

## 1.3 to 3W DC-DC Converters



Industrial



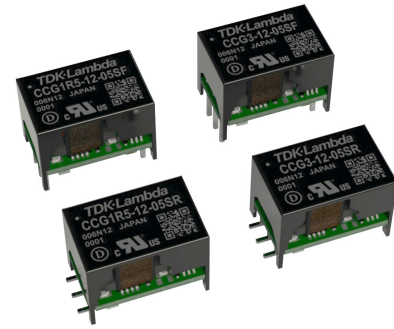
Test



COMM



Broadcast



The space saving CCG1R5 and CCG3 series of isolated DC-DC converters operate from wide range 4.5 to 18V, 9 to 36Vdc or 18 to 76V inputs with 1.5W and 3W power levels and output voltages from 3.3V to 30V (1). Single output models can be adjusted -5% to +10% by using the trim terminal. The CCG can operate in ambient temperatures of -40 to 100°C and have an input to output isolation of 1,500Vdc. Both through hole and surface mount packages are offered.

Features	Benefits
• Wide 4:1 Input Ranges	• Supports Dual 5/12V 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
• No Silicone Potting	• Reduced Quality Risk During Surface Mount Reflow Process

### Part Numbering Scheme

CCG	1R5	-12	-03	S	F
Series Name CCG	Output Power 1R5 = 1.5W 3 = 3W	Input Voltage 12 = 4.5 - 18V 24 = 9 - 36V 48 = 18 - 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 C = Pcb Coating

<b>Model Selector</b>								
Model Letter "x" indicates mounting type x=F through hole, x=R surface mount	Input Voltage (V)	Output Voltage (V)	Output Current (A)	Maximum Power (W)	Input Current at nominal input (A)	Efficiency (%) (100% load, nominal input)	Line / Load Regulation (mV)	
CCG1R5-12-03Sx	4.5 - 18	3.3	0.4	1.32	0.149	74	20 / 20	
CCG3-12-03Sx		3.3	0.8	2.64	0.286	78	20 / 20	
CCG1R5-12-05Sx		5	0.3	1.5	0.158	79	20 / 20	
CCG3-12-05Sx		5	0.6	3	0.313	81	20 / 20	
CCG1R5-12-12Sx		12	0.13	1.56	0.165	79	48 / 48	
CCG3-12-12Sx		12	0.25	3	0.301	83	48 / 48	
CCG1R5-12-15Sx		15	0.1	1.5	0.158	79	60 / 60	
CCG3-12-15Sx		15	0.2	3	0.301	85	60 / 60	
CCG1R5-12-12Dx (1)		24	0.065	1.56	0.167	78	120 / 240	
CCG3-12-12Dx (1)		24	0.13	3.12	0.317	84	120 / 240	
CCG1R5-12-15Dx (1)		30	0.05	1.5	0.16	78	150 / 300	
CCG3-12-15Dx (1)		30	0.1	3	0.305	84	150 / 300	
CCG1R5-12-12Dx		±12	±0.065	1.56	0.167	78	60 / 120	
CCG3-12-12Dx		±12	±0.13	3.12	0.317	84	60 / 120	
CCG1R5-12-15Dx		±15	±0.05	1.5	0.16	78	75 / 150	
CCG3-12-15Dx		±15	±0.1	3	0.305	84	75 / 150	
CCG1R5-24-03Sx		9 - 36	3.3	0.4	1.32	0.075	73	20 / 20
CCG3-24-03Sx			3.3	0.8	2.64	0.143	77	20 / 20
CCG1R5-24-05Sx	5		0.3	1.5	0.08	78	20 / 20	
CCG3-24-05Sx	5		0.6	3	0.158	82	20 / 20	
CCG1R5-24-12Sx	12		0.13	1.56	0.079	82	48 / 48	
CCG3-24-12Sx	12		0.25	3	0.151	83	48 / 48	
CCG1R5-24-15Sx	15		0.1	1.5	0.076	82	60 / 60	
CCG3-24-15Sx	15		0.2	3	0.151	84	60 / 60	
CCG1R5-24-12Dx (1)	24		0.065	1.56	0.081	81	120 / 240	
CCG3-24-12Dx (1)	24		0.13	3.12	0.159	83	120 / 240	
CCG1R5-24-15Dx (1)	30		0.05	1.5	0.079	80	150 / 300	
CCG3-24-15Dx (1)	30		0.1	3	0.152	82	150 / 300	
CCG1R5-24-12Dx	±12		±0.065	1.56	0.081	81	60 / 120	
CCG3-24-12Dx	±12		±0.13	3.12	0.159	83	60 / 120	
CCG1R5-24-15Dx	±15		±0.05	1.5	0.079	80	75 / 150	
CCG3-24-15Dx	±15		±0.1	3	0.152	82	75 / 150	
CCG1R5-48-03Sx	18 - 76		3.3	0.4	1.32	0.039	72	20 / 20
CCG3-48-03Sx			3.3	0.8	2.64	0.071	77	20 / 20
CCG1R5-48-05Sx		5	0.3	1.5	0.041	76	20 / 20	
CCG3-48-05Sx		5	0.6	3	0.078	80	20 / 20	
CCG1R5-48-12Sx		12	0.13	1.56	0.042	79	48 / 48	
CCG3-48-12Sx		12	0.25	3	0.076	82	48 / 48	
CCG1R5-48-15Sx		15	0.1	1.5	0.041	77	60 / 60	
CCG3-48-15Sx		15	0.2	3	0.076	83	60 / 60	
CCG1R5-48-12Dx (1)		24	0.065	1.56	0.042	81	120 / 240	
CCG3-48-12Dx (1)		24	0.13	3.12	0.08	83	120 / 240	
CCG1R5-48-15Dx (1)		30	0.05	1.5	0.041	80	150 / 300	
CCG3-48-15Dx (1)		30	0.1	3	0.077	82	150 / 300	
CCG1R5-48-12Dx		±12	±0.065	1.56	0.042	78	60 / 120	
CCG3-48-12Dx		±12	±0.13	3.12	0.08	83	60 / 120	
CCG1R5-48-15Dx		±15	±0.05	1.5	0.041	76	75 / 150	
CCG3-48-15Dx		±15	±0.1	3	0.077	83	75 / 150	

Notes  
 (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.

Specifications		
Model		CCG1R5-10, CCG3
<b>Input</b>		
Input Voltage Range	Vdc	See model selector table
No Load Power Consumption (2)	W	CCG1R5, CCG3: 0.15 to 0.45. See evaluation data on website.
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	-	See Immunity table
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
ESD	EN61000-4-2	3	B	Air ± 8kV
Radiated Susceptibility	EN61000-4-3	2/3	A	Lvl 2: 3V/m(1.4-6.0GHz) Lvl 3: 10V/m(80-1000MHz)
Electrical Fast Transient Burst	EN61000-4-4	4	B	± 4kV for input and output ± 2kV for signal pins
Surge	EN61000-4-5	3	B	Normal mode ± 2kV
Conducted Susceptibility	EN61000-4-6	3	A	10V(150kHz-80MHz)
Magnetic Fields	EN61000-4-8	4	A	30A/m(50Hz, 60Hz)

Specifications		
Model		CCG1R5-10, CCG3
<b>Output</b>		
Output Voltage Tolerance	%	±2
Output Voltage Adjustment	%	Single output only. -5, +10
Switching Frequency	kHz	CCG1R5, CCG3: 400 (fixed)
Cross Regulation	mV	Dual output only. ±12V: 480, ±15V: 600 (Asymmetrical, one output at 20%, the other at 100%)
External Load Capacitance (Maximum)	uF	CCG1R5, CCG3: 3.3-5V: 220, 12-15V: 100
Ripple & Noise	mV	200
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
<b>Environmental</b>		
Operating Temperature	°C	-40 to +100 (Ambient). See derating guide below and installation manual.
Maximum Transformer Temperature	°C	112 to 115 (See instruction manual on website)
Storage Temperature	°C	-55 to +125
Humidity (non condensing)	%RH	5 - 95 (Operating & storage)
Cooling	-	Convection or forced air
Altitude	m	5,000
Withstand Voltage	Vac/Vdc	Input to output 1,500Vdc or 1,000Vac for 1 minute
Vibration (Non operating)	-	10-55Hz (Sweep for 1min.) Amplitude 1.65 mm Constant (Maximum 98m/s <sup>2</sup> ) X,Y,Z 1 hour each
Shock (Non operating)	-	490.3m/s <sup>2</sup> , 11ms, ±X, ±Y, ±Z 3 times each
Warranty	yrs	5

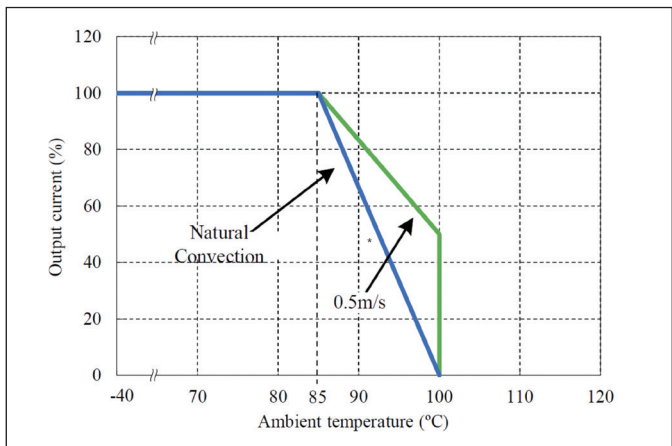
Specifications		
Model	CCG1R5-10, CCG3	
<b>Other</b>		
Weight (Typ)	g	CCG1R5: 3. CCG3: 3
Size (LxWxH)	mm	CCG1R5, CCG3: 15.7 x 10.4 x 11.5
Size (LxWxH)	Inches	CCG1R5, CCG3: 0.62 x 0.41 x 0.45
Case Material	-	Non-conductive black plastic
MTBF - MIL-HDBK-217F, Full Load, 40°C	Hours	CCG1R5 and CCG3: 8,349,094 to 11,883,918. See reliability data on the website
Warranty	yrs	5

Notes

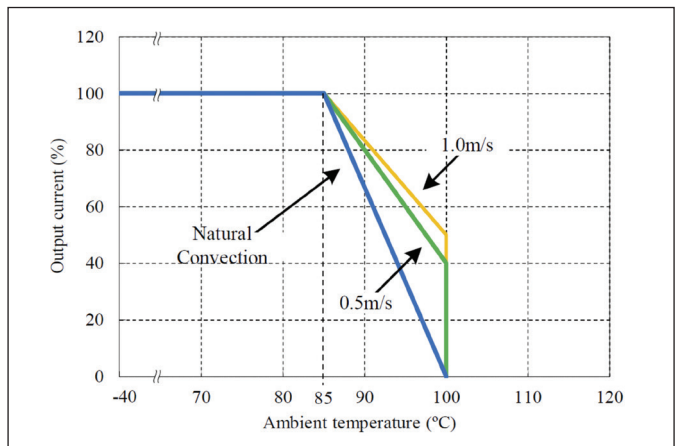
See website for detailed specifications, test methods and installation manual

(2) Off-load power consumption can be reduced using the remote on/off function - See evaluation and installation manual.

**CCG1R5 Output Current vs. Ambient Temperature (\*)**

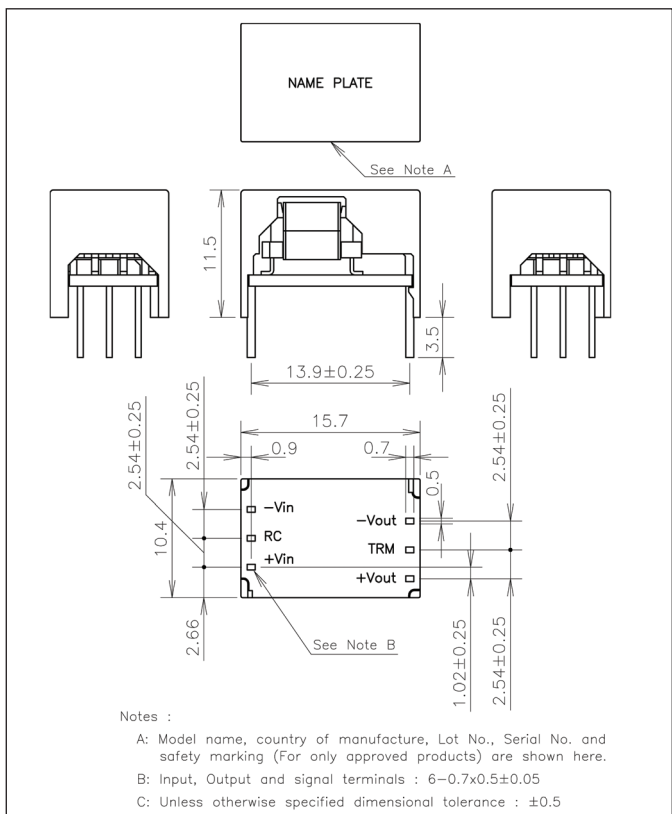


**CCG3 Output Current vs. Ambient Temperature (\*)**

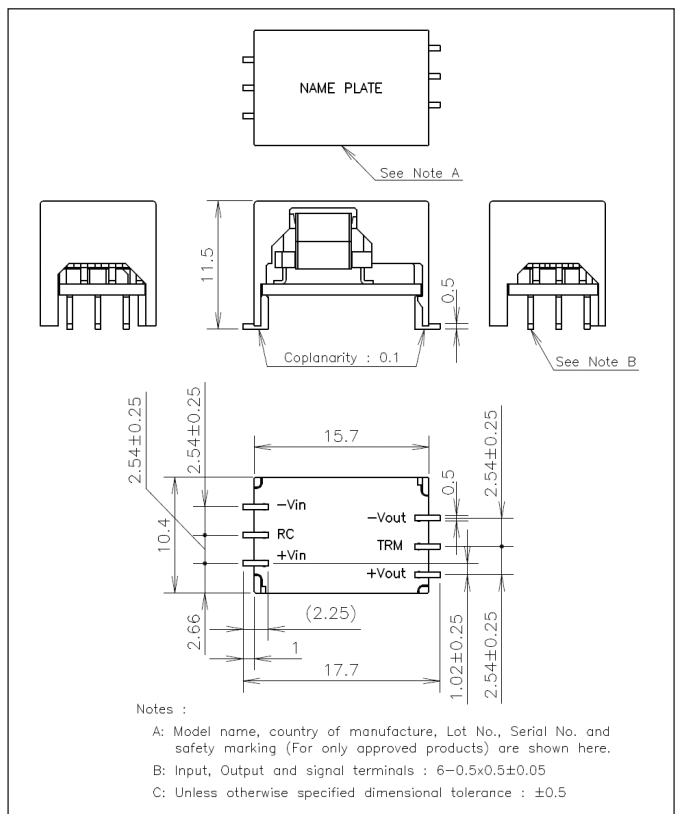


(\*) Forced air derating varies by model number, see Installation Manual.

**Outline Drawing Single Output CCG1R5 and CCG3 Through Hole (F suffix)**



**Outline Drawing Single Output CCG1R5 and CCG3 Surface Mount (R suffix)**





**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  
tis.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

For Additional Information, please visit  
<https://product.tdk.com/en/power/>



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Isolated DC/DC Converters - Through Hole](#) category:*

*Click to view products by [TDK-Lambda](#) manufacturer:*

Other Similar products are found below :

[RSK-2405SRUW/H3](#) [CCG3-48-12SF](#) [CCG6-12-05SF](#) [RSOK-2405SZ/H3](#) [CQB100W14-72S15](#) [TRI 1-2413](#) [CCG6-24-15DF](#) [TRI 1-1211SM](#)  
[CCG6-24-12DF](#) [RYK-053.3S/H](#) [MGJ2D241802BSC](#) [MGJ2D122003BSC](#) [EC4BE13](#) [PXD40-24WD15](#) [CCG1R5-12-03SF](#)  
[MGJ2D242005BSC](#) [TRI 1-2412SM](#) [TRI 1-1212](#) [MGJ1D241802SC](#) [EC5DAW-48S12N](#) [RP06-11005SRAW](#) [TRI 1-1213](#) [TRI 1-1211](#) [R2M-](#)  
[2412D](#) [PXD40-24WD12](#) [MGJ1D120603SC](#) [CCG10-24-15DF](#) [MGJ2D241505BSC](#) [EC5DAW-24D15N](#) [TRI 1-1212SM](#) [CCG1R5-24-05SF](#)  
[CCG10-48-03SF](#) [PXD60-48WD24](#) [CQB100W14-72S15N](#) [MGJ1D121505SC](#) [CCG6-24-03SF](#) [RP10-11012SRAW](#) [MGJ1D122005SC](#)  
[MGJ2D151802BSC](#) [RP03-11012SRAW](#) [EC5DAW-24S15N](#) [RPA40-11024SFR](#) [PXD40-48WS3P3](#) [PXD40-24WS12](#) [NMR1S0505SC](#)  
[CCG1R5-48-03SF](#) [EC5DAW-24D12N](#) [CCG3-48-05SF](#) [CCG6-48-12SF](#) [CCG10-24-15SF](#)