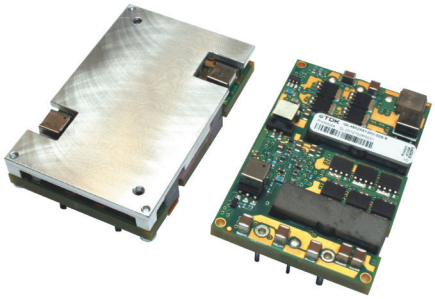
https://product.tdk.com/en/power/iQL
www.emea.lambda.tdk.com/uk/products/iql

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



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 accomodate 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 (A)	Max Current (A)	Max Power (W)	Efficiency	On/Off Polarity	Pic Length (inch)	Baseplate
iQL24021A120V-001-R	20 - 36	12	9.6 - 13.2	21	252	92.0%	Neg	0.145”	Yes
iQL24021A120V-009-R	20 - 36	12	9.6 - 13.2	21	252	92.0%	Neg	0.180”	Yes
iQL24040A050V-001-R	18 - 36	5	4.0 - 5.5	40	200	91.0%	Neg	0.145”	Yes
iQL24040A050V-009-R	18 - 36	5	4.0 - 5.5	40	200	91.0%	Neg	0.180”	Yes
iQL24050A033V-009-R	18 - 36	3.3	2.64 - 3.63	50	165	90.5%	Neg	0.180”	Yes
iQL48011A280V-008-R	36 - 75	28	22.4 - 30.8	11	308	92.5%	Pos	0.180”	Yes
iQL48011A280V-009-R	36 - 75	28	22.4 - 30.8	11	308	92.5%	Neg	0.180”	Yes
iQL48011A280V-0A9-R *	36 - 75	28	16.8 - 30.8	11	308	92.5%	Neg	0.180”	Yes
iQL48025A120V-001-R	36 - 75	12	9.6 - 13.2	25	300	94.0%	Neg	0.145”	Yes
iQL48025A120V-009-R	36 - 75	12	9.6 - 13.2	25	300	94.0%	Neg	0.180”	Yes
iQL48025A120V-0B9-R	36 - 75	12	9.6 - 13.2	25	300	94.0%	Neg	0.180”	No
iQL48045A050V-001-R	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.145”	Yes
iQL48045A050V-009-R	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.180”	Yes
iQL48045A050V-0B3-R **	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.145”	No
iQL48045A050V-0B9-R	36 - 75	5	4.0 - 5.5	45	225	91.0%	Neg	0.180”	No
iQL48060A033V-003-R **	36 - 75	3.3	2.64 - 3.63	60	198	91.0%	Neg	0.145”	Yes
iQL48060A033V-009-R	39 - 75	3.3	2.64 - 3.63	60	198	91.0%	Neg	0.180”	Yes
iQL48060A033V-0B9-R	39 - 75	3.3	2.64 - 3.63	60	198	91.0%	Neg	0.180”	No
iQL48060A025V-008-R	36 - 75	2.5	2.0 - 2.75	60	150	89.0%	Pos	0.180”	Yes
iQL48060A025V-0B3-R **	36 - 75	2.5	2.0 - 2.75	60	150	89.0%	Neg	0.145”	No
iQL48060A025V-0B9-R	36 - 75	2.5	2.0 - 2.75	60	150	89.0%	Neg	0.180”	No
iQL48060A012V-0B3-R **	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	iQG	300W-504W, Input 36-75V, 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
Non-Isolated DC-DC Buck-Boost Converter	i7C	300W, Input 9-53V or 9-36V, Output 9.6-48V 8A, 5-28V 12.5A or 8-24V 20A
Input Filter	iDQ	75V / 10A Filter
Evaluation Board	FQX-HQA-EVK-D0	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
Input								
Input Voltage Range	(iQL24)	Vdc			18 - 36		20 - 36	
	(iQL48)		36 - 75					
Input Transient, 100 ms		Vdc	50 (iQL24); 100 (iQL48)					
Input Current (max	(iQL24)	A			12	13	14.5	
	(iQL48)		3	5.2	7	7.5	10	10.5
Turn-ON Input Voltage (typ)	(iQL24)	Vdc			16.9		19.9	
	(iQL48)		34.2 - 34.9					
Turn-OFF Input Voltage (typ)	(iQL24)	Vdc			16.0		18.8	
	(iQL48)		32.4 - 33.2					
Efficiency (typical)		%	Refer to Model Selector Table					
Safety Certifications and Markings		-	IEC/UL/CSA/EN 62368-1, 60950-1, CE Mark and UKCA Mark					
Output								
Output Voltage Initial Setpoint	(iQL24)	Vdc			3.23 - 3.37	4.88 - 5.12	11.3 - 11.9	
	(iQL48)		1.17 - 1.23	2.45 - 2.55			11.7 - 12.3	27.4 - 28.6
Output Voltage Tolerance	(iQL24)	Vdc			3.20 - 3.40	4.85 - 5.15	11.2 - 12.0	
	(iQL48)		1.16 - 1.24	2.42 - 2.58	3.23 - 3.37		11.6 - 12.4	27.2 - 28.8
Line Regulation	(iQL24)	mV			2	4	40	
	(iQL48)		1	1.5	2	3	2	50
Load Regulation	(iQL24)	mV			2	4	70	
	(iQL48)		1	1.5	3	3	5	40
Remote Sense			Yes	Yes	Yes	Yes	Yes [3]	Yes
External Load Capacitance	(iQL24)	uF			488 - 40,000	488 - 25,000	470 - 5,000	
	(iQL48)		488 - 60,000	488 - 40,000			488 - 8,000	480 - 3,300
Ripple & Noise (typ)	(iQL24)	mVpp			27	27	65	
	(iQL48)		30	30	35	40	25	310
Switching Frequency (fixed)	(iQL24)	kHz			125	130	120	
	(iQL48)		110	125	130	125	145	125
Overcurrent Protection (hiccup)	(iQL24)	A			57	44	23	
	(iQL48)		71	69	70	54	31.5	12.5
Over Voltage Protection [2]		Vdc	1.5	3.1	4.1	6.1	14.5	33.2
Over Temperature Protection		-	Auto recovery					
Environmental								
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					

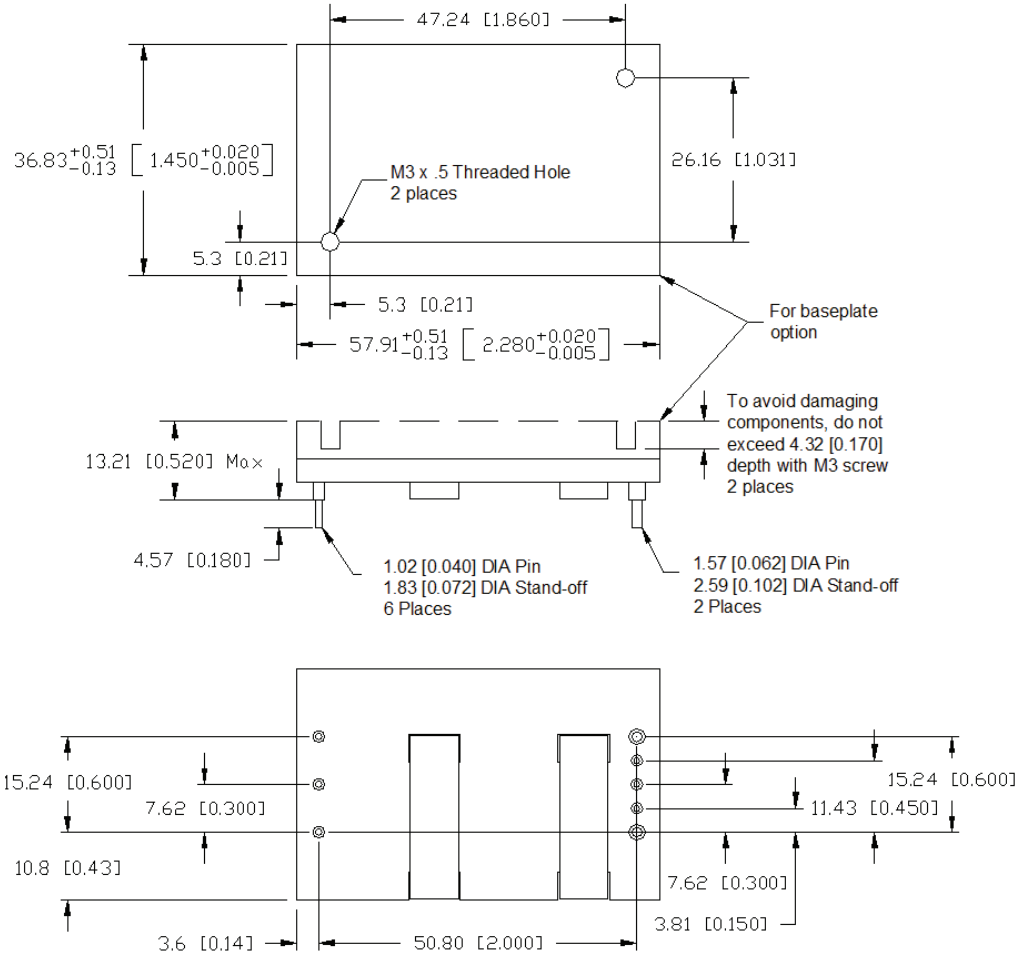
Specifications

Model		1.2V	2.5V	3.3V	5V	12V	28V
Other							
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					

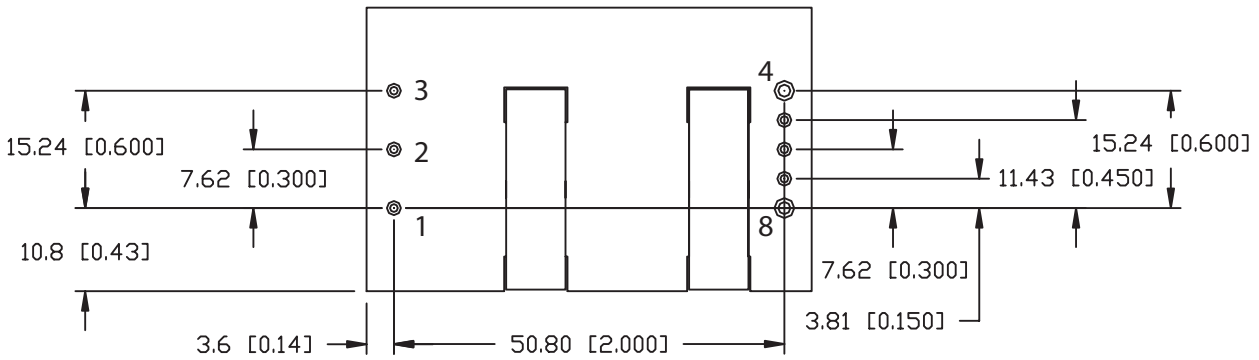
Notes
(1) See website for detailed product specifications.
(2) Default Over Voltage Protection is Latching unless otherwise indicated. Refer to Model Selector Table.
(3) iQL24021A120V has remote sense, iQL48025A120V does not have remote sense.

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.

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