DC to DC Converters
Distributed Power Supplies for Systems, Insulation Type

Quarter Brick Type iQB/iQC Series

Power supply systems for infrastructure devices used in communication networks primarily use brick-type DC to DC converters.
As the voltage used for LSIs continues to drop, power supplies are expected to provide lower output, higher efficiencies, and lower noise levels.
To meet these demands, we have developed quarter brick types that is smaller in size and produce low output voltage.

FEATURES

- Wide input voltage range (DC.36 to 75V or DC.18 to 36V)
- There are 21 models in the lineup of products with low output voltages (1.2 to 5V).
- High efficiency: 90%(3.3V and 5V output)
- Heat sink is not required.
- Remote ON-OFF function
- Output voltage external variable function
- Remote sensing function
- Various protective functions
- Two shapes: SMD and lead pin types
- Low height power supplies (Height: 8.1mm)

PRODUCT IDENTIFICATION

iQB	48	015A	018V	-○○○
(1)	(2)	(3)	(4)	(5)

(1) Type name
Quarter brick type
iQB: Lead pin
iQC: SMD
(2) Rated input voltage
(3) Output current
(4) Output voltage
(5) Option code
iQB type
015: Standard(Negative on/off logic, Pin length: 5.08mm, Overvoltage protection shutdown type)
000: Positive on/off logic, Pin length: 3.68mm, Overvoltage protection automatic recovery type
001: Negative on/off logic, Pin length: 3.68mm, Overvoltage protection automatic recovery type
002: Positive on/off logic, Pin length: 2.79mm, Overvoltage protection automatic recovery type
003: Negative on/off logic, Pin length: 2.79mm, Overvoltage protection automatic recovery type
004: Positive on/off logic, Pin length: 5.08mm, Overvoltage protection automatic recovery type
005: Negative on/off logic, Pin length: 5.08mm, Overvoltage protection automatic recovery type
011: Negative on/off logic, Pin length: 3.68mm, Overvoltage protection shutdown type
iQC type
001: Standard(Negative on/off logic)
000: Positive on/off logic

PART NUMBERS AND RATINGS

Output voltage(V)	Current(A)	Part No.
Lead pin type		
1.2	25	iQB48025A012V
1.5	25	iQB48025A015V
1.8	15	iQB48015A018V
1.8	25	iQB48025A018V
2.5	10	iQB48010A025V
2.5	20	iQB48020A025V
3.3	10	iQB48010A033V
3.3	20	iQB48020A033V
5	8	iQB48008A050V
5	15	iQB48015A050V
Supports 24V input		
3.3	15	iQB24015A033V
SMD type		
1.2	25	iQC48025A012V
1.5	25	iQC48025A015V
1.8	15	iQC48015A018V
1.8	25	iQC48025A018V
2.5	10	iQC48010A025V
2.5	20	iQC48020A025V
3.3	10	iQC48010A033V
3.3	20	iQC48020A033V
5	8	iQC48008A050V
5	15	iQC48015A050V

SPECIFICATIONS AND STANDARDS

Part No.	Lead pin type		iQB48025A012V	iQB48025A015V	iQB48015A018V	iQB48025A018V	iQB48010A025V	iQB48020A025V
	SMD		iQC48025A012V	iQC48025A015V	iQC48015A018V	iQC48025A018V	iQC48010A025V	iQC48020A025V
Rated output voltage and current*1			1.2V • 25A	1.5V • 25A	1.8V • 15A	1.8V • 25A	2.5V • 10A	2.5V • 20A
Maximum output power		W	30	37.5	27	45	25	50
Input conditions								
Input voltage Edc		V	36 to 75[Continuation]/100[Transient 100ms]					
Input current		A	4max.	4max.	4max.	4max.	2max.	4max.
Inrush transient*2		A^2S	0.2max.	0.2max.	0.2max.	0.2max.	0.2max.	0.2max.
Efficiency		%	78typ.	82typ.	85typ.	84typ.	87typ.	86typ.
Output characteristics								
Output voltage Edc		V	1.2	1.5	1.8	1.8	2.5	2.5
Voltage adjustment range		%	–10 to +10	–10 to +10	–10 to +10	–10 to +10	–10 to +10	–10 to +10
Maximum output current		A	25	25	15	25	10	20
Minimum output current		A	2.5	2	1	1.8	0.75	1.5
Output voltage initial setting		%	±1.5max.	±2max.	±1.6max.	±1.6max.	±1.6max.	±1.6max.
Overvoltage protection		V	1.4 to 1.8	1.7 to 2.3	2.15 to 2.58	2.15 to 2.58	2.7 to 3.5	2.7 to 3.5
Overcurrent protection		A	35.0typ.	35.0typ.	22.5typ.	35.0typ.	14.0typ.	26.0typ.
Voltage stability	Line regulation	mV	5max.(2typ.)	5max.(2typ.)	5max.(2typ.)	5max.(2typ.)	5max.(1typ.)	5max.(1typ.)
	Load regulation	mV	7max.(1typ.)	7max.(1typ.)	7max.(1typ.)	7max.(1typ.)	7max.(1typ.)	7max.(1typ.)
	Temperature regulation	mV	50max.(10typ.)	50max.(10typ.)	50max.(10typ.)	50max.(10typ.)	50max.(10typ.)	50max.(10typ.)
	Dynamic response	mV	±220typ.[50 to 75%, sudden load change]					
Ripple noise Ep-p		mV	75max.	100max.	100max.	100max.	100max.	100max.
Start up time		ms	90typ.	90typ.	90typ.	90typ.	90typ.	90typ.
Auxiliary functions								
Overvoltage protection			Yes(Shut-down type: Models capable of automatic output voltage recovery are available as an option.)					
Overcurrent protection			Yes(Automatic recovery)					
Alarm output			No					
Over-temperature protection			Yes(Automatic recovery)					
Remote ON-OFF			Yes					
Remote sensing			Yes					
Parallel operation			Impossible					
Output voltage adjustment			Yes					
Master slave operation			No					
Standards								
Safety standards			UL60950 and VDE0805 approved. EN60950 approved.					
Constructions								
External dimensions		mm	8.1×36.8×57.9[H×W×L]					
Weight		g	39typ.					
Mounting method			Mounted from the terminal side (soldered).					
Oscillating method			Fixed frequency					
Oscillating frequency		kHz	300typ.	300typ.	300typ.	300typ.	300typ.	300typ.

*1 Verify the rated current (maximum output current) because this involves derating.

*2 Applies only to the primary surge. The power supply does not have an input fuse, so make sure to install an external fuse when using this product.

SPECIFICATIONS AND STANDARDS

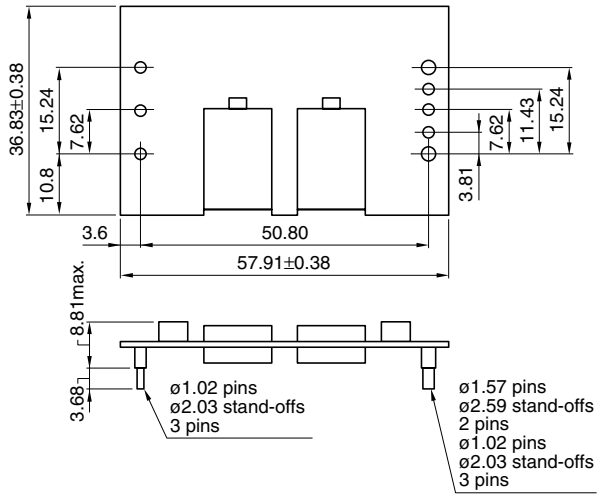
Part No.	Lead pin type		iQB48010A033V	iQB48020A033V	iQB48008A050V	iQB48015A050V	iQB24015A033V
	SMD		iQC48010A033V	iQC48020A033V	iQC48008A050V	iQC48015A050V	
Rated output voltage and current*1			3.3V • 10A	3.3V • 20A	5.0V • 8A	5.0V • 15A	3.3V • 15A
Maximum output power		W	33	66	40	75	49.5
Input conditions							
Input voltage Edc		V	36 to 75[Continuation]/100[Transient 100ms]				18 to 36
Input current		A	2max.	4max.	2max.	4max.	4.25max.
Inrush transient*2		A^2S	0.2max.	0.2max.	0.2max.	0.2max.	0.2max.
Efficiency		%	90typ.	89typ.	90typ.	90typ.	89typ.
Output characteristics							
Output voltage Edc		V	3.3	3.3	5	5	5
Voltage adjustment range		%	–10 to +10	–10 to +10	–10 to +10	–10 to +10	–10 to +10
Maximum output current		A	10	20	8	15	15
Minimum output current		A	0.75	1.5	0.6	1	1
Output voltage initial setting		%	±1.6max.	±1.6max.	±1.6max.	±1.6max.	±1.6max.
Overvoltage protection		V	3.75 to 4.4	3.75 to 4.4	5.7 to 6.7	5.7 to 6.7	3.75 to 4.4
Overcurrent protection		A	15.0typ.	27.0typ.	11.5typ.	23.0typ.	21.0typ.
Voltage stability	Line regulation	mV	5max.(1typ.)	5max.(1typ.)	10max.(2typ.)	10max.(2typ.)	10max.(2typ.)
	Load regulation	mV	7max.(1typ.)	7max.(1typ.)	10max.(1typ.)	10max.(1typ.)	10max.(1typ.)
	Temperature regulation	mV	60max.(15typ.)	60max.(15typ.)	75max.(30typ.)	75max.(30typ.)	75max.(30typ.)
	Dynamic response	mV	±220typ.[50 to 75%, sudden load change]				
Ripple noise Ep-p		mV	100max.	100max.	125max.	125max.	100max.
Start up time		ms	90typ.	90typ.	90typ.	90typ.	90typ.
Auxiliary functions							
Overvoltage protection			Yes(Shut-down type: Models capable of automatic output voltage recovery are available as an option.)				
Overcurrent protection			Yes(Automatic recovery)				
Alarm output			No				
Over-temperature protection			Yes(Automatic recovery)				
Remote ON-OFF			Yes				
Remote sensing			Yes				
Parallel operation			Impossible				
Output voltage adjustment			Yes				
Master slave operation			No				
Standards							
Safety standards			UL60950 and VDE0805 approved. EN60950 approved.				
Constructions							
External dimensions		mm	8.1×36.8×57.9[H×W×L]				
Weight		g	39typ.				
Mounting method			Mounted from the terminal side (soldered).				
Oscillating method			Fixed frequency				
Oscillating frequency		kHz	300typ.	300typ.	300typ.	300typ.	300typ.

*1 Verify the rated current (maximum output current) because this involves derating.
*2 Applies only to the primary surge. The power supply does not have an input fuse, so make sure to install an external fuse when using this product.

IQB TYPE

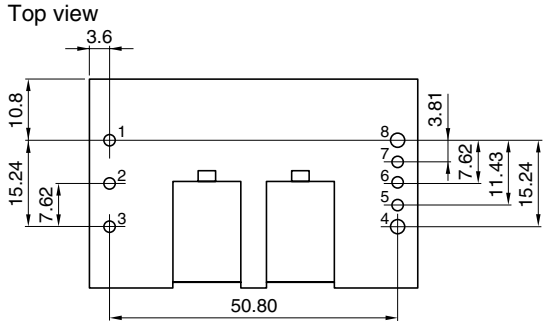
SHAPES AND DIMENSIONS

Bottom view



TERMINAL DESIGNATIONS AND FUNCTIONS

Top view



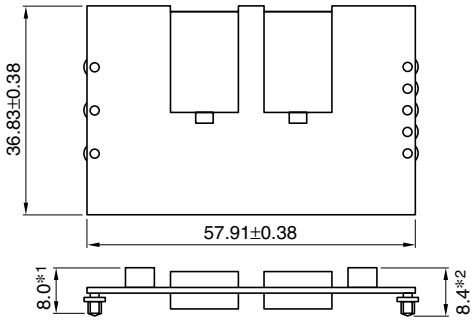
Dimensions in mm

1	+Vin	DC input terminal (+)
2	On/Off	The output can be turned on/off externally.
3	–Vin	DC input terminal (–)
4	–Vout	DC output terminal (–)
5	–Sense	Remote sensing terminal (–)
6	Trim	The output voltage can be varied by an external resistor.
7	+Sense	Remote sensing terminal (+)
8	+Vout	DC output terminal (+)

IQC TYPE

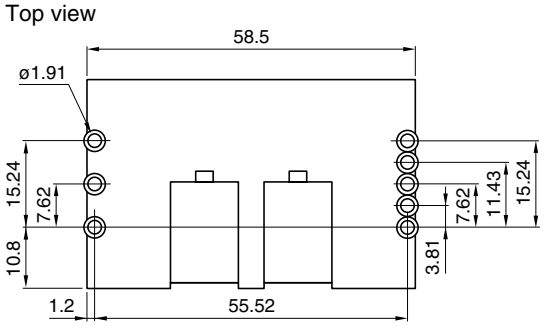
SHAPES AND DIMENSIONS

Bottom view



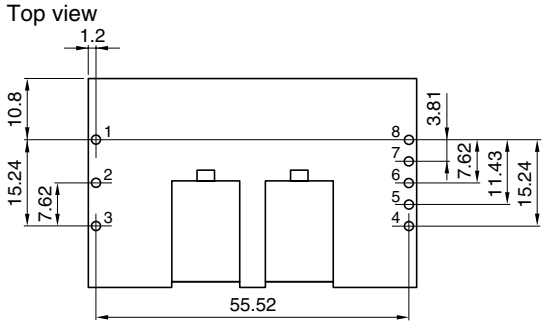
*1 Overall height after customer's reflow
*2 Overall height before customer's reflow

Top view



TERMINAL DESIGNATIONS AND FUNCTIONS

Top view



Dimensions in mm

1	+Vin	DC input terminal (+)
2	On/Off	The output can be turned on/off externally.
3	–Vin	DC input terminal (–)
4	–Vout	DC output terminal (–)
5	–Sense	Remote sensing terminal (–)
6	Trim	The output voltage can be varied by an external resistor.
7	+Sense	Remote sensing terminal (+)
8	+Vout	DC output terminal (+)

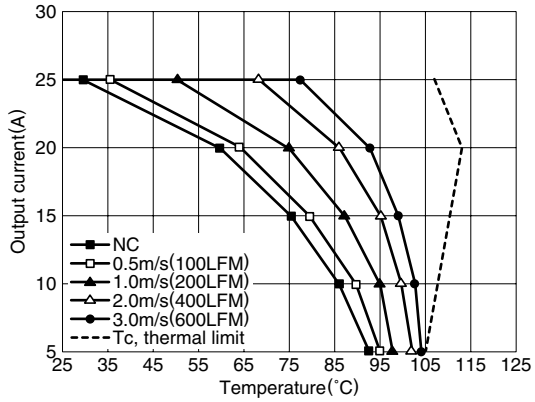
OUTPUT POWER-AMBIENT TEMPERATURE (DERATING)

MAXIMUM OUTPUT CURRENT vs. AMBIENT TEMPERATURE(Ta)

iQB48025A012V/iQC48025A012V

Wind direction: Worst orientaion, Vin=48V

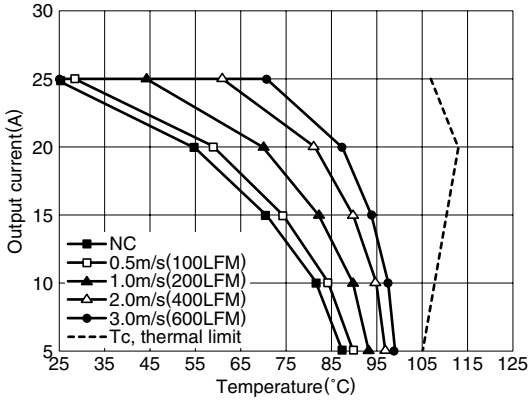
(From 1 pin to 3 pin)



iQB48025A015V/iQC48025A015V

Wind direction: Worst orientaion, Vin=48V

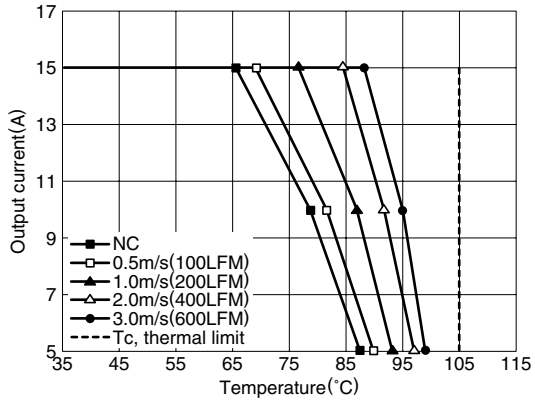
(From 1 pin to 3 pin)



iQB48015A018V/iQC48015A018V

Wind direction: Worst orientaion, Vin=48V

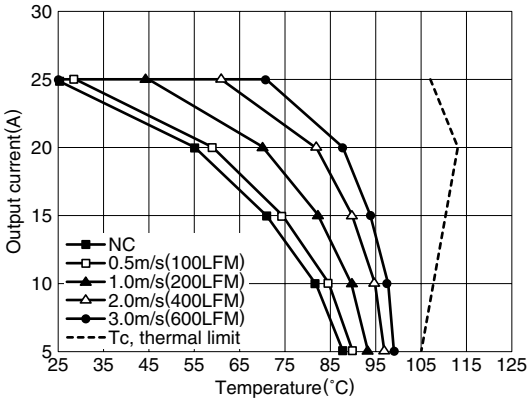
(From 1 pin to 3 pin)



iQB48025A018V/iQC48025A018V

Wind direction: Worst orientaion, Vin=48V

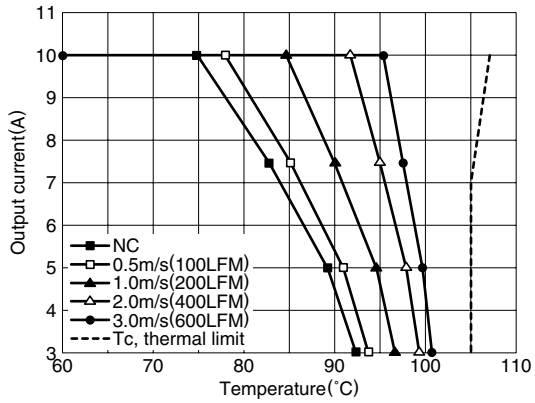
(From 1 pin to 3 pin)



iQB48010A025V/iQC48010A025V

Wind direction: Worst orientaion, Vin=48V

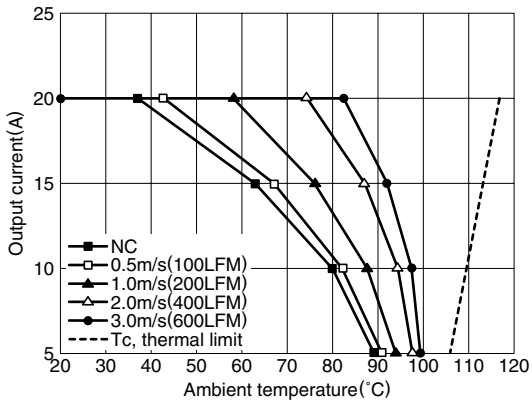
(From 1 pin to 3 pin)



iQB48020A025V/iQC48020A025V

Wind direction: Worst orientaion, Vin=48V

(From output to input)



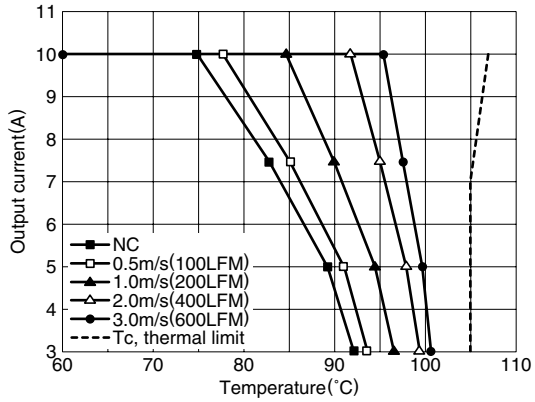
OUTPUT POWER-AMBIENT TEMPERATURE (DERATING)

MAXIMUM OUTPUT CURRENT vs. AMBIENT TEMPERATURE(Ta)

iQB48010A033V/iQC48010A033V

Wind direction: Worst orientaion, Vin=48V

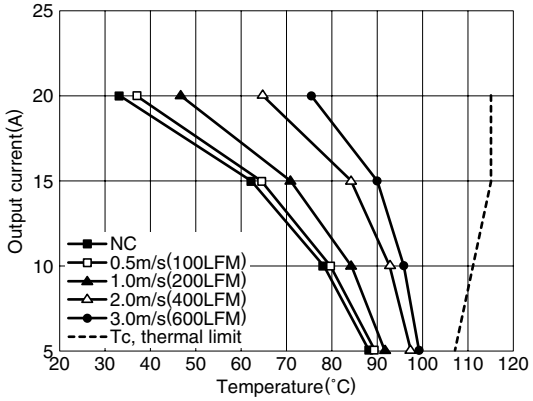
(From 1 pin to 3 pin)



iQB48020A033V/iQC48020A033V

Wind direction: Worst orientaion, Vin=48V

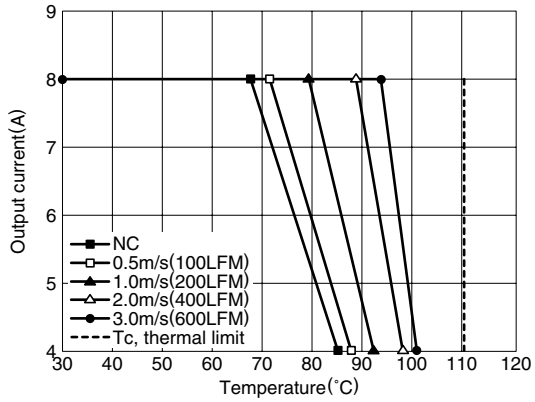
(From output to input)



iQB48008A050V/iQC48008A050V

Wind direction: Best orientaion, Vin=48V

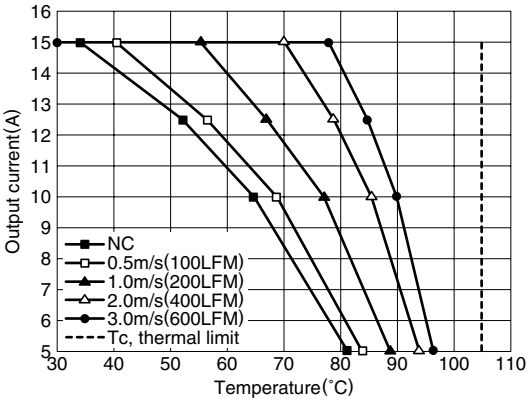
(From 3 pin to 1 pin)



iQB48015A050V/iQC48015A050V

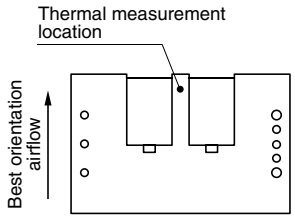
Wind direction: Worst orientaion, Vin=48V

(From 1 pin to 3 pin)



Tc TEMPERATURE MEASUREMENT POINT AND WIND DIRECTION

NC: Natural cooling=0.3m/s(60LFM)



COMMON SPECIFICATIONS

Temperature and humidity		
Temperature range	Operating(°C)	–40 to +120[Temperature at the measurement point in the above drawing]
	Storage(°C)	–55 to +125[Ambient temperature of the power supply]
Humidity range	Operating(%)RH	10 to 85[Without dewing]
	Storage(%)RH	
Vibration and shock		
Vibration	5 to 10Hz	Acceleration: 0.5G
	10 to 200Hz	Acceleration: 1.5G
Shock	Acceleration	50G[Half sine wave, 3 directions]
	Pulse duration	6ms
Withstand voltage		
Withstand voltage	Input terminal to output terminal	DC.1.5kV[1min, Normal temperature, normal humidity, cutout current 10mA]