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

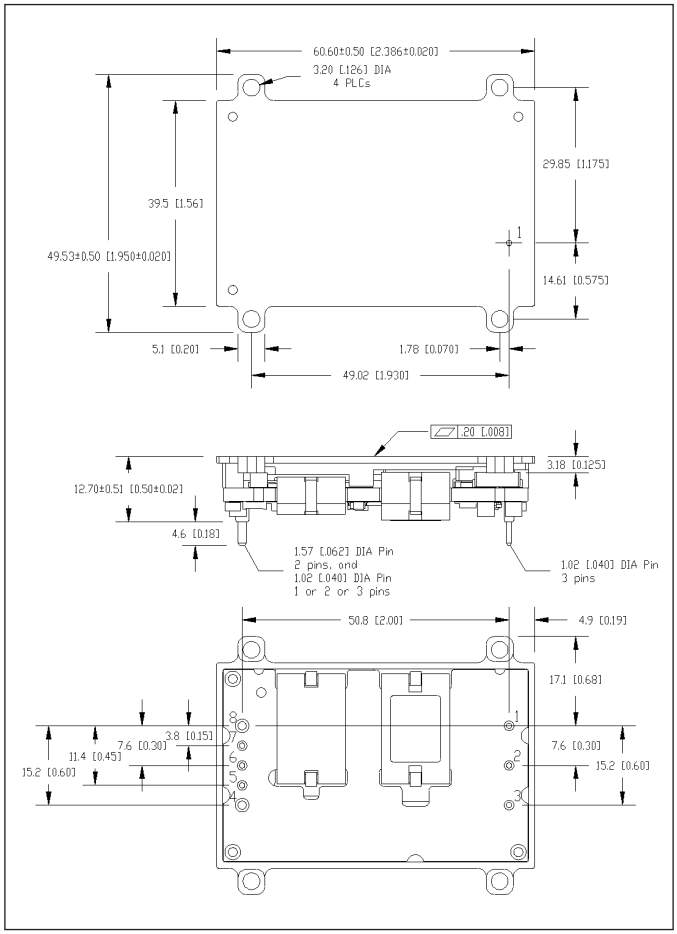
Specifications

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					

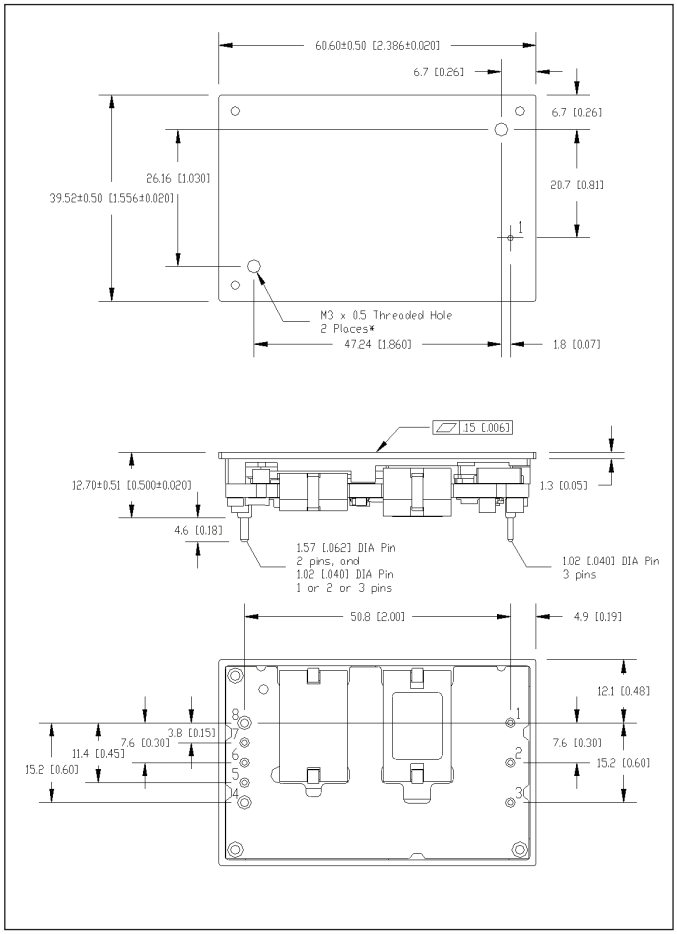
Notes
See website for detailed product specifications.

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] ±0.5 [0.02], x.xx [x.xxx] ±0.25 [0.010]
For Non-Flanged Baseplates, the depth of M3 mounting screws cannot exceed 3.0mm [0.12”].

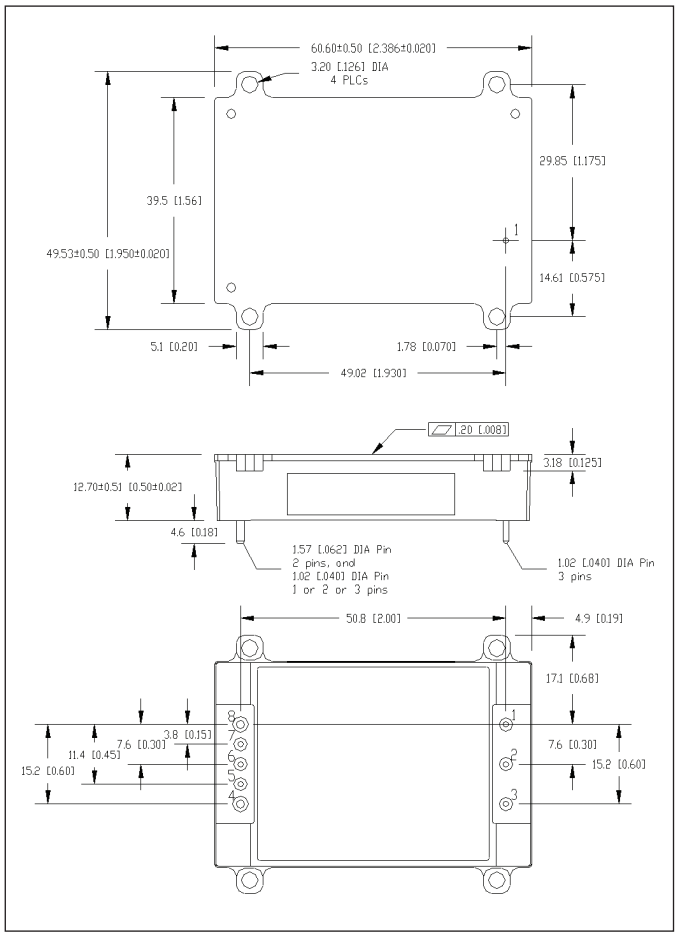
Pinout

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(+)

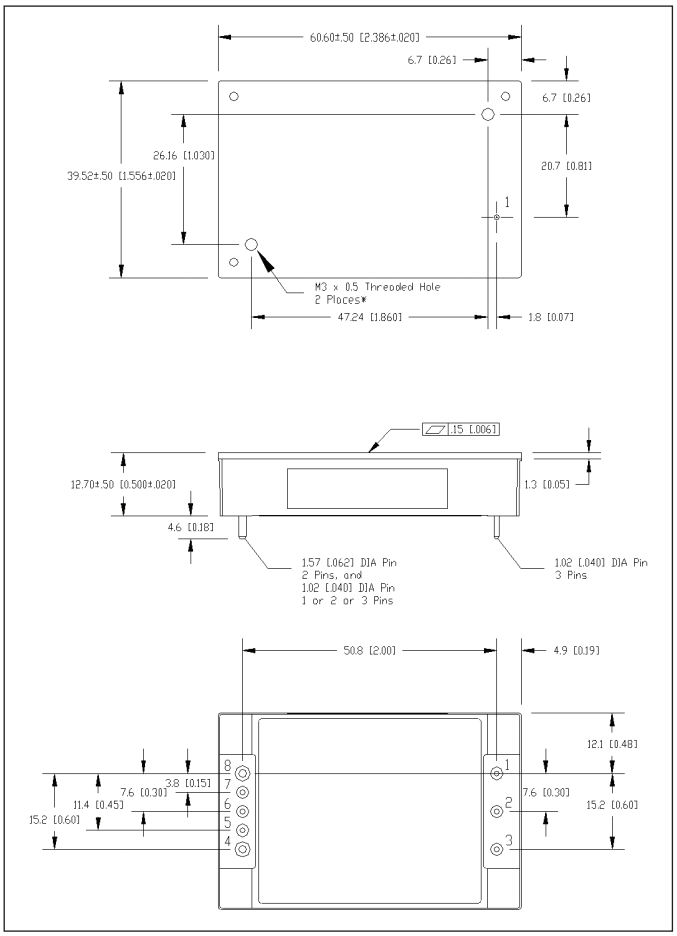
Pin base material is tellurium copper with tin over nickel plating.
* Sense pins are available on 5, 12 and 15 V models.

Mechanical Specification:

-0P7-R Suffix / Flanged Baseplate, Enclosed /Potted



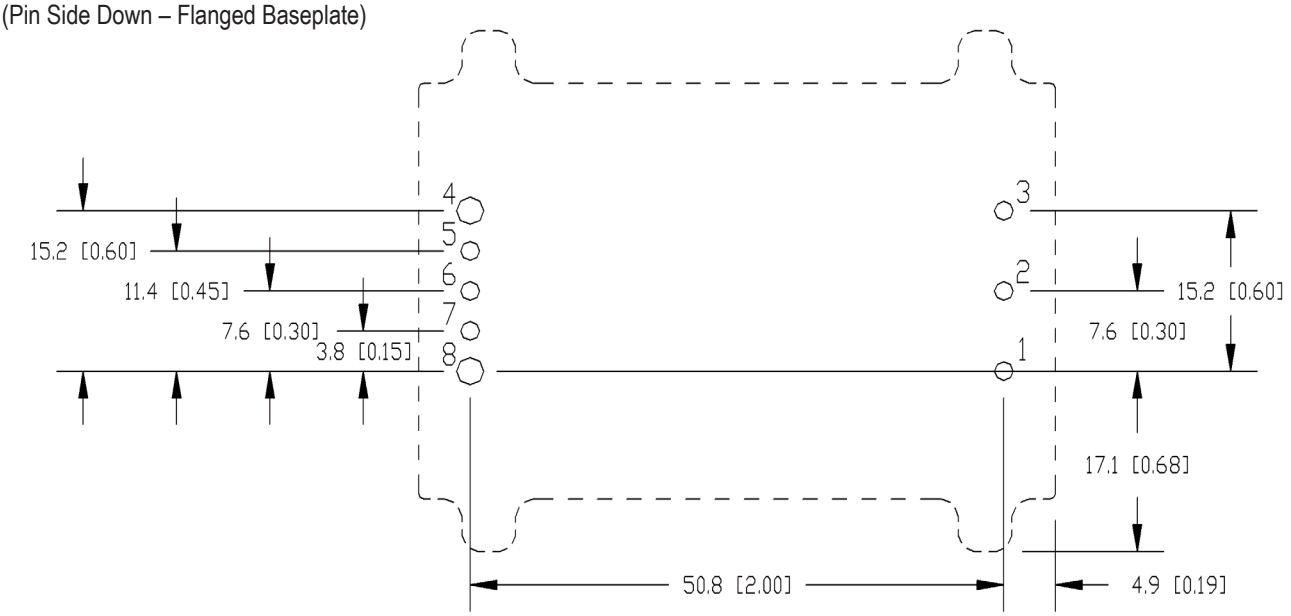
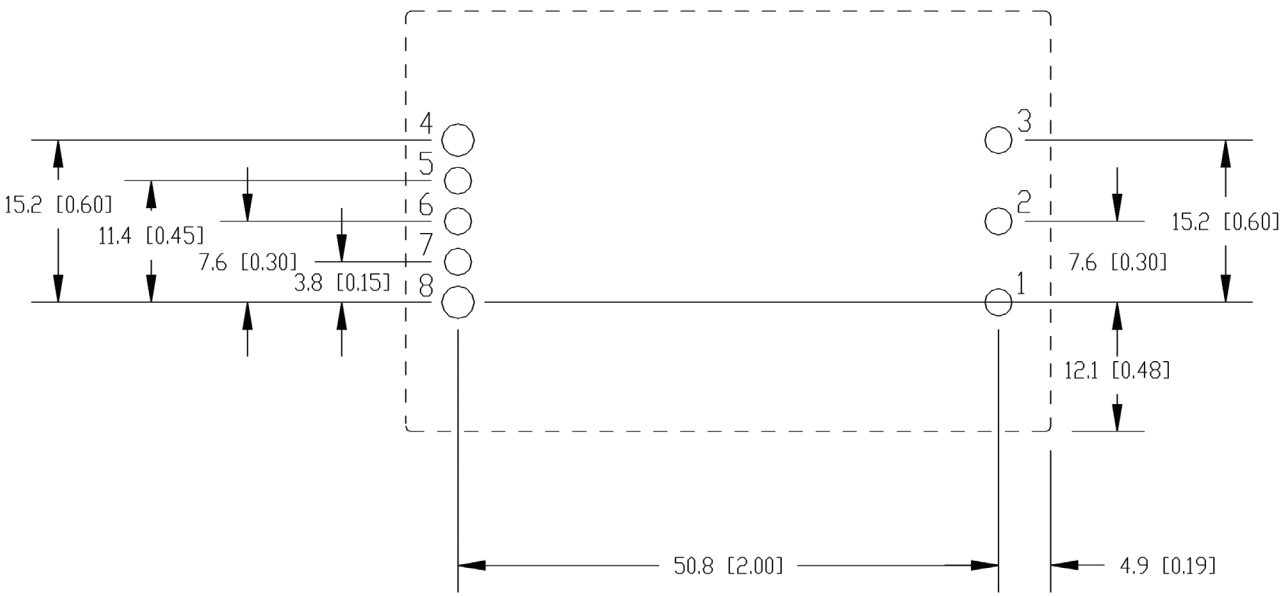
-NP7-R Suffix / Non-Flanged Baseplate, Enclosed/Potted



Note: Dimensions are in mm [in].
Unless otherwise specified, tolerances are x.x [x.xx] ±0.5 [0.02], x.xx [x.xxx] ±0.25 [0.010]
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)