

300-504W, 36 to 75V Input Isolated DC-DC Quarter Brick

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



Industrial



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Broadcast

The iQG series of isolated DC-DC converters deliver up to 504W in a compact and high performance quarter brick footprint. Available in 9.6V or 12V outputs with efficiencies up to 96%, these fully regulated Intermediate Bus Converters (IBC) feature very high, true useable power in high ambient temperatures. This makes them ideal for driving Non-Isolated Point of Load (PoL) converters in Distributed Power Architectures (DPA), commonly deployed in data communications, computing and storage applications. The iQG is available in an open frame format or with an integral base-plate for conduction cooling.

Features	Benefits
• High Operating Efficiency up to 96%	• Reduces Heat Losses/Dissipation in System
• Open frame or Baseplate Construction	• Mounting Flexibility for Low profile or Conduction Cooling
• 9.6V or 12V Intermediate Bus Voltage	• Optimized Distributed Power Architecture (DPA) for Driving Point-Of-Loads (POL)
• Droop Mode Option for Parallel Operation	• Power Scalability or Redundancy
• Constant Switching Frequency	• Predictable EMI
• Monotonic Start-Up Into a Pre-Bias Output	• Reliable and Stable Output in Multi-Load conditions

Model Selector

Model	Input Voltage (V)	Output Voltage (V)	Maximum Current (A)	Maximum Power (W)	On/Off Polarity	Pin Length	Baseplate (-1xx-R Suffix)	Droop Load Share
iQG48047A096V-1D1-R	36 - 75	9.6	47	450	Neg	0.145	Yes	Yes
iQG48025A120V-001-R	36 - 75	12	25	300	Neg	0.145	No	No
iQG48025A120V-009-R	36 - 75	12	25	300	Neg	0.145	No	No
iQG48025A120V-101-R	36 - 75	12	25	300	Neg	0.145	Yes	No
iQG48025A120V-109-R	36 - 75	12	25	300	Neg	0.180	Yes	No
iQG48033A120V-009-R	36 - 75	12	33	400	Neg	0.180	No	No
iQG48033A120V-101-R	36 - 75	12	33	400	Neg	0.145	Yes	No
iQG48033A120V-109-R	36 - 75	12	33	400	Neg	0.180	Yes	No
iQG48033A120V-1D1-R	36 - 75	12	33	400	Neg	0.145	Yes	Yes
iQG48033A120V-1D9-R	36 - 75	12	33	396	Neg	0.180	Yes	Yes
iQG48042A120V-109-R	39 - 75	12	42	504	Neg	0.180	Yes	No
iQG48042A120V-1U9-R	39 - 75	12	42	504	Neg	0.166	Yes	Yes

Related Products

Type	Part Number	Description
Isolated DC-DC Converter	iQL	300W, Input 36-75V or 18-36V, Isolated Quarter Brick
Isolated DC-DC Converter	iEH	300W, Input 36-75V, Isolated Eighth Brick
Isolated DC-DC Converter	iEA	78W, Input 36-75V, Isolated Eighth Brick
Isolated DC-DC Converter	GQA	120W Industrial, Input 9-36V, Isolated Quarter Brick
Non-Isolated DC-DC Converter	iBH	80W/20A, 3.5-14Vin, 0.7 - 5.5Vout, DOSA Compatible
Non-Isolated DC-DC Converter	iCH	85W/12A, 4.5-14Vin, 0.7 - 8.5Vout, DOSA Compatible
Input Filter	iDQ	75V / 10A Filter
Evaluation Board	FQX-HQA-EVK-D0	Evaluation board (no modules) accepting standard Eighth or Quarter brick and FQx or iDQ input filters

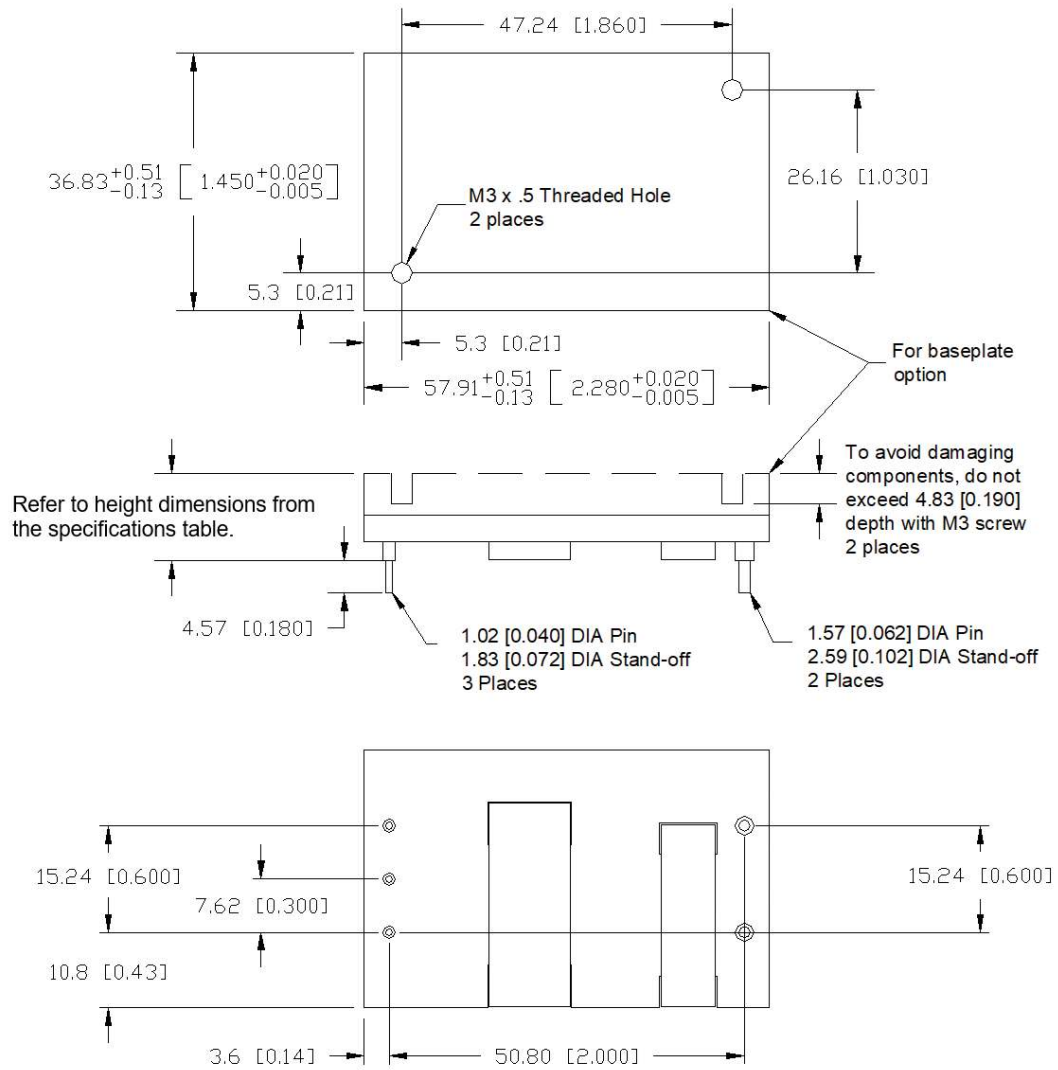
Specifications					
Model		iQG48047A096V-1D1-R	iQG48025A120V-x0x-R	iQG48033A120V-xxx-R	iQG48042A120V-1x9-R
Input					
Input Voltage Range	Vdc	36 - 75			39 - 75
Input Transient (100 ms)	Vdc	100			
Input Current (max)	A	12	8.5	10.5	15
Turn-On Input Voltage (typ)	Vdc	35.8	34.2	34.8	39.1
Turn-Off Input Voltage (typ)	Vdc	34.0	32.4	33.0	37.1
Efficiency (typical)	%	95.2	95.2	94.5	94.5
Safety Certifications and Markings	-	IEC/UL/CSA/EN 62368-1, 60950-1, CE Mark and UKCA Mark			
Output		iQG48047A096V-1D1-R	iQG48025A120V-x0x-R	iQG48033A120V-xxx-R	iQG48042A120V-1x9-R
Output Voltage Initial Setpoint	Vdc	9.61 - 9.71	11.25 - 11.75	Suffix -x0x-R: 11.25 - 11.75 Suffix -xDx-R: 11.73 - 11.87	12.06 - 12.22
Output Voltage Tolerance	Vdc	9.51 - 9.81	11.15 - 11.85	Suffix -x0x-R: 11.15 - 11.85 Suffix -xDx-R: 11.60 - 12.00	11.93 - 12.35
Line Regulation	mV	15	15	20	12
Voltage Droop Rate	mV / A	13	NA	Suffix -xDx-R: 20	Suffix -1U9-R: 20
Load Share Accuracy (with Droop Mode)	%	±10	NA	Suffix -xDx-R: ±10	NA
External Load Capacitance	uF	518 - 8,000	488 - 8,000	488 - 10,000	488 - 8,000
Ripple & Noise (typ)	mVpp	30	50	65	86
Switching Frequency (fixed)	kHz	180	110	110	115
Overcurrent Protection Threshold (Hiccup)	A	53	32	39	52
Over Voltage protection (Latching)	Vdc	14.1	14.7	14.7	14.8
Over Temperature Protection	-	Auto recovery			
Environmental		iQG48047A096V-1D1-R	iQG48025A120V-x0x-R	iQG48033A120V-xxx-R	iQG48042A120V-1x9-R
Operating Temperature (Tc)	°C	-40 to 125			
Storage Temperature	°C	-55 to 125			
Humidity (non condensing)	%RH	10 - 95			
Cooling	-	Conduction, convection or forced air (See product specifications for derating)			
Isolation Voltage (Input to Output)	Vdc	1500			2250
Isolation Resistance	MΩ	≥10			
Shock	-	50g; 6ms half-sine; three axes; MIL-STD-202G Method 213B			
Vibration	-	5 to 50 Hz (0.5g); 50 to 500 Hz (1.5g); three axes; Bellcore TR-EOP-000063 Sec 5.4.4			
Other		iQG48047A096V-1D1-R	iQG48025A120V-x0x-R	iQG48033A120V-xxx-R	iQG48042A120V-1x9-R
Weight (max)	g	70	55 (Open frame); 70 (Baseplate)		83
Size (LxWxH)	Open frame	mm	57.91 x 36.83 x 13.21	57.91 x 36.83 x 12.83	
	Baseplate			57.91 x 36.83 x 12.95	57.91 x 36.83 x 12.95
Size (LxWxH)	Open frame	Inches	2.28 x 1.45 x 0.52	2.28 x 1.45 x 0.505	
	Baseplate			2.28 x 1.45 x 0.51	2.28 x 1.45 x 0.51
MTBF - Telcordia SR-332 (100% Load, 40°C)	MHrs	> 2	> 3.4	> 2.9	> 2
Warranty	yrs	3			

Notes
See website for detailed product specifications ([9.6V @ 42A](#); [12V @ 25A](#); [12V @ 33A](#); [12V @ 42A](#)).

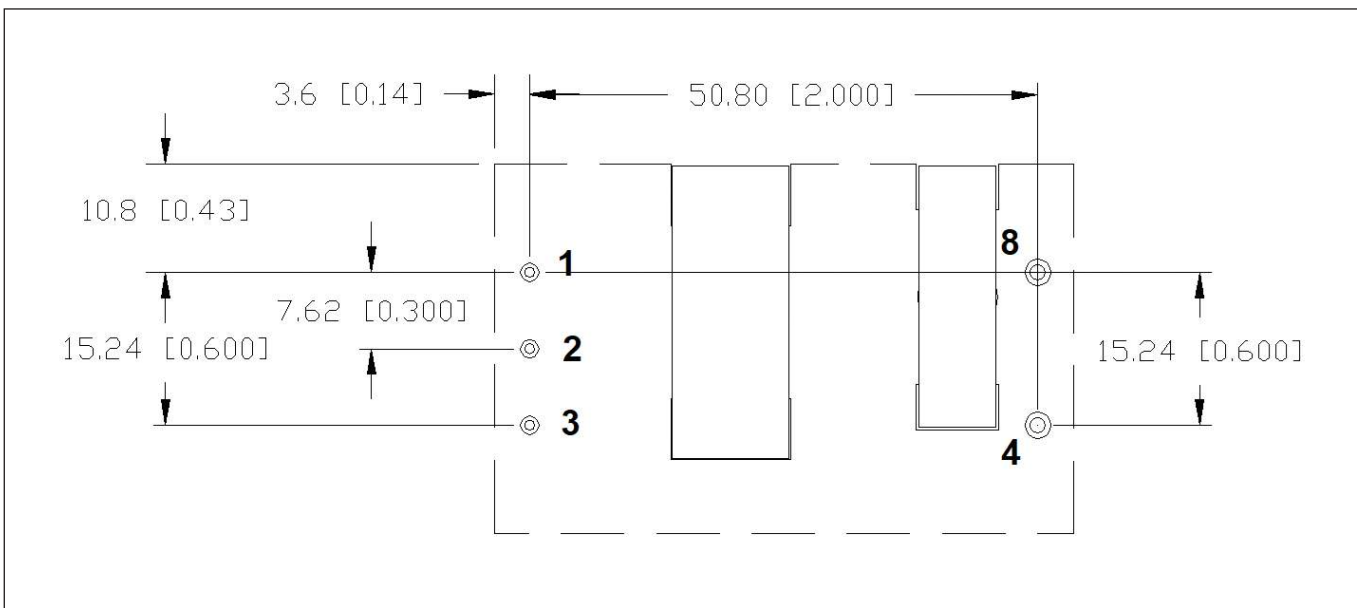
Mechanical Specification

Dimensions are in mm [in].

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



Recommended PCB Hole Pattern



PIN Assignment

Pin	Function	Pin	Function
1	Vin(+)	5	None
2	On/Off	6	None
3	Vin(-)	7	None
4	Vo(-)	8	Vo(+)



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