13.2 to 30W DC-DC Converters

https://product.tdk.com/en/power/ccg
www.emea.lambda.tdk.com/ccg



Industrial Test COMM Broadcast

The 1" x 1" footprint CCG15 and CCG30 series of isolated DC-DC converters operate from wide range 9 to 36Vdc or 18 to 76V inputs with 15W and 30W power levels and output voltages from 3.3V to 30V (1). Single output models can be adjusted -10% to +10% by using the trim terminal. The CCG can operate in ambient temperatures of -40 to 85°C and has an input to output isolation of 1,500Vdc. Six sided shielding reduces radiated and conducted EMI.

Features	Benefits
• Wide 4:1 Input Ranges	• Supports Dual 12/24V or 24/48V System Voltages
• Space Saving Package Sizes	• Less Board Area Needed
• Certified to IEC 62368-1	• Easier System Compliance
• Reduced Derating at High Ambient Temperatures	• More Useable Power

Model Selector

Model	Input Voltage (V)	Voltage (V)	Output Current (A)	Maximum Power (W)	Input Current at nominal input (A)	Efficiency (%) (100% load, nominal input)
CCG15-24-03S	9 - 36	3.3	4	13.2	0.65	85
CCG30-24-03S		3.3	7	23.1	1.12	86
CCG15-24-05S		5	3	15.0	0.72	87
CCG30-24-05S		5	6	30.0	1.4	89
CCG15-24-12S		12	1.3	15.6	0.74	88
CCG30-24-12S		12	2.5	30.0	1.4	89
CCG15-24-15S		15	1	15.0	0.71	88
CCG30-24-15S		15	2	30.0	1.4	89
CCG15-24-12D (1)		24	0.65	15.6	0.73	89
CCG30-24-12D (1)		24	1.25	30.0	1.4	89
CCG15-24-15D (1)		30	0.5	15.0	0.7	90
CCG30-24-15D (1)		30	1	30.0	0.38	91
CCG15-24-12D		±12	±0.65	15.6	0.73	89
CCG30-24-12D		±12	±1.25	30.0	1.4	89
CCG15-24-15D		±15	±0.5	15.0	0.7	90
CCG30-24-15D		±15	±1.0	30.0	0.38	91
CCG15-48-03S	18 - 76	3.3	4	13.2	0.32	85
CCG30-48-03S		3.3	7	23.1	0.55	87
CCG15-48-05S		5	3	15.0	0.36	87
CCG30-48-05S		5	6	30.0	0.69	90
CCG15-48-12S		12	1.3	15.6	0.37	88
CCG30-48-12S		12	2.5	30.0	0.69	90
CCG15-48-15S		15	1	15.0	0.36	88
CCG30-48-15S		15	2	30.0	0.69	91
CCG15-48-12D (1)		24	0.65	15.6	0.37	89
CCG30-48-12D (1)		24	1.25	30.0	0.69	91
CCG15-48-15D (1)		30	0.5	15.0	0.35	90
CCG30-48-15D (1)		30	1	30.0	0.68	92
CCG15-48-12D		±12	±0.65	15.6	0.37	89
CCG30-48-12D		±12	±1.25	30.0	0.69	91
CCG15-48-15D		±15	±0.5	15.0	0.35	90
CCG30-48-15D		±15	±1.0	30.0	0.68	92

(1) ±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.

CCG	15	-24	-03	S	-
Series Name	Output Power 15 = 15W 30 = 30W	Input Voltage 24 = 9 - 36V 48 = 18 - 76V	Output Voltage 03 = 3.3V 05 = 5V 12 = 12V 15 = 15V ±12V = +12V, -12V ±15V = +15V, -15V	S = Single Output D = Dual Output	Remote on/off Blank = Negative Logic /P = Positive Logic

Related Products

Type	Part Number	Description
DC-DC Non-isolated Buck-Boost Converter	i1C	200W, 9-36 or 18-75Vin, 9-28Vout, 10A, 1x1 inch
Isolated DC-DC Converter	CCG 1.3-10W	1.3-10W, 9 up to 76Vin, Single or Dual Output, Compact DIP package
Evaluation Kit	CCG-EVK-D0	Evaluation board (no module) for CCG15 or CCG30
Isolated DC-DC Converter	PXD40	40W, 9-36 or 18-75Vin, Single or Dual Outputs, 2x1 inch
DC-DC Non-isolated Buck Converter	i3A	100W, 9-53Vin, Output 5-30V 4.5A; 3.3-16.5V 8A, 1/32nd brick
DC-DC Non-isolated Buck Converter	i6A4W	250W, 9-53Vin, Output 3.3-40V 10A; 3.3-15V 20A, 16th brick
DC-DC Non-isolated Buck Converter	i7A	400-750W, 9 up to 60Vin, 0.8 up to 24Vout, 33A, 45A, 60A, 16th brick pinout
Ruggedized DC-DC Buck-Boost Converter	RGC	300W, 9-53Vin, Output 9.6-48V 8A; 5-28V 12.5A, 16th brick pinout
Isolated DC-DC Converter	PYD20	20W, 8.5-160Vin, Single or Dual Outputs, 2x1 inch
Isolated DC-DC Converter	PYQ50	30-50W, 14-160Vin, Single Output, Quarter brick

Specification

Model		CCG15-30W
Input		
Input Voltage Range	Vdc	See model selector table
No Load Power Consumption	W	0.6 to 0.9 (model dependent). See evaluation data on website for further details(1) No load power can be reduced using the remote on/off function (standby mode)
Efficiency	-	See model selector table
Conducted & Radiated EMI	-	EN55011/EN55032-A, FCC Class A, VCCI-A (External components are required, consult Evaluation Data on website)(1)
Immunity	-	IEC61000-4-2, -3, -4, -5, -6, -8; IEC61000-6-2 (External components are required, consult Immunity Data on website)(1)
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, CE Mark and UKCA Mark

Immunity

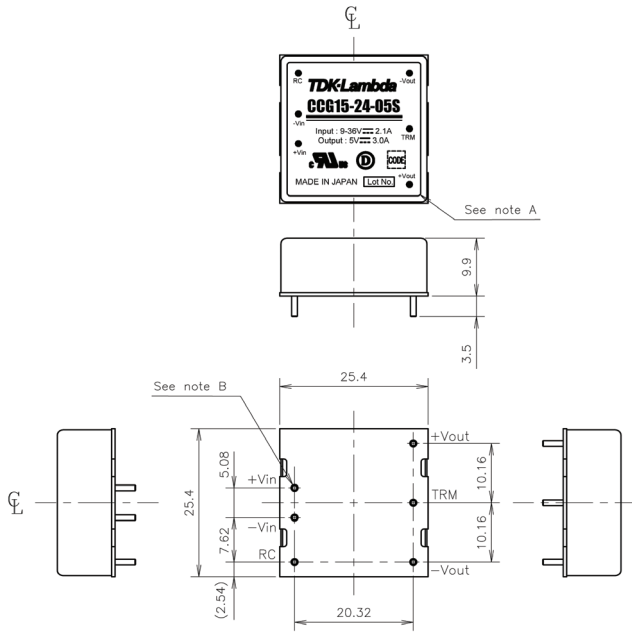
Test	Standard	Test Level	Criteria	Notes: See IEC61000 immunity test report on website for external filtering circuitry(1)
ESD	EN61000-4-2	Air and contact ± 8kV	A	
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 10V/m 1.4 - 2.0GHz: 3V/m 2.0 - 2.7GHz: 1V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	± 4kV for input and output ± 2kV for signal pins	A/B	CCG15S: B
Surge	EN61000-4-5	± 2kV	A	Normal mode
Conducted Susceptibility	EN61000-4-6	10Vrms	A	
Magnetic Fields	EN61000-4-8	30A/m	A	

Specification

Model		CCG15-30W
Output		
Output Voltage Tolerance	%	± 2
Output Voltage Adjustment	%	Single output only. ± 10%
Switching Frequency	kHz	CCG15-S: 430, CCG30S: 3.3/5V: 270, 12/15: 360, CCG-D: 430
Cross Regulation	%	Dual output only. ± 12V: 480, ± 15V: 600 (Asymmetrical, one output at 20%, the other at 100%)
External Load Capacitance	uF	3.3V: 10,000, 5V: 7,200, 12V: 1,200, 15V: 1,000 ±12V: ±1,200, ±15V: ±1,000, 24V: 560, 30V: 470
Ripple & Noise	mV	3.3/5V: 70, 12/15V: 95
Temperature Coefficient	%/°C	0.02
Minimum Load	-	No minimum load required
Overcurrent Protection	%	Hiccup mode. >105%
Overvoltage Protection	-	No
Overtemperature Protection		No
Remote Sense		No remote sense
Remote On/Off	-	No suffix: Negative Logic - ON when pin is shorted , OFF when open /P suffix: Positive Logic - ON when pin is open, OFF when pin is Low
Parallel Operation	-	Not possible
Series Operation	-	Possible
Environmental		
Operating Temperature	°C	-40 to +85 (Ambient)
Maximum Case Temperature	°C	110
Storage Temperature	°C	-55 to +125
Humidity (non condensing)	%RH	5 - 95 (Operating & Storage)
Cooling	-	Convection or forced air
Altitude	m	5000
Withstand Voltage (For 1 minute)	Vdc	Input to case 1,000, input to output 1,500, output to case, 1,000
Isolation Resistance	MΩ	>100, output to case 500Vdc (25°C, 70%RH)
Vibration (Non operating)	-	10-55Hz (Sweep for 3 min.) Amplitude 1.52 mm Constant (Maximum 90.8m/s^2) X, Y, Z 1 hour each
Shock (Non operating)	-	490.3m/s^2, 11ms, ±X, ±Y, ±Z 3 times each
Other		
Weight (Typ)	g	20
Size (LxWxH)	mm	25.4 x 25.4 x 9.9
Size (LxWxH)	Inches	1 x 1 x 0.39
Case Material	-	Metal
MTBF - Telcordia SR-332 issue 3*	Hours	3,191,064
Warranty	yrs	5

Notes
(1) See website for detailed specifications, test methods and installation manual
*CCG30-24-12S model, 25°C ambient, full load, 24Vdc input

Outline Drawing CCG15-S (Single Output)



NOTES :

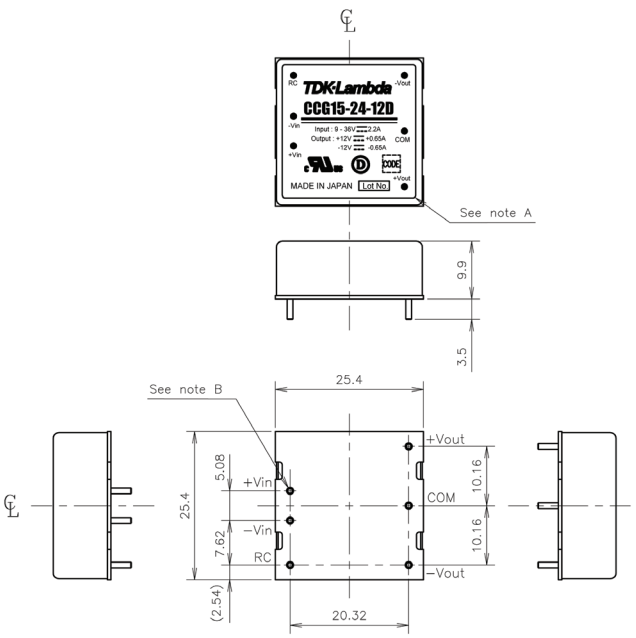
A: Model name, input voltage range, Nominal output voltage, Maximum output current, country of manufacture and safety marking (C−UL−US & Demko marking) are shown here in accordance with the specifications.

B: Input, Output and signal terminals : 6−ø1.0±0.1

C: Unless otherwise specified dimensional tolerance : ±0.5

Unit mm

Outline Drawing CCG15-D (Dual Output)



NOTES :

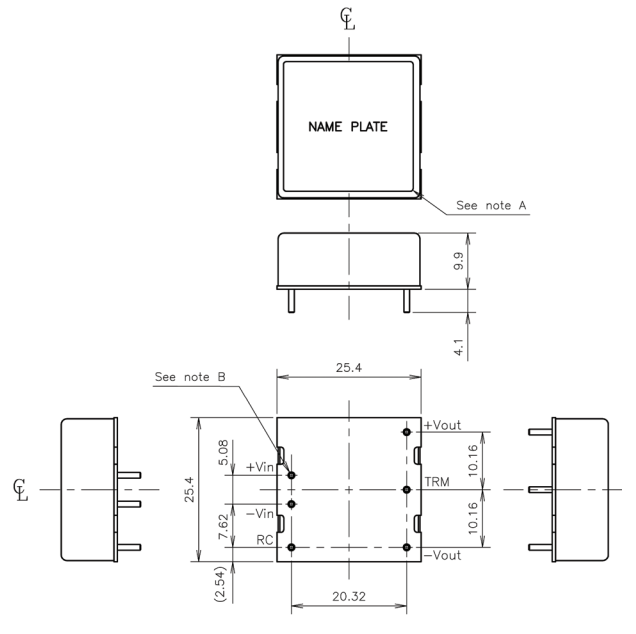
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B: Input, Output and signal terminals : 6−ø1.0±0.1

C: Unless otherwise specified dimensional tolerance : ±0.5

Unit mm

Outline Drawing CCG30-S (Single Output)



NOTES :

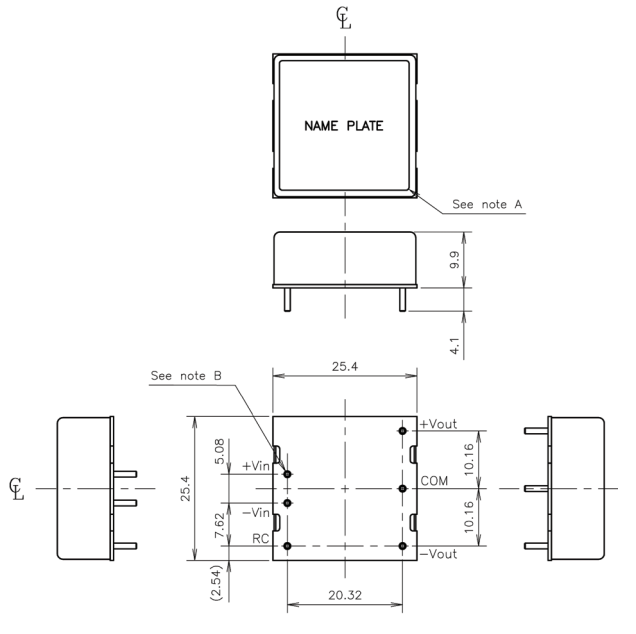
A: Model name, input voltage range, Nominal output voltage, Maximum output current, country of manufacture and safety marking (for only approved products) are shown here in accordance with the specifications.

B: Input, Output and signal terminals : 6−ø1.0±0.1

C: Unless otherwise specified dimensional tolerance : ±0.5

Unit mm

Outline Drawing CCG30-D (Dual Output)



NOTES :

A: Model name, input voltage range, Nominal output voltage, Maximum output current, country of manufacture and safety marking (for only approved products) are shown here in accordance with the specifications.

B: Input, Output and signal terminals : 6−ø1.0±0.1

C: Unless otherwise specified dimensional tolerance : ±0.5

Unit mm

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