

# TECHNICAL DATASHEET

ELECTRICAL SPECIFICATIONS

Item No. 145.008 / Page 1 / 3

Print Date 03.03.2025 10:05

## DC-Converter 145E-29-SD

250 Watt, non isolated, single output buck converter with internal decoupling diode

All parameters defined on Ta=25°C, IoNom = 8.5 ADC and UiNom = 48VDC

### ABSOLUTE MAXIMUM RATINGS

| parameter                     | unit | typ    |
|-------------------------------|------|--------|
| Input peak voltage            | VDC  | 125.00 |
| Output overvoltage protection | VDC  | 39.0   |

### THERMAL CHARACTERISTICS

| parameter  | min to max    | typ    |
|--|---------------|--------|
| Ambient temperature range                        | -40°C / +85°C |        |
| Max. case temperature for thermal shut down [°C] |               | +90°C  |
| Storage temperature (device not in operation)    | -10°C / +65°C |        |
| Relative maximum humidity under storage          |               | 75% RH |
| Storage under worst conditions [in days]         |               | 25     |

### COMMUNICATION INTERFACE

| parameter                                  | unit | fulfilled | conditions | min to max  |
|--|------|-----------|------------|-------------|
| Option shut down (left open for operation) |      | ✓         |            |             |
| Shutdown voltage for transformer           | VDC  |           | IoNom      | -0.2 to 2.8 |

### SPECIALS

| parameter                               | unit | fulfilled | conditions | typ   |
|---|------|-----------|------------|-------|
| Switching frequency                     | kHz  |           |            | 142   |
| Efficiency at light loads               | %    |           | 0.25IoNom  | 94.00 |
| Efficiency at medium loads              | %    |           | 0.5IoNom   | 96.00 |
| Efficiency at full loads                | %    |           | IoNom      | 96.00 |
| For active loads or parallel connection |      | ✓         |            |       |
| Drives high capacitive loads            |      | ✓         |            |       |
| CC/CV battery load characteristic       |      | ✓         |            |       |

### COMPLIANCE

| parameter   | fulfilled | notes |
|---|-----------|-------|
| 61000-4-2 (immunity against ESD-electrostatic discharge)        | ✓         |       |
| 61000-4-3 (immunity High frequency electromagnetic fields)      | ✓         |       |
| 61000-4-4 (immunity against burst – electrical fast transients) | ✓         |       |
| 61000-4-5 (immunity against surge - high energy surges)         | ✓         |       |
| 61000-4-6 (immunity against induced, conducted disturbances)    | ✓         |       |
| 61000-6-4 (EMC – Emission standard for industrial environment)  | ✓         |       |
| 55022<A   | ✓         |       |

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### INPUT

| parameter   | unit  | conditions  | min | typ  | max |
|---|-------|-------------|-----|------|-----|
| Input voltage range                               | VDC   | IoNom       | 32  | 48   | 100 |
| No load input current                             | mA    | UiNom       |     | 20   |     |
| Max. input current                                | A     | UiNom       |     | 8    |     |
| Input start up voltage                            | VDC   | UiNom       |     | 32.0 |     |
| Undervoltage lockout                              | VDC   | UiNom       |     | 29.0 |     |
| Input quiescent current in shutdown mode          | mA    | UiNom       |     | 1.50 |     |
| Input current overshoot during soft start ramp up | %     | IoNom       |     | 20   |     |
| Generated AC-ripple on the supply (BW=20MHz)      | mVp-p | UiNom/loNom |     | 50   |     |
| Generated HF-noise on the supply (BW=20MHz)       | mVp-p | UiNom/loNom |     | 30   |     |

### OUTPUT

| parameter  | unit  | conditions  | min | typ        | max |
|--|-------|-------------|-----|------------|-----|
| Output voltage   | VDC   | IoNom       |     | 29.0       |     |
| Minimum required load to obtain the specified output voltage | %     | UiNom       |     | 0          |     |
| Generated AC-ripple on the output (BW=20MHz)                 | mVp-p | UiNom/loNom |     | 50         |     |
| Generated HF-noise on the output (BW=20MHz)                  | mVp-p | UiNom/loNom |     | 20         |     |
| Output voltage accuracy                                      | %     | IoNom       |     | +/-2.00%   |     |
| Output voltage overshoot at initial switch-on                | %     | IoNom       |     | overdamped |     |
| Rated output power   | W     |             |     | 250        |     |

### CONTROL

| parameter   | unit | conditions         | min | typ      | max |
|---|------|--------------------|-----|----------|-----|
| Static line regulation                                  | %    | IoNom/UiMin...UiMa |     | 0.10     |     |
| Static load regulation                                  | %    | IoMin...IoMax/UiNo |     | 1.0      |     |
| Dynamic load change adjusting time                      | ms   | LoadChange 10...90 |     | 0.20     |     |
| Dynamic load change deviation to nominal output voltage | V    | LoadChange 10...90 |     | 2.00     |     |
| Maximum admissible capacitive load                      | uF   | IoNom              |     | infinite |     |
| Initial switch on time                                  | ms   | IoNom              |     | 50       |     |

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### MECHANICAL

| parameter          | unit |          |
|--------------------|------|----------|
| Overall dimensions | mm   | 77x52x19 |
| Weight             | g    | 165      |

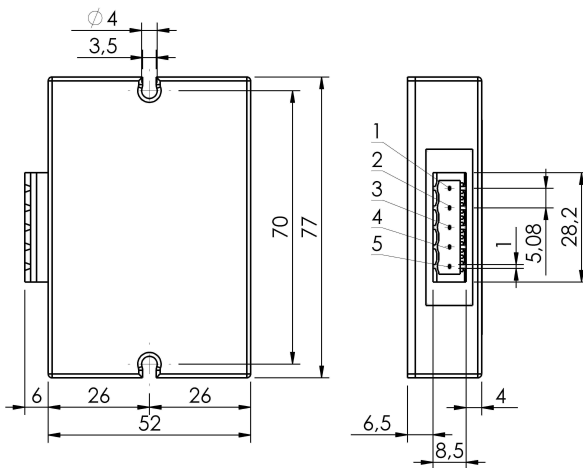
| Pin No. | Function | Electrical Determination |
|---------|----------|--------------------------|
| 1       | SD       | Shut down                |
| 2       | Vi+      | Input voltage positive   |
| 3       | Vi-      | Input voltage negative   |
| 4       | Vo-      | Output voltage negative  |
| 5       | Vo+      | Output voltage positive  |

### Mechanical dimensions and Pin configuration

All dimensions in mm

Connector type: CCA 2,5/5-G-5,08 P26THR

Case: FMC 77x52x19



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