

1.3 to 10W DC-DC Converters

<https://product.tdk.com/en/power/cc-e>
www.emea.lambda.tdk.com/cc-e



Industrial



Test



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The low profile, lightweight CC-E series of isolated DC-DC converters operate from 4.5 to 9V, 9 to 18V, 18 to 36V or 36 to 76V inputs with 1.5W, 3W, 6W and 10W power levels and output voltages from 3.3V to 30V⁽¹⁾⁽²⁾. Both single and dual output models can be adjusted using the trim terminal. The CC-E can operate in ambient temperatures of -40 to 85°C and have an input to output isolation of 500Vac. Both through hole and surface mount packages are offered. The five-sided metal case reduces radiated noise.

Features	Benefits
• Low Profile	• Supports Vertical Mount Cards
• Remote on/off	• Individual Control
• Five Sided Metal Case Design	• Reduced Radiated Noise
• Reduced Derating at High Ambient Temperatures	• More Useable Power
• No Potting	• Low Weight

Part Numbering Scheme

CC	1R5	-05	03	S	F	-E
Series Name CC	Output Power 1R5 = 1.5W, 3 = 3W 6 = 6W, 10 = 10W	Input Voltage 05 = 4.5 - 9V 12 = 9 - 18V 24 = 18 - 36V 48 = 36 - 76V	Output Voltage 03 = 3.3V 05 = 5V 12 = 12V 15 = 15V	S = Single Output D = Dual Output	Mounting Type F = Through hole R = Surface Mount S = Vertical SIP (CC3 only)	

Model Selector - Single Output								
Model	Input Voltage (V)	Output Voltage ⁽¹⁾ (V)	Output Current ⁽¹⁾ (A)	Maximum Power (W)	Input Current at nominal input (A)	Efficiency (%) (100% load, nominal input)	Line / Load Regulation (mV)	
CC1R5-0503Sx-E	4.5 - 9	3.3	0.4	1.32	0.372	71	20 / 40	
CC3-0503Sx-E		3.3	0.8	2.64	0.732	73	20 / 40	
CC6-0503Sx-E		3.3	1.2	3.96	1.042	76	20 / 40	
CC10-0503Sx-E		3.3	2.5	8.25	1.964	84	20 / 40	
CC1R5-0505Sx-E		5	0.3	1.5	0.39	77	20 / 40	
CC3-0505Sx-E		5	0.6	3	0.779	77	20 / 40	
CC6-0505Sx-E		5	1	5	1.266	79	20 / 40	
CC10-0505Sx-E		5	2	10	2.381	84	20 / 40	
CC1R5-0512Sx-E		12 / 15	0.125 / 0.1	1.5	0.375	80	40 / 100	
CC3-0512Sx-E		12 / 15	0.25 / 0.2	3	0.732	82	40 / 100	
CC6-0512Sx-E		12 / 15	0.5 / 0.4	6	1.463	82	40 / 100	
CC10-0512Sx-E		12 / 15	0.8 / 0.64	9.6	2.286	84	40 / 100	
CC1R5-1203Sx-E		9 - 18	3.3	0.4	1.32	0.151	73	20 / 40
CC3-1203Sx-E			3.3	0.8	2.64	0.297	74	20 / 40
CC6-1203Sx-E	3.3		1.2	3.96	0.423	78	20 / 40	
CC10-1203Sx-E	3.3		2.5	8.25	0.818	84	20 / 40	
CC1R5-1205Sx-E	5		0.3	1.5	0.16	78	20 / 40	
CC3-1205Sx-E	5		0.6	3	0.316	79	20 / 40	
CC6-1205Sx-E	5		1.2	6	0.61	82	20 / 40	
CC10-1205Sx-E	5		2	10	0.969	86	20 / 40	
CC1R5-1212Sx-E	12 / 15		0.125 / 0.1	1.5	0.152	82	40 / 100	
CC3-1212Sx-E	12 / 15		0.25 / 0.2	3	0.305	82	40 / 100	
CC6-1212Sx-E	12 / 15		0.5 / 0.4	6	0.588	85	40 / 100	
CC10-1212Sx-E	12 / 15		1 / 0.8	12	1.136	88	40 / 100	
CC1R5-2403Sx-E	18 - 36		3.3	0.4	1.32	0.076	72	20 / 40
CC3-2403Sx-E			3.3	0.8	2.64	0.151	73	20 / 40
CC6-2403Sx-E		3.3	1.2	3.96	0.214	77	20 / 40	
CC10-2403Sx-E		3.3	2.5	8.25	0.409	84	20 / 40	
CC1R5-2405Sx-E		5	0.3	1.5	0.081	77	20 / 40	
CC3-2405Sx-E		5	0.6	3	0.16	78	20 / 40	
CC6-2405Sx-E		5	1.2	6	0.309	81	20 / 40	
CC10-2405Sx-E		5	2	10	0.484	86	20 / 40	
CC1R5-2412Sx-E		12 / 15	0.125 / 0.1	1.5	0.077	81	40 / 100	
CC3-2412Sx-E		12 / 15	0.25 / 0.2	3	0.152	82	40 / 100	
CC6-2412Sx-E		12 / 15	0.5 / 0.4	6	0.287	87	40 / 100	
CC10-2412Sx-E		12 / 15	1 / 0.8	12	0.575	87	40 / 100	
CC1R5-4803Sx-E		36 - 76	3.3	0.4	1.32	0.039	70	20 / 40
CC3-4803Sx-E			3.3	0.8	2.64	0.075	73	20 / 40
CC6-4803Sx-E	3.3		1.2	3.96	0.107	77	20 / 40	
CC10-4803Sx-E	3.3		2.5	8.25	0.205	84	20 / 40	
CC1R5-4805Sx-E	5		0.3	1.5	0.041	76	20 / 40	
CC3-4805Sx-E	5		0.6	3	0.079	79	20 / 40	
CC6-4805Sx-E	5		1.2	6	0.154	81	20 / 40	
CC10-4805Sx-E	5		2	10	0.242	86	20 / 40	
CC1R5-4812Sx-E	12 / 15		0.125 / 0.1	1.5	0.039	80	40 / 100	
CC3-4812Sx-E	12 / 15		0.25 / 0.2	3	0.077	81	40 / 100	
CC6-4812Sx-E	12 / 15		0.5 / 0.4	6	0.145	86	40 / 100	
CC10-4812Sx-E	12 / 15		1 / 0.8	12	0.284	88	40 / 100	

Model Selector - Dual Output							
Model	Input Voltage (V)	Output Voltage ⁽¹⁾⁽²⁾ (V)	Output Current ⁽¹⁾ (A)	Maximum Power (W)	Input Current at nominal input (A)	Efficiency (%) (100% load, nominal input)	Line / Load Regulation ⁽³⁾ (mV)
CC1R5-0512Dx-E	4.5 - 9	±12 / ±15	±0.06 / ±0.05	1.5	0.38	79	80 / 600
CC3-0512Dx-E		±12 / ±15	±0.125 / ±0.1	3	0.741	81	80 / 600
CC6-0512DF-E		±12 / ±15	±0.25 / ±0.2	6	1.463	82	80 / 600
CC10-0512DF-E		±12 / ±15	±0.4 / ±0.32	9.6	2.313	83	80 / 600
CC1R5-1212Dx-E	9 - 18	±12 / ±15	±0.06 / ±0.05	1.5	0.154	81	80 / 600
CC3-1212Dx-E		±12 / ±15	±0.125 / ±0.1	3	0.309	81	80 / 600
CC6-1212Dx-E		±12 / ±15	±0.25 / ±0.2	6	0.588	85	80 / 600
CC10-1212Dx-E		±12 / ±15	±0.45 / ±0.36	10.8	1.047	86	80 / 600
CC1R5-2412Dx-E	18 - 36	±12 / ±15	±0.06 / ±0.05	1.5	0.079	79	80 / 600
CC3-2412Dx-E		±12 / ±15	±0.125 / ±0.1	3	0.154	81	80 / 600
CC6-2412Dx-E		±12 / ±15	±0.25 / ±0.2	6	0.291	86	80 / 600
CC10-2412Dx-E		±12 / ±15	±0.45 / ±0.36	10.8	0.523	86	80 / 600
CC1R5-4812Dx-E	36 - 76	±12 / ±15	±0.06 / ±0.05	1.5	0.04	79	80 / 600
CC3-4812Dx-E		±12 / ±15	±0.125 / ±0.1	3	0.078	80	80 / 600
CC6-4812Dx-E		±12 / ±15	±0.25 / ±0.2	6	0.145	86	80 / 600
CC10-4812Dx-E		±12 / ±15	±0.45 / ±0.36	10.8	0.262	86	80 / 600

Notes

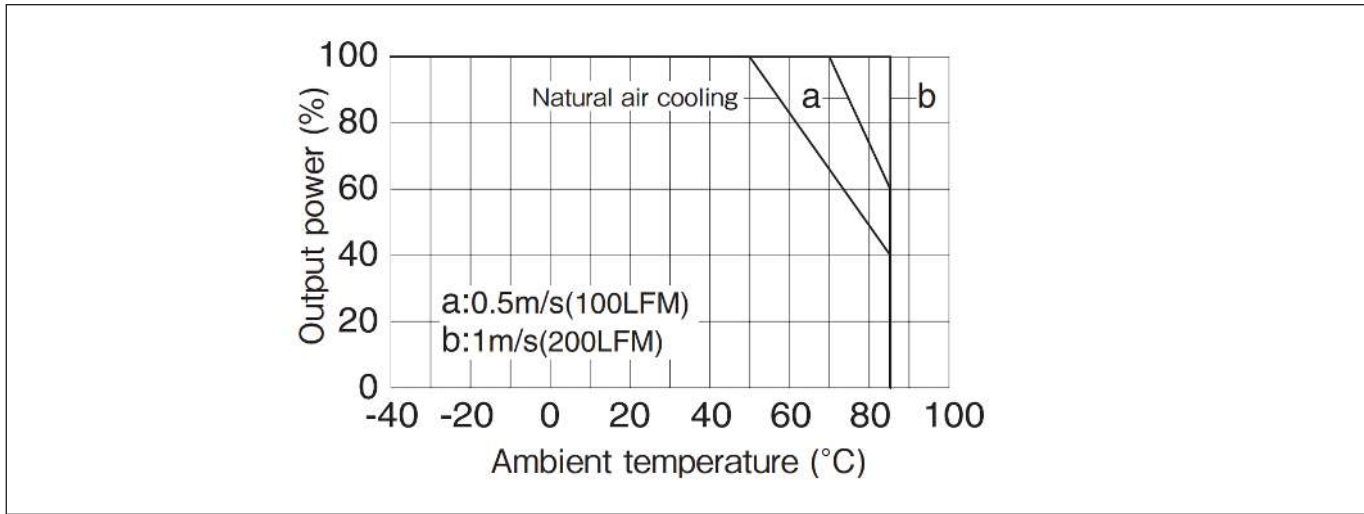
- (1) 12V single and dual output models can be set to 15V by connecting the trim terminal to -Vout. See Instruction Manual for further details
- (2) ±12V dual output models can provide a 24V single output by utilizing just the +Vout and -Vout pins, leaving the COM unconnected. Similarly ±15V dual output models can be used as a 30V single output.
- (3) Based upon equal load current from both outputs

Specifications		CC1R5	CC3	CC6	CC10
Input					
Input Voltage Range	-	See model selector table			
Efficiency	-	See model selector table			
Conducted & Radiated EMI	-	See Instruction Manual on website for suggested external filtering			
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, CE Mark and UKCA Mark			
Output					
Output Voltage Tolerance	%	±3			
Output Voltage Adjustment	V	3.3V: 3.15-3.6, 5V: 4.75-6.0, 12V: 11.4-15			
Total Regulation	%	Single output: ±3, dual output: ±5			
Ripple & Noise	mV	3.3/5V: 120 (40 typical), 12/15V 120 (30 typical)			
Temperature Coefficient	%/°C	0.02			
Minimum Load	-	No minimum load required			
Overcurrent Protection	%	Hiccup mode. ≥105			
Overvoltage Protection	-	-			
Overtemperature Protection	-	-			
Remote Sense	-	No remote sense			
Remote On/Off	-	Negative Logic ON: Short , OFF: Open			
Parallel Operation	-	Not possible			

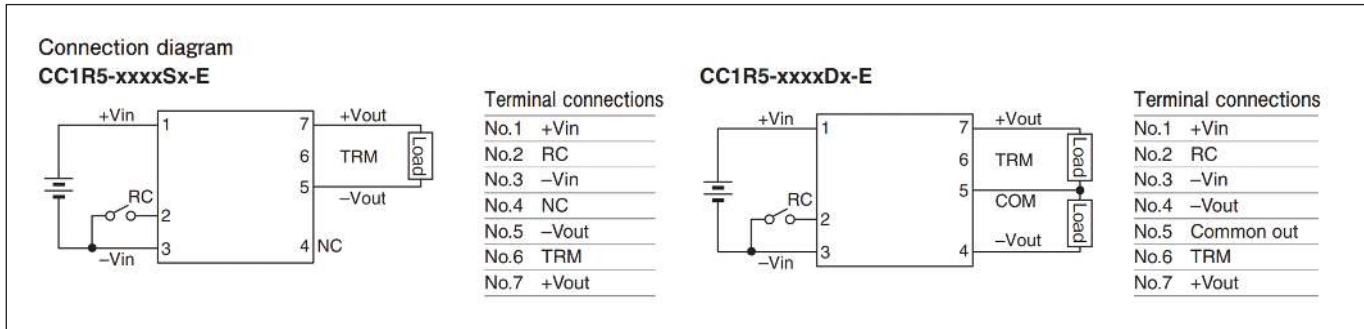
Specifications		CC1R5	CC3	CC6	CC10
Environmental					
Operating Temperature	°C	-40 to +85 (Ambient). See derating guide below and installation manual.			
Storage Temperature	°C	-40 to +85			
Humidity (non condensing)	%RH	<95 maximum wet-bulb temperature: 38°C			
Cooling	-	Convection or forced air			
Altitude	m	2,000			
Withstand Voltage	Vac	500, input to output, input to case, output to case (1 minute)			
Vibration (Non operating)	-	10 to 55Hz (sweep for 15min) 1.52mm constant, 3 directions X, Y, Z each 2 hours			
Shock (Non operating)	-	980m/s ² (100G) 6ms (6 directions, each 3 times)			
Other					
Weight (Typ)	g	3.2	4.5	5.8	10
Size (LxWxH) (Through hole)	mm	16.51 x 16.6 x 8.5	22.86 x 16.6 x 8.5	22.86 x 21.1 x 8.5	35.56 x 22.6 x 8.5
Size (LxWxH) (Through hole)	Inches	0.65 x 0.654 x 0.335	0.9 x 0.654 x 0.335	0.9 x 0.831 x 0.335	1.4 x 0.89 x 0.335
Case Material	-	Metal			
MTBF	-	See website for Reliability Data			
Warranty	yrs	5			

Notes
[See website for detailed specifications, test methods and installation manual](#)

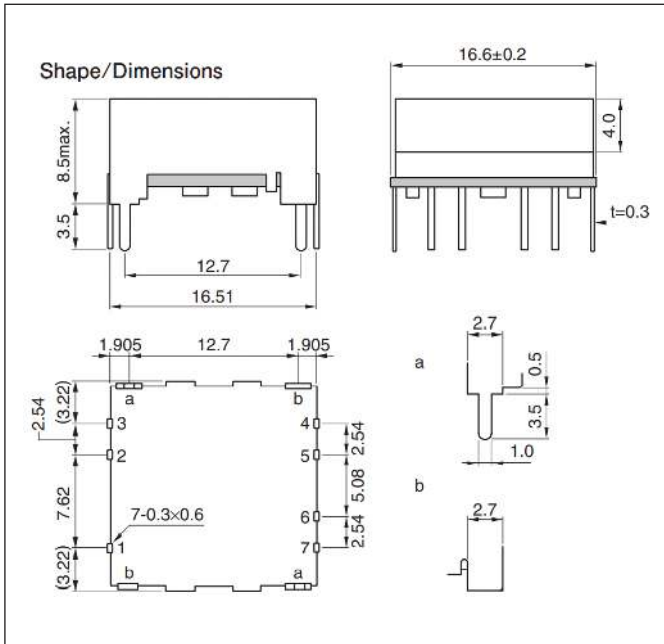
Derating Curve



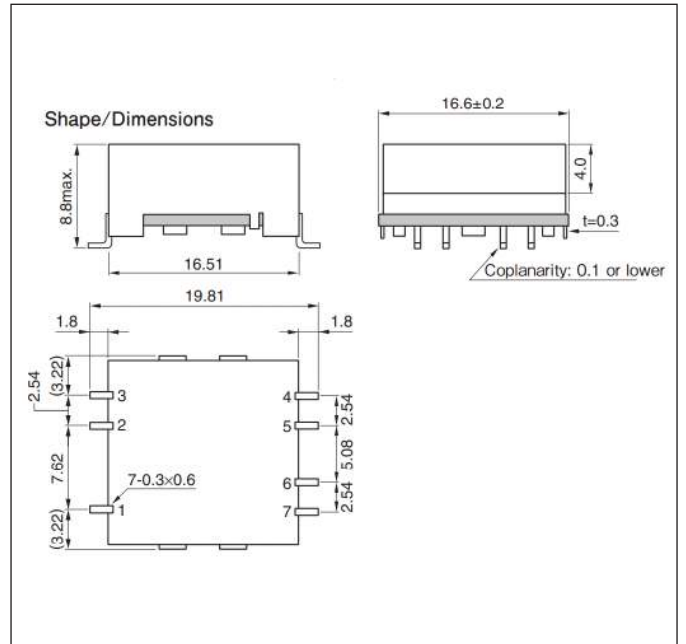
Pinouts (all models excluding SIP)



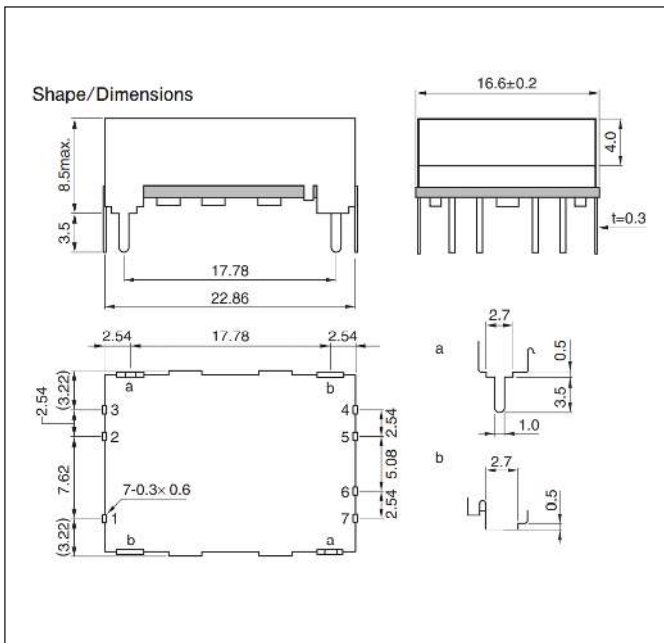
Outline Drawing CC1R5 (F suffix)



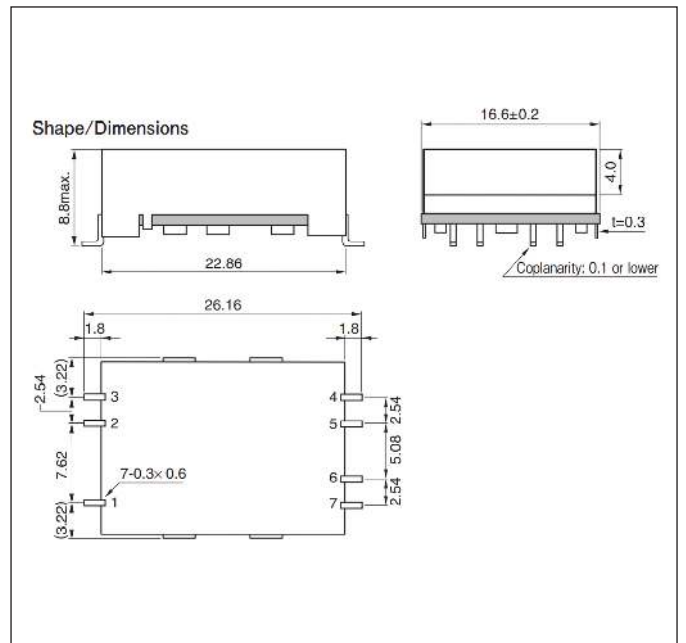
Outline Drawing CC1R5 (R suffix)



Outline Drawing CC3 (F suffix)



Outline Drawing CC3 (R suffix)





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