

120W, 9 to 36V Input Industrial Isolated Quarter Brick DC-DC Converter

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



Industrial



COTS



Test



Robotics

The GQA series of isolated DC-DC converters deliver 120W in a compact and high performance quarter brick footprint. It operates from an input range of 9 to 36V and comes with a broad selection of output voltages. The mechanical packaging is available in multiple baseplate, enclosed and potted configurations, supporting convection and conduction cooling via external cold plate or heatsink. It's designed to deliver high useable power at elevated temperatures and withstand high shock and vibration exposure in rugged industrial and battery powered autonomous mobility applications.

Features	Benefits
• 120W in an Industry Quarter Brick Footprint	• High Power Density, Less Board Area Needed
• 9 to 36V Input Range	• Can Operate From Different Input DC Sources Including Battery
• Flanged and Non-Flanged Baseplate Design	• Conduction Cooling Mounting Flexibility for Cold Plate or Heatsink
• Maximum Baseplate Temperature of 105°C	• High Useable Power at Elevated Temperatures
• Enclosed and Potted Options	• Operation in Harsh Environment With High Shock and Vibration Exposure

Model Selector (Full Systems)								
Model	Input Voltage (V)	Output Voltage (V)	Max Current (A)	Max Power (W)	Remote Sense	Baseplate	Enclosed with Potting	Input to Output Isolation
GQA2W024A050V-007-R	9 - 36	5	24	120	Yes	Flanged	No	1500 Vdc
GQA2W024A050V-0P7-R	9 - 36	5	24	120	Yes	Flanged	Yes	3000 Vdc
GQA2W024A050V-N07-R	9 - 36	5	24	120	Yes	Non-Flanged	No	1500 Vdc
GQA2W024A050V-NP7-R	9 - 36	5	24	120	Yes	Non-Flanged	Yes	2250 Vdc
GQA2W010A120V-007-R	9 - 36	12	10	120	Yes	Flanged	No	1500 Vdc
GQA2W010A120V-0P7-R	9 - 36	12	10	120	Yes	Flanged	Yes	3000 Vdc
GQA2W010A120V-N07-R	9 - 36	12	10	120	Yes	Non-Flanged	No	1500 Vdc
GQA2W008A150V-007-R	9 - 36	15	8	120	Yes	Flanged	No	1500 Vdc
GQA2W008A150V-0P7-R	9 - 36	15	8	120	Yes	Flanged	Yes	3000 Vdc
GQA2W008A150V-N07-R	9 - 36	15	8	120	Yes	Non-Flanged	No	1500 Vdc
GQA2W005A240V-007-R	9 - 36	24	5	120	NA	Flanged	No	1500 Vdc
GQA2W005A240V-0P7-R	9 - 36	24	5	120	NA	Flanged	Yes	3000 Vdc
GQA2W005A240V-N07-R	9 - 36	24	5	120	NA	Non-Flanged	No	1500 Vdc
GQA2W005A240V-NP7-R	9 - 36	24	5	120	NA	Non-Flanged	Yes	2250 Vdc
GQA2W004A280V-007-R	9 - 36	28	4.28	120	NA	Flanged	No	1500 Vdc
GQA2W004A280V-0P7-R	9 - 36	28	4.28	120	NA	Flanged	Yes	3000 Vdc
GQA2W004A280V-N07-R	9 - 36	28	4.28	120	NA	Non-Flanged	No	1500 Vdc
GQA2W004A280V-NP7-R	9 - 36	28	4.28	120	NA	Non-Flanged	Yes	2250 Vdc
GQA24003A480V-007-R	18 - 36	48	2.5	120	NA	Flanged	No	1500 Vdc
GQA24003A480V-0P7-R	18 - 36	48	2.5	120	NA	Flanged	Yes	3000 Vdc
GQA24003A480V-N07-R	18 - 36	48	2.5	120	NA	Non-Flanged	No	1500 Vdc

GQA	2W	005A	240V	-	007	-	R
Input Voltage 2W: 9 - 36V 24: 18 - 36V		Output Current 005A: 5A 010A: 10A	Output Voltage: 240V : 24V 050V : 5V	Baseplate Construction: 007 : Flanged Baseplate 0P7 : Flanged Baseplate, Enclosed / Potted, 3kV Isolation N07: Non-Flanged Baseplate NP7: Non-Flanged Baseplate, Enclosed / Potted			R : RoHS Compliant

Related Products

Type	Part Number	Description
Isolated DC-DC Converter	HQA120	120W MIL-COTS, Input 9-40V, Isolated Quarter Brick with M-Grade screening available
Isolated DC-DC Converter	HQA85	85W MIL-COTS, Input 9-40V, Isolated Quarter brick
Input Filter	FQA	40V / 20A MIL-COTS Filter for MIL-STD-461
Input Filter	FQB	40V / 20A MIL-COTS Filter for MIL-STD-461; MIL-STD-1275; MIL-STD-704; DO-160G
Evaluation Board	FQX-HQA-EVK-D0	Evaluation board (no modules) that fits 2X HQA or GQA DC-DC converters and FQx input filters

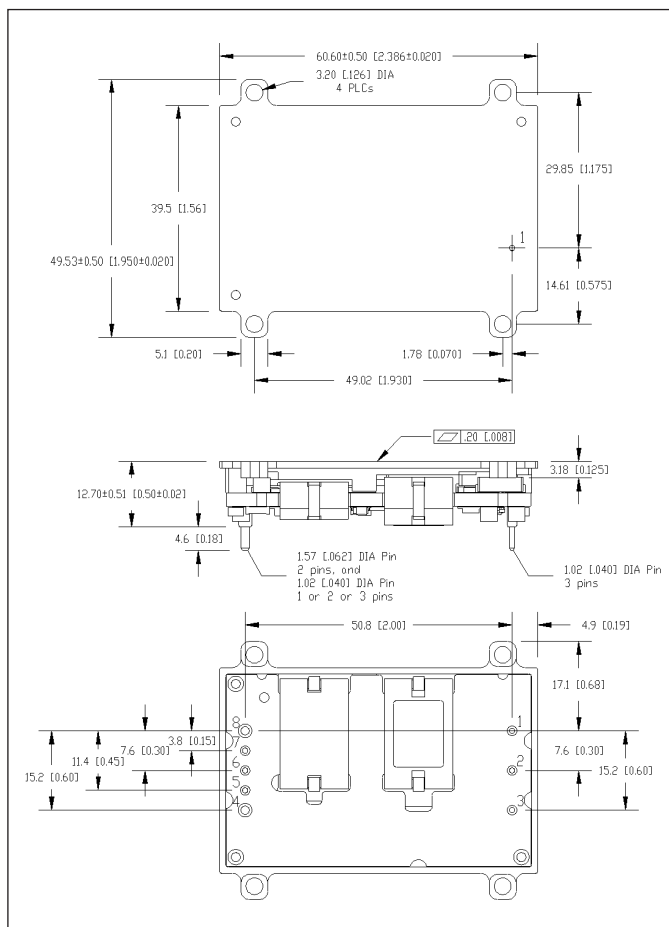
Specifications

Model		5	12	15	24	28	48
Input							
Input Voltage Range	Vdc	9 - 36					18 - 36
Input Transient (t < 1s)	Vdc	50					
Input Current (max)	A	17					10
Turn-ON Input Voltage	Vdc	9.5					17
Turn-OFF Input Voltage	Vdc	8.5					15.5
Efficiency (typical)	%	90	89	89	87	89	91.5
Safety Certifications and Markings	-	IEC/UL/CSA/EN 62368-1, 60950-1, CE Mark and UKCA Mark					
Output							
Output Voltage Tolerance	%	±4 (Rated input, Load and Temperature)					
Output Voltage Adjustment Range	Vdc	4.5 - 5.5	10.8 - 13.2	13.5 - 16.5	21.6 - 26.4	25.2 - 30.8	45.6 - 52.8
Line Regulation	%	0.05					
Load Regulation	%	0.03					
External Load Capacitance	uF	47 - 2400	0 - 1800	0 - 1500	0 - 1000	0 - 1000	0 - 1000
Ripple & Noise (typ)	mVpp	40	40	80	100	100	125
Switching Frequency	kHz	270					
Overcurrent Protection Threshold (typ)	A	37	14.5	12	6.2	5.1	4
Over Voltage Protection (typ)	Vdc	6.5	15	18	32	35	54
Over Temperature Protection	-	Shutdown - Autorecovery					
Environmental							
Operating Temperature (Tc)	°C	-40 to 105					
Storage Temperature	°C	-55 to 125					
Humidity (non condensing)	%RH	10 - 95					
Cooling	-	Conduction Cooling					
Isolation Voltage (Input to Output)	Vdc	007-R / N07-R : 1500 0P7-R : 3000 NP7-R : 2250					
Isolation Voltage (Baseplate to Input or Output)	Vdc	007-R / N07-R : 1500 0P7-R / NP7-R : 2250					
Isolation Resistance	MΩ	> 10					
Shock	-	MIL-STD 810G, Method 516.6, Procedure I, VI					
Vibration	-	MIL-STD-810G, Method 514.6, Procedure I, Categroy 14					
Other							
Weight (max)	g	85					
Size (LxWxH)	mm	Flanged Baseplate : 60.6 x 49.5 x 12.7 Non Flanged Baseplate: 60.6 x 39.5 x 12.7					
Size (LxWxH)	Inches	Flanged Baseplate : 2.39 x 1.95 x 0.5 Non Flanged Baseplate: 2.39 x 1.56 x 0.5					
MTBF - Telcordia SR-332	-	> 4 MHrs; 100% Load; Ta = 40 °C					
Warranty	yrs	3					

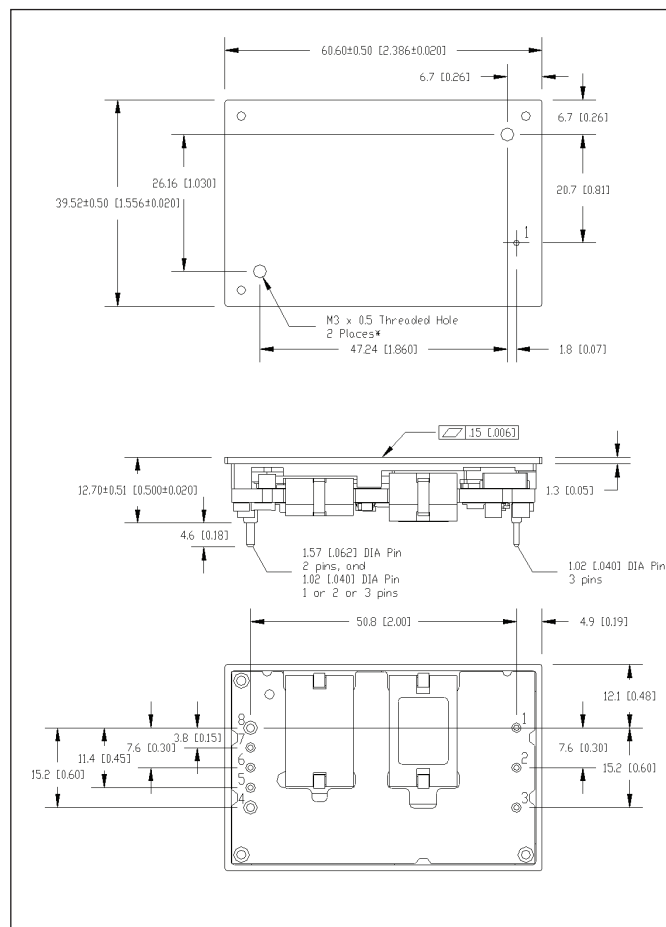
Notes
See website for detailed product [specifications](#).

Mechanical Specification:

-007-R Suffix / Flanged Baseplate



-N07-R Suffix / Non-Flanged Baseplate



Note: Dimensions are in mm [in].

Unless otherwise specified, tolerances are $x.x [x.xx] \pm 0.5 [0.02]$, $x.xx [x.xxx] \pm 0.25 [0.010]$

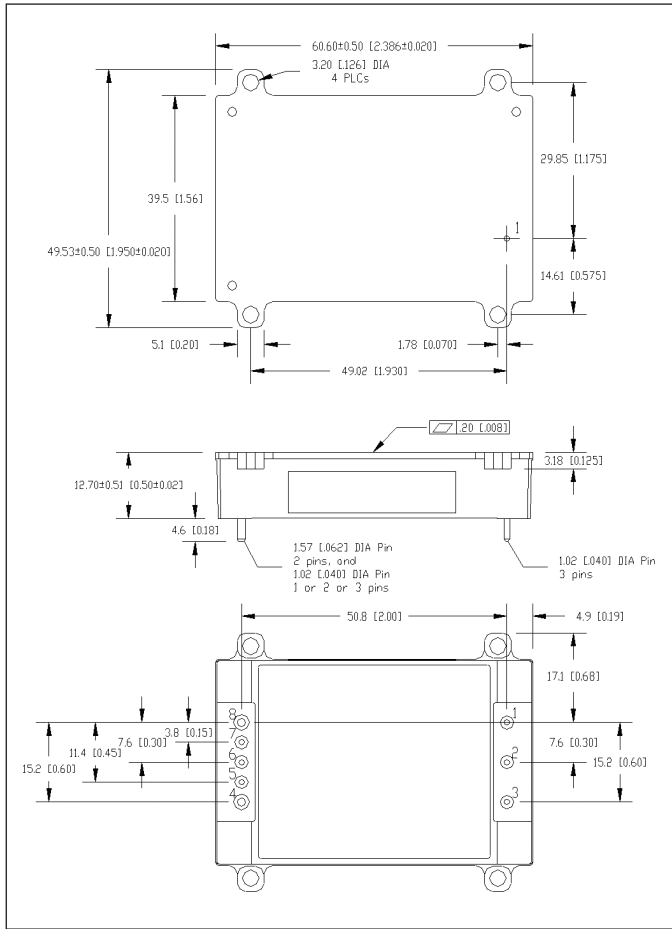
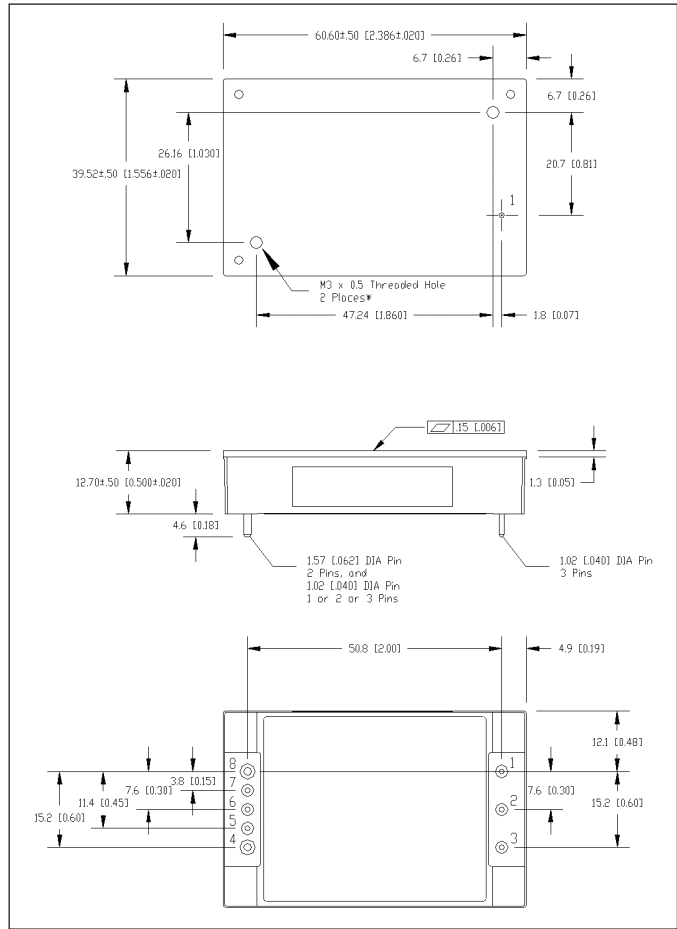
For Non-Flanged Baseplates, the depth of M3 mounting screws cannot exceed 3.0mm [0.12"].

Pinout

Pin	Function	Pin	Function
1	Vin(+)	5	sense (-), select models*
2	On/Off	6	Trim
3	Vin(-)	7	Sense (+), select models*
4	Vo(-)	8	Vo(+)

Pin base material is tellurium copper with tin over nickel plating.

* Sense pins are available on 5, 12 and 15 V models.

Mechanical Specification:**-0P7-R Suffix / Flanged Baseplate, Enclosed /Potted****-NP7-R Suffix / Non-Flanged Baseplate, Enclosed/Potted**

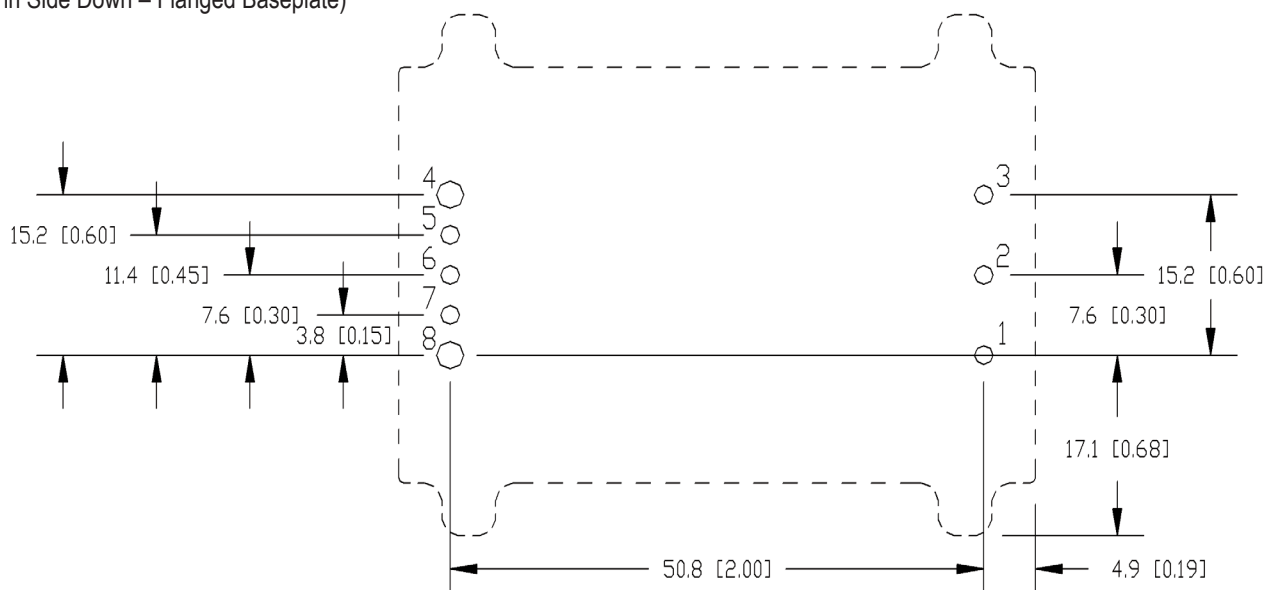
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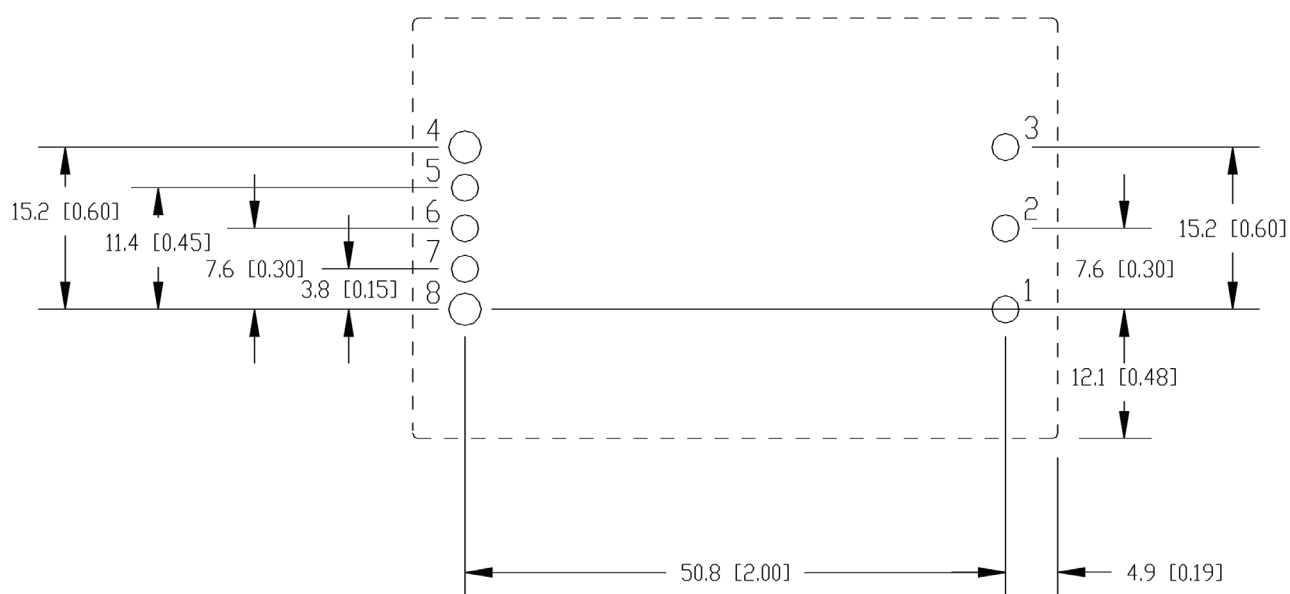
For Non-Flanged Baseplates, the depth of M3 mounting screws cannot exceed 3.0mm [0.12"].

Recommended Hole Pattern:

(Pin Side Down – Flanged Baseplate)



(Pin Side Down – Non-Flanged Baseplate)



**TDK-Lambda France SAS**

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

**Italy Sales Office**

Tel: +39 02 61 29 38 63
 ttf.it.powersolutions@tdk.com
 www.emea.lambda.tdk.com/it

**Netherlands**

ttf.nl.powersolutions@tdk.com
 www.emea.lambda.tdk.com/nl

**TDK-Lambda Germany GmbH**

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

**Austria Sales Office**

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

**Switzerland Sales Office**

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

**Nordic Sales Office**

Tel: +45 8853 8086
 tlk.dk.powersolutions@tdk.com
 www.emea.lambda.tdk.com/dk

**TDK-Lambda UK Ltd.**

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

**TDK-Lambda Ltd.**

Tel: +9 723 902 4333
 tli.powersolutions@tdk.com
 www.emea.lambda.tdk.com/il-en

**TDK-Lambda Americas**

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

**TDK-Lambda Singapore Pte Ltd.**

Tel: +65 6251 7211
 tls.marketing@tdk.com
 www.sg.lambda.tdk.com

**TDK India Private Limited, Power Supply Division**

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



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