

## 344DH-24

50 Watt, isolated, single output buck-boost converter with internal decoupling diode

All parameters defined on  $T_a=25^{\circ}\text{C}$ ,  $I_{oNom} = 2,0\text{ ADC}$  and  $U_{iNom} = 80\text{VDC}$

### ABSOLUTE MAXIMUM RATINGS

| parameter   | unit | typ    |
|---|------|--------|
| Input peak voltage                                    | VDC  | 170.00 |
| Feedback protection against overvoltage on the output | VDC  | 35     |
| Worst case output voltage in fault mode               | VDC  | 29     |

### THERMAL CHARACTERISTICS

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

### SPECIALS

| parameter                                | unit | fulfilled | conditions             | typ                      |
|--|------|-----------|------------------------|--------------------------|
| Switching frequency                      | kHz  |           |                        | 120                      |
| Efficiency at light loads                | %    |           | $0.25I_{oNom}$         | 89.00                    |
| Efficiency at medium loads               | %    |           | $0.5I_{oNom}$          | 90.00                    |
| Efficiency at full loads                 | %    |           | $I_{oNom}$             | 91.00                    |
| MTTF                                     | h    |           | SN29500 @ $70^{\circ}$ | 1 600 050                |
| For active loads or parallel connection  |      | ✓         |                        |                          |
| Drives high capacitive loads             |      | ✓         |                        |                          |
| CC/CV battery load characteristic        |      | ✓         |                        |                          |
| Coupling capacitance input to output     | nF   |           |                        | transformer winding only |
| Insulation strength primary to secondary | VDC  |           |                        | 2100                     |
| Insulation strength primary to case      | VDC  |           |                        | 2100                     |

### COMPLIANCE

| parameter   | fulfilled | notes     |
|---|-----------|-----------|
| 61000-6-2 [EMC-Immunity standard for industrial environment]    | ✓         |           |
| 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   | ✓         |           |
| 50155   | ✓         | ready for |

All technical and general information is provided in all conscience. However, completeness and accuracy cannot be guaranteed. Demke recommends to fully test the product in its determined application. Due to permanent improvements to our products, we reserve the right to change specifications at any time and without prior notification and without obligation to update products already supplied. This is a component for professional equipment manufacturers. Read the safety and installation instruction for proper use. Safety aspect and EMC-aspect must be considered in the end application.

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### INPUT

| parameter   | unit  | conditions  | min | typ  | max |
|---|-------|-------------|-----|------|-----|
| Input voltage range                               | VDC   | IoNom       | 22  | 80   | 160 |
| No load input current                             | mA    | UiNom       |     | 15   |     |
| Max. input current                                | A     | UiNom       |     | 3    |     |
| Input start up voltage                            | VDC   | UiNom       |     | 20.0 |     |
| Undervoltage lockout                              | VDC   | UiNom       |     | 17.5 |     |
| Input quiescent current in shutdown mode          | mA    | UiNom       |     | 1.20 |     |
| Input current overshoot during soft start ramp up | %     | IoNom       |     | 65   |     |
| Generated AC-ripple on the supply [BW=20MHz]      | mVp-p | UiNom/loNom |     | 100  |     |
| Generated HF-noise on the supply [BW=20MHz]       | mVp-p | UiNom/loNom |     | 30   |     |
| Typical input noise slew rate [BW=500MHz]         | mVp-p | UiNom/loNom |     | 90   |     |

### OUTPUT

| parameter  | unit  | conditions  | min | typ        | max |
|--|-------|-------------|-----|------------|-----|
| Output voltage   | VDC   | IoNom       |     | 24.0       |     |
| No Load output voltage increase                              | %     | UiNom       |     | 4          |     |
| Minimum required load to obtain the specified output voltage | %     | UiNom       |     | 0          |     |
| Generated AC-ripple on the output [BW=20MHz]                 | mVp-p | UiNom/loNom |     | 10         |     |
| Generated HF-noise on the output [BW=20MHz]                  | mVp-p | UiNom/loNom |     | 20         |     |
| Typical output noise slew rate [BW=500MHz]                   | mVp-p | UiNom/loNom |     | 60         |     |
| Output voltage accuracy                                      | %     | IoNom       |     | +/-2,00%   |     |
| Output voltage overshoot at initial switch-on                | %     | IoNom       |     | overdamped |     |
| Rated output power   | W     |             |     | 50         |     |

### CONTROL

| parameter   | unit | conditions          | min | typ      | max |
|---|------|---------------------|-----|----------|-----|
| Static line regulation                                  | %    | IoNom/UiMin...UiMax |     | 0.01     |     |
| Static load regulation                                  | %    | IoMin...IoMax/UiNom |     | 0.8      |     |
| Dynamic load change adjusting time                      | ms   | LoadChange 10...90% |     | 0.70     |     |
| Dynamic load change deviation to nominal output voltage | V    | LoadChange 10...90% |     | 0.12     |     |
| Maximum admissible capacitive load                      | uF   | IoNom               |     | infinite |     |
| Initial switch on time                                  | ms   | IoNom               |     | 50       |     |
| Softstart ramp up time                                  | ms   | IoNom               |     | 10       |     |

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### MECHANICAL parameter

| parameter          | unit |          |
|--------------------|------|----------|
| Overall dimensions | mm   | 90x90x19 |
| Weight             | g    | 230      |

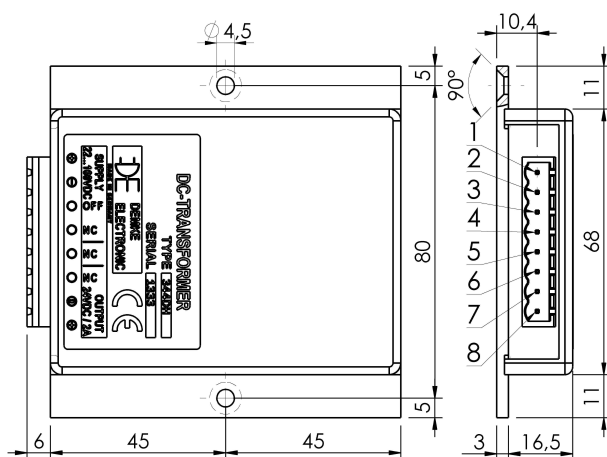
| Pin No. | Function | Electrical Determination |
|---------|----------|--------------------------|
| 1       | Vi+      | Input voltage positive   |
| 2       | Vi-      | Input voltage negative   |
| 3       | NC       | Not connected            |
| 4       | NC       | Not connected            |
| 5       | NC       | Not connected            |
| 6       | NC       | Not connected            |
| 7       | Vo-      | Output voltage negative  |
| 8       | Vo+      | Output voltage positive  |

### Mechanical dimensions and Pin configuration

All dimensions in mm

Connector type: CCA 2,5/8-G-5,08 P26THR

Case: FMC 90x90x21



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