

## Ultra Compact, 1.5W to 25W Single and Dual DC-DC Converters

### Features

- ◆ Compact Footprint / Low Profile
- ◆ Through Hole or SMT Versions
- ◆ 5V, 12V, 24V & 48V Inputs
- ◆ 3.3 to 30V1 Single, ±12 to 15V Dual Outputs
- ◆ Output Voltage Adjustment
- ◆ Input - Output Isolation
- ◆ RoHS Compliant
- ◆ 5 Year Warranty
- ◆ Self contained
- ◆ Multiple Input Voltage configurations
- ◆ Open frame (no potting)



### Key Market Segments & Applications



| Specifications  |                  |  |               |          |                             |
|---|------------------|--|---------------|----------|-----------------------------|
| Model   |                  |  |               |          |                             |
| Nominal Output Voltage  | V                | 3.3V   | 5V            | 12/15V   | ±12/15 (24/30) <sup>1</sup> |
| DC Input  | V                | 5V: 4.5-9.0V, 12V: 9-18V, 24V: 18-36V, 48V: 36-76V   |               |          |                             |
| Efficiency  | %                | 71 to 90% model dependant  |               |          |                             |
| Output Voltage Tolerance  | %                | 1.5-10W: ±3%, 15-25W: ±5%  |               |          | ±5%                         |
| Output Adjustment (via trim pin)  | V                | 3.15-3.6V (5)  | 4.75-6.0V (5) | 11.4-15V | 22.8 - 30V                  |
| Line Regulation   | mV               | 20 (40 CC15; 30 CC25)  |               | 40       | 80                          |
| Load Regulation   | mV               | 40 (120 CC15; 200 CC25)  |               | 100      | 600 <sup>2</sup>            |
| Temperature Coefficient   | %                | <± 0.02%/°C  |               |          |                             |
| Preload   | -                | No preload required  |               |          |                             |
| Output Ripple (typ./max.BW 50MHz)   | mV               | 40/120   |               | 30/120   |                             |
| Overcurrent Protection  | -                | Output current limiting with automatic recovery, shutdown CC15, 25 type  |               |          |                             |
| Overvoltage Protection  | -                | No   |               |          |                             |
| Remote On/ Off  | -                | CC1R5, 3, 6, & 10: RC terminal open, output is OFF; RC terminal to -Vin (0-0.4V), output is ON<br>CC15 & CC25: RC terminal open, output is ON; RC terminal to +Vin, output is OFF                                |               |          |                             |
| Operating Temp.- Convection   | °C               | -40 to 85°C, derates linearly to 40% load from 50°C to 85°C  |               |          |                             |
| Operating Temp.- Forced Air   | °C               | -40°C to 85°C with 1m/s air full load  |               |          |                             |
| Storage Temperature   | °C               | -40°C to 85°C  |               |          |                             |
| Humidity (non Condensing)   | -                | 95% RH max.(maximum wet-bulb temperature: 38°C)  |               |          |                             |
| Isolation Voltage   | -                | 500VAC 1 min. Input to output, input to case, output to case   |               |          |                             |
| Isolation Resistance  | -                | Input to output, input to case, output to case: 50M ohm min. (500VDC)  |               |          |                             |
| Shock   | m/s <sup>2</sup> | 980m/s <sup>2</sup> (100G) 6ms (6 directions, each 3 times)  |               |          |                             |
| Vibration (non Operating)   | -                | 10 to 55Hz (sweep for 15min) 1.52mm constant, 3 directions X, Y, Z each 2 hours  |               |          |                             |
| Safety Agency Approvals   | -                | UL60950-1, CSA60950-1, EN60950-1, CE Mark  |               |          |                             |
| Weight  | g                | CC1R5: 3.2, CC3: 4.5, CC6: 5.8, CC10:10.0, CC15: 12.5, CC25: 20.0  |               |          |                             |
| Size (L x W x H)<br>(DIP Through Hole and SMD package)<br>(SIP Through Hole only) | in               | CC1R5: 0.650 x 0.654 x 0.335; CC3: 0.900 x 0.654 x 0.335; CC6: 0.900 x 0.831 x 0.335<br>CC10: 1.400 x 0.890 x 0.335; CC15: 1.500 x 1.264 x 0.295; CC25: 1.701 x 1.768 x 0.295<br>CC3 (SIP): 1.09 x 0.362 x 0.705 |               |          |                             |
| Warranty  | -                | 5 years  |               |          |                             |

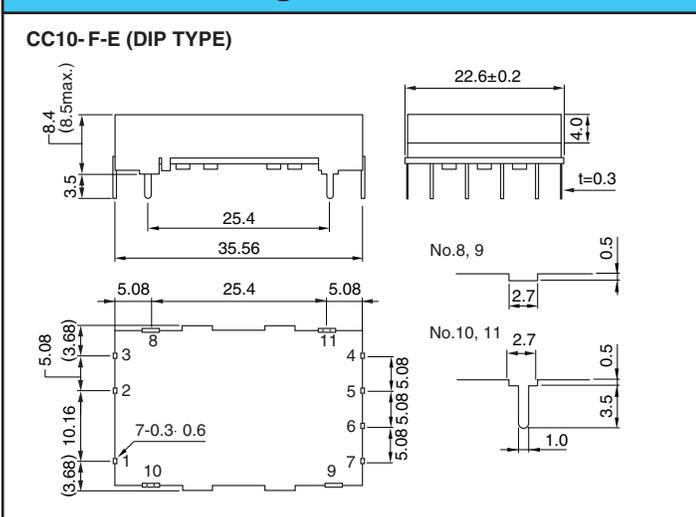
1. For 24V/30V output - connect across +Vout & -Vout and leave "common out" pin not connected
2. Based upon equal load current from both outputs

3. For 15V output connect trim to -Vout
4. See Installation Manual for full specs, test methods of parameters & application notes
5. Not available on CC15 and CC25 models

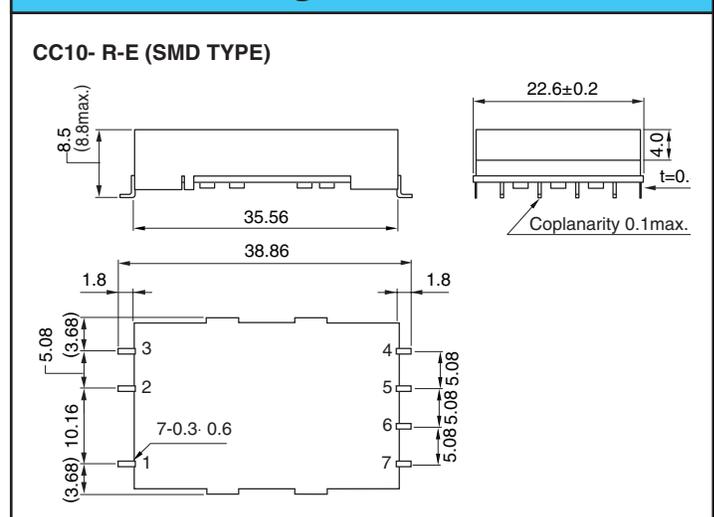
## Model Selector

| Output Voltage (V)    | Output Current (A) | Output Power (W) | 5V Input       | 12V Input      | 24V Input      | 48V Input      |
|-----------------------|--------------------|------------------|----------------|----------------|----------------|----------------|
| <b>Single Outputs</b> |                    |                  |                |                |                |                |
| 3.3                   | 0.4                | 1.5              | CC1R5-0503SF-E | CC1R5-1203SF-E | CC1R5-2403SF-E | CC1R5-4803SF-E |
| 3.3                   | 0.8                | 3                | CC3-0503SF-E   | CC3-1203SF-E   | CC3-2403SF-E   | CC3-4803SF-E   |
| 3.3                   | 1.2                | 6                | CC6-0503SF-E   | CC6-1203SF-E   | CC6-2403SF-E   | CC6-4803SF-E   |
| 3.3                   | 2.5                | 10               | CC10-0503SF-E  | CC10-1203SF-E  | CC10-2403SF-E  | CC10-4803SF-E  |
| 3.3                   | 4.5                | 15               | -              | -              | CC15-2403SF-E  | -              |
| 3.3                   | 7.5                | 25               | -              | -              | CC25-2403SF-E  | -              |
| 5                     | 0.3                | 1.5              | CC1R5-0505SF-E | CC1R5-1205SF-E | CC1R5-2405SF-E | CC1R5-4805SF-E |
| 5                     | 0.6                | 3                | CC3-0505SF-E   | CC3-1205SF-E   | CC3-2405SF-E   | CC3-4805SF-E   |
| 5                     | 1.0                | 5                | CC6-0505SF-E   | -              | -              | -              |
| 5                     | 1.2                | 6                | -              | CC6-1205SF-E   | CC6-2405SF-E   | CC6-4805SF-E   |
| 5                     | 2.0                | 10               | CC10-0505SF-E  | CC10-1205SF-E  | CC10-2405SF-E  | CC10-4805SF-E  |
| 5                     | 3.0                | 15               | -              | -              | CC15-2405SF-E  | -              |
| 5                     | 5.0                | 25               | -              | -              | CC25-2405SF-E  | -              |
| 12(15)                | 0.125(0.1)         | 1.5              | CC1R5-0512SF-E | CC1R5-1212SF-E | CC1R5-2412SF-E | CC1R5-4812SF-E |
| 12(15)                | 0.25(0.2)          | 3                | CC3-0512SF-E   | CC3-1212SF-E   | CC3-2412SF-E   | CC3-4812SF-E   |
| 12(15)                | 0.5(0.4)           | 6                | CC6-0512SF-E   | CC6-1212SF-E   | CC6-2412SF-E   | CC6-4812SF-E   |
| 12(15)                | 0.8(0.64)          | 10               | CC10-0512SF-E  | -              | -              | -              |
| 12(15)                | 1.0(0.8)           | 10               | -              | CC10-1212SF-E  | CC10-2412SF-E  | CC10-4812SF-E  |
| <b>Dual Outputs</b>   |                    |                  |                |                |                |                |
| ±12 (15)3             | 0.06(0.05)         | 1.5              | CC1R5-0512DF-E | CC1R5-1212DF-E | CC1R5-2412DF-E | CC1R5-4812DF-E |
| ±12 (15)3             | 0.125(0.1)         | 3                | CC3-0512DF-E   | CC3-1212DF-E   | CC3-2412DF-E   | CC3-4812DF-E   |
| ±12 (15)3             | 0.25(0.2)          | 6                | CC6-0512DF-E   | CC6-1212DF-E   | CC6-2412DF-E   | CC6-4812DF-E   |
| ±12 (15)3             | 0.4(0.32)          | 10               | CC10-0512DF-E  | -              | -              | -              |
| ±12 (15)3             | 0.45(0.36)         | 10               | -              | CC10-1212DF-E  | CC10-2412DF-E  | CC10-4812DF-E  |

## Outline Drawing



## Outline Drawing



## Options

| Version | Description                           |
|---------|---------------------------------------|
| F-E     | Through hole mounting (DIP pkg)       |
| R-E     | Surface mount (DIP pkg)               |
| S-E     | Through hole mounting (SIP pkg - CC3) |

## Other Industrial Products

|               |                                       |
|---------------|---------------------------------------|
| PX            | 10 - 40W 12, 24, 48V DC-DC converters |
| PAQ, PAH, PAF | 50 - 700W quarter, half & full bricks |

## Pinout (CC1R5, 3, 6, and 10)

| Pin | Single | Dual       |
|-----|--------|------------|
| 1   | +Vin   | +Vin       |
| 2   | RC     | RC         |
| 3   | -Vin   | -Vin       |
| 4   | NC     | -Vout      |
| 5   | -Vout  | Common out |
| 6   | TRM    | TRM        |
| 7   | +Vout  | +Vout      |

For CC15 and 25 see Installation Manual online

For Additional Information, please visit  
[us.tdk-lambda.com/lp/products/cc-series.htm](http://us.tdk-lambda.com/lp/products/cc-series.htm)

