

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



- ◆ Compact Footprint / Low Profile
- ◆ Through Hole or SMT Versions
- ◆ 5V, 12V, 24V & 48V Inputs
- ◆ 3.3 to 30V<sup>1</sup> Single, ±12 to 15V Dual Outputs
- ◆ Output Voltage Adjustment
- ◆ Input - Output Isolation
- ◆ RoHS Compliant
- ◆ 5 Year Warranty



### Key Market Segments & Applications

Telecommunications Instrumentation	Datacom
---------------------------------------	---------

### Features & Benefits

Feature	Benefit
◆ Compact	◆ Less pcb area used
◆ Self contained	◆ Requires no external components
◆ Multiple Input Voltage configurations	◆ Easier system configuration
◆ Open frame (no potting)	◆ Lighter in weight, suitable for surface mount (R version)

### Specifications

	V	3.3V	5V	12/15V	±12/15 (24/30) <sup>1</sup>
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	80
Load Regulation	mV	40 (120 CC15; 200 CC25)	100	600 <sup>2</sup>	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 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) (DIP Through Hole and SMD package) (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 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 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

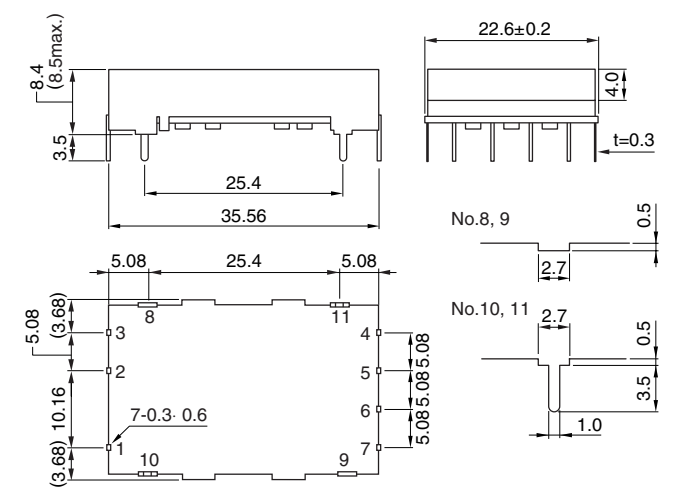
3. For 15V output connect trim to -Vout  
4. See Installation Manual for full specs, test methods of parameters & application notes  
5. Not available on CC15 and CC25 models

## 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) <sup>3</sup>	0.06(0.05)	1.5	CC1R5-0512DF-E	CC1R5-1212DF-E	CC1R5-2412DF-E	CC1R5-4812DF-E
±12 (15) <sup>3</sup>	0.125(0.1)	3	CC3-0512DF-E	CC3-1212DF-E	CC3-2412DF-E	CC3-4812DF-E
±12 (15) <sup>3</sup>	0.25(0.2)	6	CC6-0512DF-E	CC6-1212DF-E	CC6-2412DF-E	CC6-4812DF-E
±12 (15) <sup>3</sup>	0.4(0.32)	10	CC10-0512DF-E	-	-	-
±12 (15) <sup>3</sup>	0.45(0.36)	10	-	CC10-1212DF-E	CC10-2412DF-E	CC10-4812DF-E

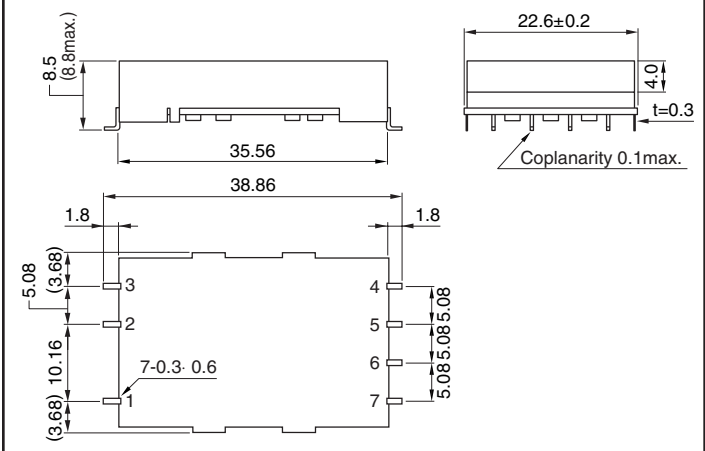
## Outline Drawing

### CC10- F-E (DIP TYPE)



## Outline Drawing

### CC10- R-E (SMD TYPE)



## 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)