

13.2 to 30W DC-DC Converters

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



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 temperature of -40 to 100°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 |

| Specification | | |
|------------------------------------|-----|---|
| Model | | CCG15-30W |
| Input | | |
| Input Voltage Range | Vdc | See model selector table |
| No Load Power Consumption | W | 0.6 to 0.9 (model dependant). See evaluation data on website for further details. 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) |
| Immunity | - | IEC61000-4-2, -3, -4, -5, -6, -8; IEC61000-6-2 (External components are required, consult Immunity Data on website) |
| Safety Certifications and Markings | - | IEC/UL/CSA/EN62368-1, CE Mark and UKCA Mark |

| Immunity | | | | |
|---------------------------------|-------------|--|----------|-------------|
| Test | Standard | Test Level | Criteria | Notes |
| 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 | µF | 3.3V: 10,000, 5V: 7,200, 12V: 1,200, 15V:1,000 |
| 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 |

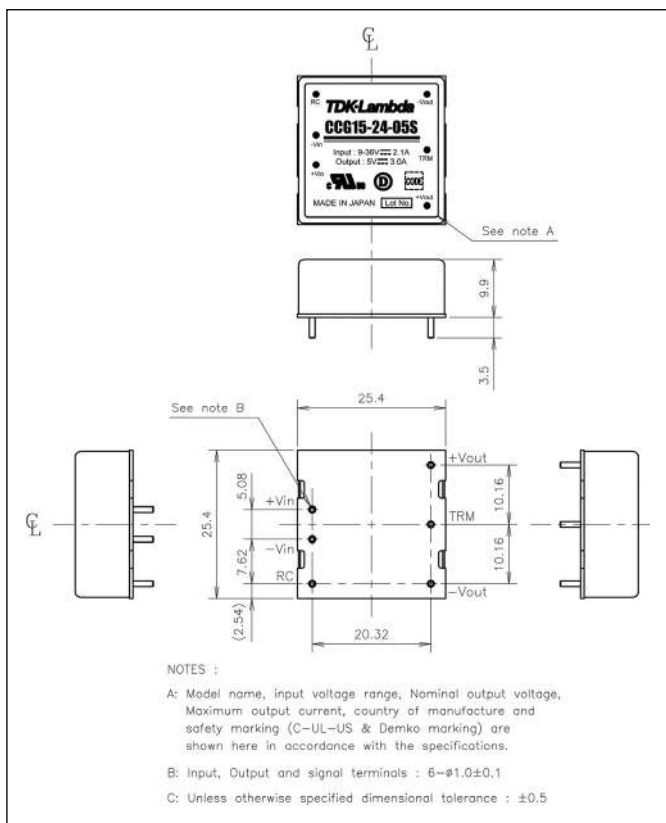
| Specification | | |
|----------------------------------|-----------|---|
| Model | CCG15-30W | |
| Environmental | | |
| Operating Temperature | °C | -40 to +100 (Ambient) |
| Maximum Case Temperature | °C | 110 |
| Storage Temperature | °C | -55 to +125 |
| Humidity (non condensing) | %RH | 5 - 95 (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 1min.) 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

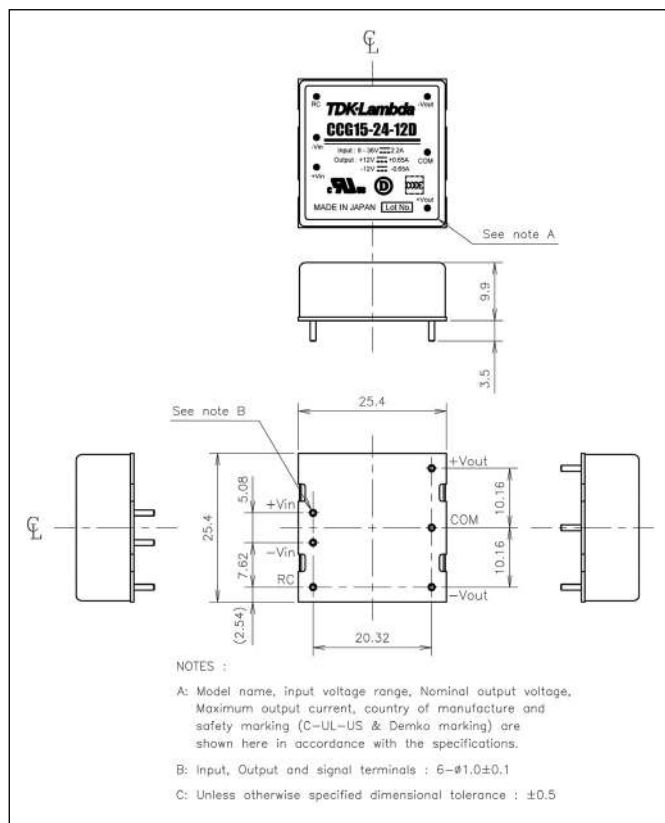
See website for detailed specifications, test methods and installation manual

*CCG302412S model, 25°C ambient, full load, 24Vdc input

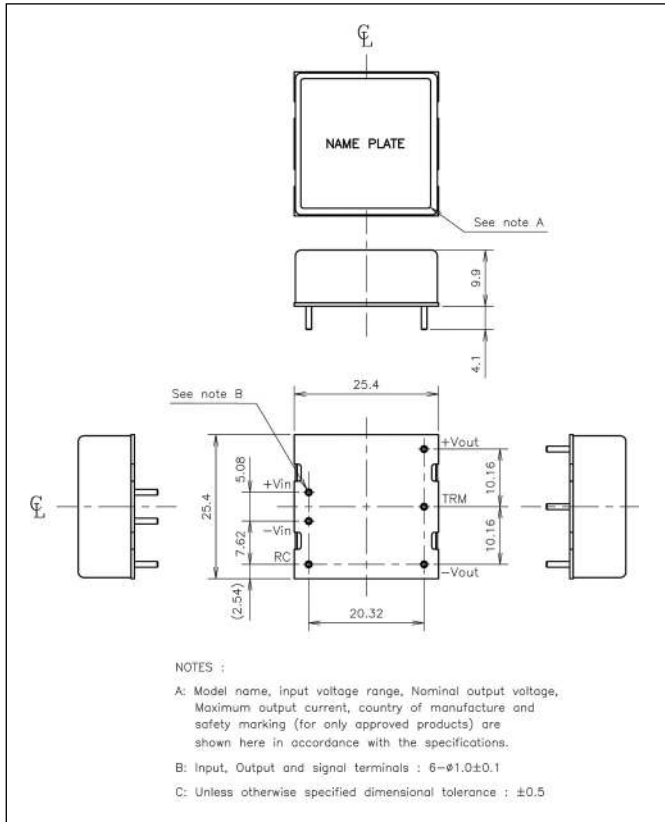
Outline Drawing CCG15-S (Single Output)



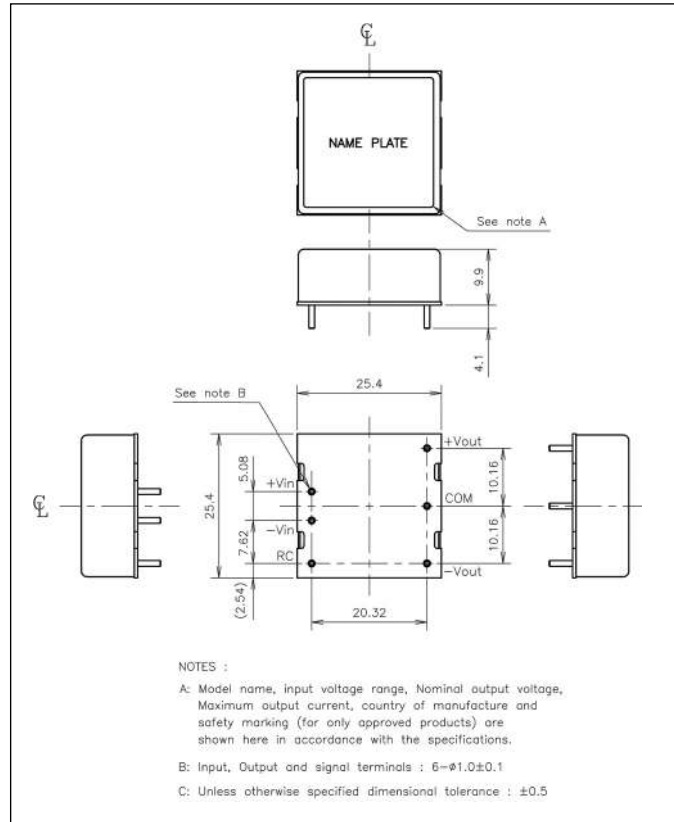
Outline Drawing CCG15-D (Dual Output)



Outline Drawing CCG30-S (Single Output)



Outline Drawing CCG30-D (Dual Output)





TDK-Lambda France SAS

Tel: +33 1 60 12 71 65
france@fr.tdk-lambda.com
www.emea.lambda.tdk.com/fr



Italy Sales Office

Tel: +39 02 61 29 38 63
info.italia@it.tdk-lambda.com
www.emea.lambda.tdk.com/it



Netherlands

info@nl.tdk-lambda.com
www.emea.lambda.tdk.com/nl



TDK-Lambda Germany GmbH

Tel: +49 7841 666 0
info@de.tdk-lambda.com
www.emea.lambda.tdk.com/de



Austria Sales Office

Tel: +43 2256 655 84
info@at.tdk-lambda.com
www.emea.lambda.tdk.com/at



Switzerland Sales Office

Tel: +41 44 850 53 53
info@ch.tdk-lambda.com
www.emea.lambda.tdk.com/ch



Nordic Sales Office

Tel: +45 8853 8086
info@dk.tdk-lambda.com
www.emea.lambda.tdk.com/dk



TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66
info@uk.tdk-lambda.com
www.emea.lambda.tdk.com/uk



TDK-Lambda Ltd.

Tel: +9 723 902 4333
info@tdk-lambda.co.il
www.emea.lambda.tdk.com/il



C.I.S.

Commercial Support:

Tel: +7 (495) 665 2627

Technical Support:

Tel: +7 (812) 658 0463

info@tdk-lambda.ru

www.emea.lambda.tdk.com/ru



TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324
powersolutions@us.tdk-lambda.com
www.us.lambda.tdk.com



TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599
sales.br@tdk-electronics.tdk.com
www.tdk-electronics.tdk.com/en



TDK-Lambda Corporation

Tel: +81-3-6778-1113
www.jp.lambda.tdk.com



TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777
powersolutions@cn.tdk-lambda.com
www.lambda.tdk.com.cn



TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211
tfs.mkt@sg.tdk-lambda.com
www.sg.lambda.tdk.com



TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660
mathew.philip@in.tdk-lambda.com
www.sg.lambda.tdk.com

