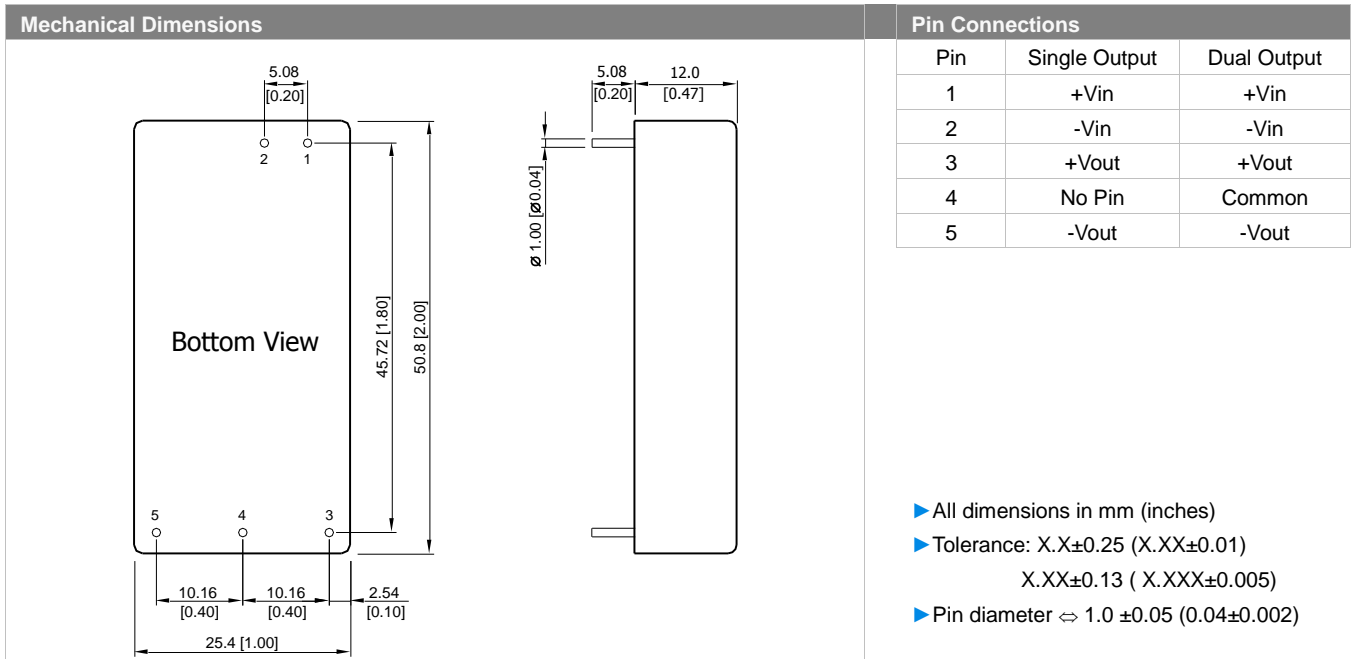
## Power Derating Curve



## Notes

- 1 Specifications typical at Ta=+25°C, resistive load, nominal input voltage and rated output current unless otherwise noted.
- 2 Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%.
- 3 Ripple & Noise measurement bandwidth is 0-20MHz.
- 4 All DC/DC converters should be externally fused at the front end for protection.
- 5 Other input and output voltage may be available, please contact factory.
- 6 That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
- 7 Specifications are subject to change without notice.

## Mechanical Drawing



## Physical Outline

|               |   |
|---------------|---|
| Case Size     | : 50.8x25.4x12.0mm (2.0x1.0x0.47 inches)                        |
| Case Material | : Non-Conductive Black Plastic (flammability to UL 94V-0 rated) |
| Pin Material  | : Copper Alloy with Gold Plate Over Nickel Subplate             |
| Weight        | : 24.5g   |



| Part Numbering System |               |          |                   |               |                |                    |
|-----------------------|---------------|----------|-------------------|---------------|----------------|--------------------|
| D                     | T             | 10       | S                 | 12            | 05             | A                  |
| Form factor           | Family series | Watt     | Number of Outputs | Input Voltage | Output Voltage | Option Code        |
| D - DIP               | A-Z           | 10 - 10W | S - Single        | 12 - 12V      | 05 - 5V        | A - Std. Functions |
| P - SIP               |               |          | D - Dual          | 24 - 24V      | 051 - 5.1V     |                    |
| S - SMD               |               |          |                   | 48 - 48V      | 12 - 12V       |                    |
|                       |               |          |                   |               | 15 - 15V       |                    |

#### WARRANTY

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- Подбор аналогов;
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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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