

## 72-308W, 18 to 36V or 36 to 75V Input Isolated DC-DC Quarter Brick

<https://product.tdk.com/en/power/iQL>  
[www.emea.lambda.tdk.com/uk/products/iql](http://www.emea.lambda.tdk.com/uk/products/iql)



Industrial



Test



COMM



Broadcast

The iQL series of isolated DC-DC converters deliver up to 308W in a compact and high-performance industry standard quarter footprint. Capable of operating from nominal input voltages of 24V (18-36V) or 48V (36 to 75V), the converter provides fully regulated outputs from 1.2V up to 28V for demanding environments in telecom, datacom, computing and industrial applications. The output voltage can be adjusted from -20 to +10% of nominal using the trim connection to accommodate non-standard voltages.

Features	Benefits
• High Operating Efficiency up to 94%	• Reduces Heat Losses/Dissipation in System
• Open frame or Baseplate Construction	• Mounting Flexibility for Low profile or Conduction Cooling
• Available from 1.2V up to 28V outputs	• Flexible and wide output voltage coverage for various loads
• 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)	Output Adjust Range (V)	Max Current (A)	Max Power (W)	Efficiency	On/Off Polarity	Pic Length (inch)	Baseplate
<a href="#">iQL24021A120V-001-R</a>	20 - 36	12	9.6 - 13.2	21	252	92.0%	Neg	0.145"	Yes
<a href="#">iQL24021A120V-009-R</a>	20 - 36	12	9.6 - 13.2	21	252	92.0%	Neg	0.180"	Yes
<a href="#">iQL24040A050V-001-R</a>	18 - 36	5	4.0 - 5.5	40	200	91.0%	Neg	0.145"	Yes
<a href="#">iQL24040A050V-009-R</a>	18 - 36	5	4.0 - 5.5	40	200	91.0%	Neg	0.180"	Yes
<a href="#">iQL24050A033V-009-R</a>	18 - 36	3.3	2.64 - 3.63	50	165	90.5%	Neg	0.180"	Yes
<a href="#">iQL48011A280V-008-R</a>	36 - 75	28	22.4 - 30.8	11	308	92.5%	Pos	0.180"	Yes
<a href="#">iQL48011A280V-009-R</a>	36 - 75	28	22.4 - 30.8	11	308	92.5%	Neg	0.180"	Yes
<a href="#">iQL48011A280V-0A9-R *</a>	36 - 75	28	16.8 - 30.8	11	308	92.5%	Neg	0.180"	Yes
<a href="#">iQL48025A120V-001-R</a>	36 - 75	12	9.6 - 13.2	25	300	94.0%	Neg	0.145"	Yes
<a href="#">iQL48025A120V-009-R</a>	36 - 75	12	9.6 - 13.2	25	300	94.0%	Neg	0.180"	Yes
<a href="#">iQL48025A120V-0B9-R</a>	36 - 75	12	9.6 - 13.2	25	300	94.0%	Neg	0.180"	No
<a href="#">iQL48045A050V-001-R</a>	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.145"	Yes
<a href="#">iQL48045A050V-009-R</a>	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.180"	Yes
<a href="#">iQL48045A050V-0B3-R **</a>	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.145"	No
<a href="#">iQL48045A050V-0B9-R</a>	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.180"	No
<a href="#">iQL48060A033V-003-R **</a>	36 - 75	3.3	2.64 - 3.63	60	198	91.0%	Neg	0.145"	Yes
<a href="#">iQL48060A033V-009-R</a>	39 - 75	3.3	2.64 - 3.63	60	198	91.0%	Neg	0.180"	Yes
<a href="#">iQL48060A033V-0B9-R</a>	39 - 75	3.3	2.64 - 3.63	60	198	91.0%	Neg	0.180"	No
<a href="#">iQL48060A025V-008-R</a>	36 - 75	2.5	2.0 - 2.75	60	150	89.0%	Pos	0.180"	Yes
<a href="#">iQL48060A025V-0B3-R **</a>	36 - 75	2.5	2.0 - 2.75	60	150	89.0%	Neg	0.145"	No
<a href="#">iQL48060A025V-0B9-R</a>	36 - 75	2.5	2.0 - 2.75	60	150	89.0%	Neg	0.180"	No
<a href="#">iQL48060A012V-0B3-R **</a>	36 - 75	1.2	0.96 - 1.32	60	72	83.5%	Neg	0.145"	No

### Notes

\* With higher OCP limit up to 15A

\*\* Non Latching OVP

Related Products		
Type	Part Number	Description
Isolated DC-DC Converter	<a href="#">iQG</a>	300W-504W, Input 36-75V, Isolated Quarter Brick
Isolated DC-DC Converter	<a href="#">iEH</a>	300W, Input 36-75V, Isolated Eighth Brick
Isolated DC-DC Converter	<a href="#">iEA</a>	78W, Input 36-75V, Isolated Eighth Brick
Isolated DC-DC Converter	<a href="#">GQA</a>	120W Industrial, Input 9-36V, Isolated Quarter Brick
Non-Isolated DC-DC Converter	<a href="#">iBH</a>	80W/20A, 3.5-14Vin, 0.7 - 5.5Vout, DOSA Compatible
Non-Isolated DC-DC Converter	<a href="#">iCH</a>	85W/12A, 4.5-14Vin, 0.7 - 8.5Vout, DOSA Compatible
Non-Isolated DC-DC Buck-Boost Converter	<a href="#">i7C</a>	300W, Input 9-53V or 9-36V, Output 9.6-48V 8A, 5-28V 12.5A or 8-24V 20A
Input Filter	<a href="#">iDQ</a>	75V / 10A Filter
Evaluation Board	<a href="#">FQX-HQA-EVK-D0</a>	Evaluation board (no modules) that fits standard Eighth or Quarter brick and FQx or iDQ input filters

Specifications								
Model			1.2V	2.5V	3.3V	5V	12V	28V
<b>Input</b>								
Input Voltage Range	(iQL24) (iQL48)	Vdc	18 - 36 36 - 75			20 - 36		
Input Transient, 100 ms		Vdc	50 (iQL24); 100 (iQL48)					
Input Current (max)	(iQL24) (iQL48)	A	3	5.2	12 7	13 7.5	14.5 10	10.5
Turn-ON Input Voltage (typ)	(iQL24) (iQL48)	Vdc	16.9 34.2 - 34.9			19.9		
Turn-OFF Input Voltage (typ)	(iQL24) (iQL48)	Vdc	16.0 32.4 - 33.2			18.8		
Efficiency (typical)		%	Refer to Model Selector Table					
Safety Certifications and Markings		-	IEC/UL/CSA/EN 62368-1, 60950-1, CE Mark and UKCA Mark					
<b>Output</b>								
Output Voltage Initial Setpoint	(iQL24) (iQL48)	Vdc	1.17 - 1.23	2.45 - 2.55	3.23 - 3.37	4.88 - 5.12	11.3 - 11.9 11.7 - 12.3	27.4 - 28.6
Output Voltage Tolerance	(iQL24) (iQL48)	Vdc	1.16 - 1.24	2.42 - 2.58	3.20 - 3.40 3.23 - 3.37	4.85 - 5.15	11.2 - 12.0 11.6 - 12.4	27.2 - 28.8
Line Regulation	(iQL24) (iQL48)	mV	1	1.5	2	4	40	50
Load Regulation	(iQL24) (iQL48)	mV	1	1.5	2	4	70	40
Remote Sense			Yes	Yes	Yes	Yes	Yes <sup>(3)</sup>	Yes
External Load Capacitance	(iQL24) (iQL48)	uF	488 - 60,000	488 - 40,000	488 - 40,000	488 - 25,000	470 - 5,000 488 - 8,000	480 - 3,300
Ripple & Noise (typ)	(iQL24) (iQL48)	mVpp	30	30	27 35	27 40	65 25	310
Switching Frequency (fixed)	(iQL24) (iQL48)	kHz	110	125	125 130	130 125	120 145	125
Overcurrent Protection (hiccup)	(iQL24) (iQL48)	A	71	69	57 70	44 54	23 31.5	12.5
Over Voltage Protection <sup>(2)</sup>		Vdc	1.5	3.1	4.1	6.1	14.5	33.2
Over Temperature Protection		-	Auto recovery					
<b>Environmental</b>								
Operating Temperature (Tc)		°C	-40 up to 125 (maximum temperature is model dependent, check the product specifications)					
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		Vdc	1500 (Input to Output; Output to Baseplate)					
Shock		-	MIL-STD-202G, Method 213B, Test Condition 1					
Vibration		-	5 to 50 Hz (0.5g); 50 to 500 Hz (1.5g); three axes; Bellcore TR-EOP-000063-5.4.4					

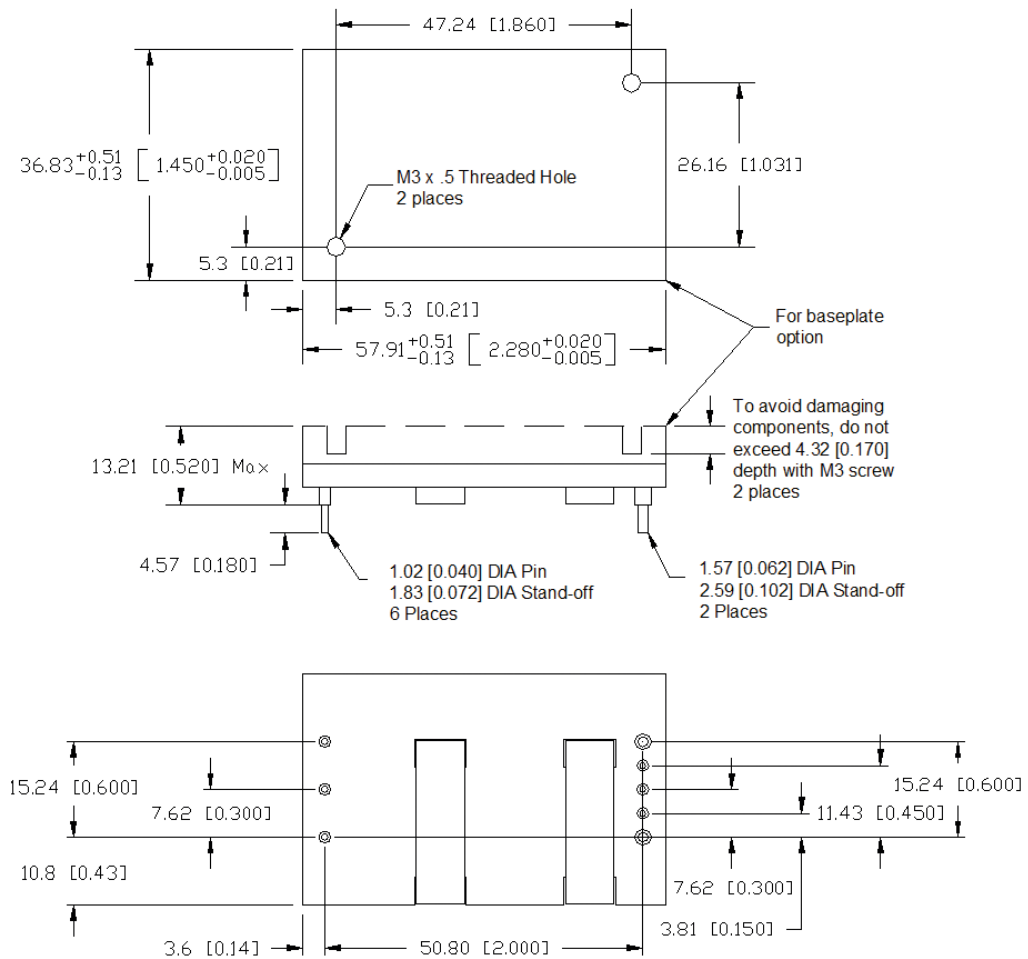
Specifications		1.2V	2.5V	3.3V	5V	12V	28V
<b>Other</b>							
Weight (max)	g	70 (baseplate); 55 (open frame)					
Size (LxWxH)	mm	57.91 x 36.83 x ≤13.21					
Size (LxWxH)	Inches	2.28 x 1.45 x ≤0.52					
MTBF - Telcordia SR-332 (100% Load, 40°C)	MHrs	> 3					
Warranty	yrs	3					

**Notes**

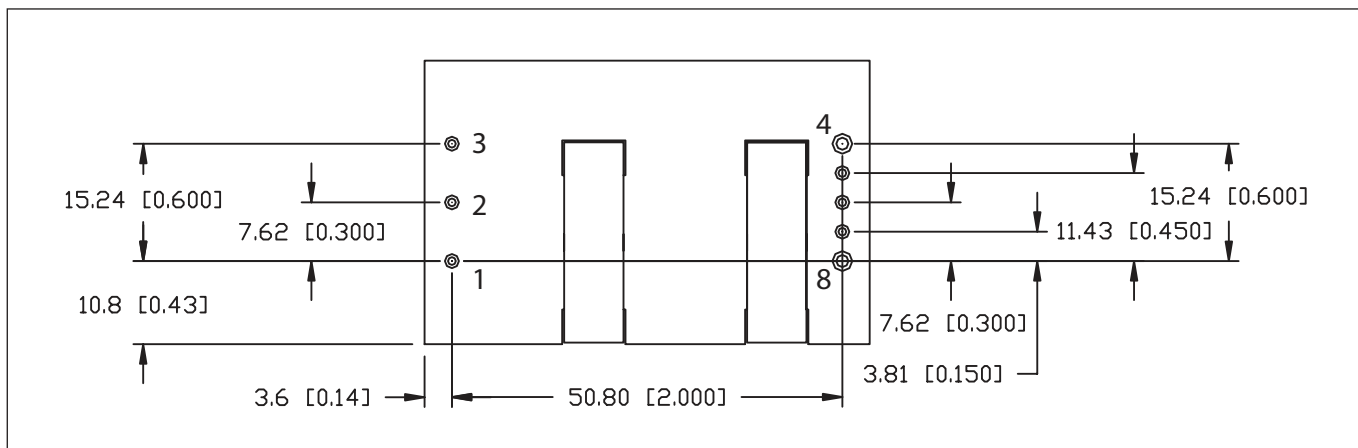
- (1) See website for detailed product specifications.
- (2) Default Over Voltage Protection is Latching unless otherwise indicated. Refer to Model Selector Table.
- (3) iQL24021A120V has remote sense, iQL48025A120V does not have remote sense.

## Mechanical Specification

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



**Recommended PCB Hole Pattern**



**PIN Assignment**

Pin	Function	Pin	Function
1	Vin(+)	5	Sense (+) (if applicable)
2	On/Off	6	Trim
3	Vin(-)	7	Sense (+) (if applicable)
4	Vo(-)	8	Vo(+)

Pin base material is brass with gold over nickel plating.



### TDK-Lambda France SAS

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



### Italy Sales Office

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



### Netherlands

tlf.nl-powersolutions@tdk.com  
 www.emea.lambda.tdk.com/nl



### TDK-Lambda Germany GmbH

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



### Austria Sales Office

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



### Switzerland Sales Office

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



### Nordic Sales Office

Tel: +45 8853 8086  
 tlq.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  
 tfs.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

