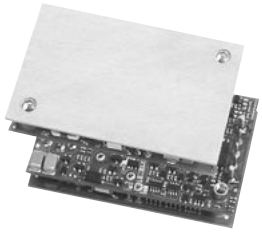
DC to DC Converters
Distributed Power Supplies for Systems, Insulation Type

Quarter Brick Type iQM Series

Power supply systems for infrastructure devices used in communication networks primarily use brick-type DC to DC converters. Some parts of these devices require low voltage and power. We have developed a lineup of compact quarter brick types that meet these requirements.



FEATURES

- Wide input voltage range (DC.36 to 75V)
- These quarter brick products support large currents of 50A and 60A.
- High efficiency: 90.5%(3.3V output)
- Heat sink is not required.
- Remote ON-OFF function
- Output voltage external variable function
- Remote sensing function
- Parallel operation
- Various protective functions

PRODUCT IDENTIFICATION

iQM	48	060A	015V	-○○○
(1)	(2)	(3)	(4)	(5)

(1) Type name
iQM: Quarter brick type
(2) Rated input voltage
(3) Output current
(4) Output voltage
(5) Option code
005: Standard (Negative on/off logic, Pin length: 5.08mm)
000: Positive on/off logic, Pin length: 3.68mm
001: Negative on/off logic, Pin length: 3.68mm
002: Positive on/off logic, Pin length: 2.79mm
003: Negative on/off logic, Pin length: 2.79mm
004: Positive on/off logic, Pin length: 5.08mm

PART NUMBERS AND RATINGS

Output voltage(V)	Current(A)	Part No.
1.2	60	iQM48060A012V
1.5	60	iQM48060A015V
1.8	60	iQM48060A018V
2.5	40	iQM48040A025V
2.5	50	iQM48050A025V
2.5	60	iQM48060A025V
3.3	35	iQM48035A033V
3.3	50	iQM48050A033V
5.0	33	iQM48033A050V
12	17	iQM48017A120V

SPECIFICATIONS AND STANDARDS

Part No.			iQM48060A012V	iQM48060A015V	iQM48060A018V	iQM48040A025V	iQM48050A025V
Rated output voltage and current*1			1.2V • 60A	1.5V • 60A	1.8V • 60A	2.5V • 40A	2.5V • 50A
Maximum output power		W	72	90	108	100	125
Input conditions							
Input voltage Edc		V	36 to 75 [Continuation]	36 to 75 [Continuation]	37 to 75 [Continuation]	36 to 75 [Continuation]	36 to 75[Continuation]
Transient input voltage		V	100[100ms]	100[100ms]	100[100ms]	100[100ms]	100[100ms]
Input current		A	2.8max.	3.4max.	4max.	3.5max.	4.4max.
Inrush transient current*2		A^2S	0.02max.	0.02max.	0.02max.	0.02max.	0.02max.
Efficiency		%	81typ.	83.5typ.	85.5typ.	89.5typ.	88.5typ.
Output characteristics							
Output voltage Edc		V	1.2	1.5	1.8	2.5	2.5
Voltage adjustment range		%	–20 to +10	–20 to +10	–20 to +10	–20 to +10	–20 to +10
Maximum output current		A	60	60	60	40	50
Minimum output current		A	6	6	6	4	5
Output voltage initial setting		%	±2max.	±2max.	±1.8max.	±1.8max.	±1.8max.
Overvoltage protection		V	1.49typ.	1.85typ.	2.16 to 2.40	3.1typ.	3.2typ.
Overcurrent protection		A	68typ.	66typ.	66typ.	47typ.	56typ.
Voltage stability	Line regulation	mV	3max.(1typ.)	5max.(1typ.)	5max.(1typ.)	5max.(1typ.)	5max.(1typ.)
	Load regulation	mV	5max.(1typ.)	7max.(1typ.)	6max.(1typ.)	5max.(1typ.)	5max.(1typ.)
	Temperature regulation	mV	20max.(2typ.)	50max.(2typ.)	50max.(10typ.)	50max.(10typ.)	50max.(20typ.)
	Dynamic response*3	mV	±100typ.	±80typ.	±80typ.	±50typ.	±100typ.
Ripple noise Ep-p		mV	80max.	80max.	90max.	50max.	100max.
Start up time*4		ms	10	24.5	24	10	25
Rise time*5		ms	3	13.5	13	18	14
Auxiliary functions							
Overvoltage protection			Yes(Shut-down type)				
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	12.7×36.8×57.9[H×W×L]				
Weight		g	250max.				
Mounting method			Mounted from the terminal side (soldered).				
Oscillating method			Fixed frequency				
Oscillating frequency		kHz	140	140	140	155	155

*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.
*3 Load step from 50 to 75% of Io max. with at least one 1μF and 47μF ceramic capacitors across the output terminals.
*4 Time to reaching to 90% by output voltage after input applies (t: Vin=0 to Vout=0.9Vo, nom. Tc=25°C, Io=Io, max.)
*5 Time to reaching to 10 to 90% by output voltage (t: Co=0.1 to 0.9 Vo, nom.)

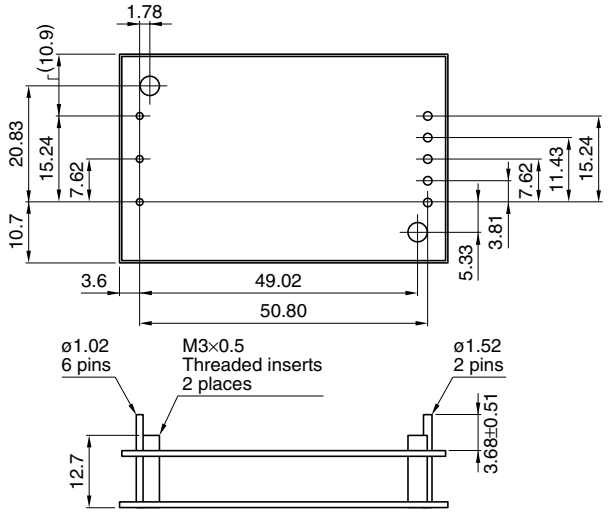
SPECIFICATIONS AND STANDARDS

Part No.			iQM48060A025V	iQM48035A033V	iQM48050A033V	iQM48033A050V	iQM48017A120V
Rated output voltage and current*1			2.5V • 60A	3.3V • 35A	3.3V • 50A	5.0V • 33A	12V • 17A
Maximum output power		W	150	115.5	165	165	204
Input conditions							
Input voltage Edc		V	36 to 75 [Continuation]	36 to 75 [Continuation]	36 to 75 [Continuation]	36 to 75 [Continuation]	36 to 75 [Continuation]
Transient input voltage		V	100[100ms]	100[100ms]	100[100ms]	100[100ms]	100[100ms]
Input current		A	5.5max	3.9max.	5.7max.	5.8max.	7max.
Inrush transient current*2		A^2S	0.02max.	0.02max.	0.02max.	0.02max.	0.02max.
Efficiency		%	87.5typ.	91.5typ.	90.5typ.	91.0typ.	90.5typ.
Output characteristics							
Output voltage Edc		V	2.5	3.3	3.3	5.0	12
Voltage adjustment range		%	–20 to +10	–20 to +10	–20 to +10	–20 to +10	–20 to +10
Maximum output current		A	50	50	50	33	17
Minimum output current		A	5	5	5	3.3	3
Output voltage initial setting		%	±1.8max.	±1.8max.	±1.8max.	±2.4max.	±2.5max.
Overvoltage protection		V	3.1typ.	3.8 to 4.4	3.8 to 4.4	5.8 to 6.5	13.8 to 15.2
Overcurrent protection		A	57typ.	57typ.	57typ.	36.5typ.	18typ.
Voltage stability	Line regulation	mV	5max.(1typ.)	6.6max.(1typ.)	6.6max.(1typ.)	8max.(1typ.)	24max.(3typ.)
	Load regulation	mV	5max.(1typ.)	6.6max.(1typ.)	6.6max.(1typ.)	10max.(2typ.)	24max.(3yp.)
	Temperature regulation	mV	50max.(10typ.)	60max.(20typ.)	60max.(20typ.)	60max.(15typ.)	100max.(25typ.)
	Dynamic response*3	mV	±85typ.	±100typ.	±100typ.	±150max.	±300max.
Ripple noise Ep-p		mV	50max.	100max.	100max.	100max.	100max.
Start up time*4		ms	10	29	29	30	70
Rise time*5		ms	18	18	18	18	60
Auxiliary functions							
Overvoltage protection			Yes(Shut-down type)				
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	12.7×36.8×57.9[H×W×L]				
Weight		g	250max.				
Mounting method			Mounted from the terminal side (soldered).				
Oscillating method			Fixed frequency				
Oscillating frequency		kHz	155	155	155	155	100

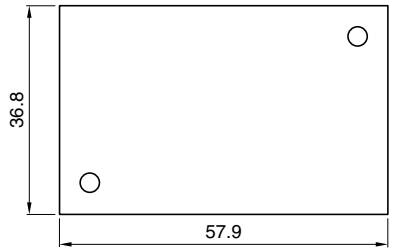
*1 Verify the rated current (maximum output current) because this involves derating.
*2 Applies only to the primary surge. The power supply does not have an input fuse, so make sure to install an external fuse when using this product.
*3 Load step from 50 to 75% of Io max. with at least one 1µF and 47µF ceramic capacitors across the output terminals.
*4 Time to reaching to 90% by output voltage after input applies (t: Vin=0 to Vout=0.9Vo, nom. Tc=25°C, Io=Io, max.)
*5 Time to reaching to 10 to 90% by output voltage (t: Co=0.1 to 0.9 Vo, nom.)

SHAPES AND DIMENSIONS

Bottom view

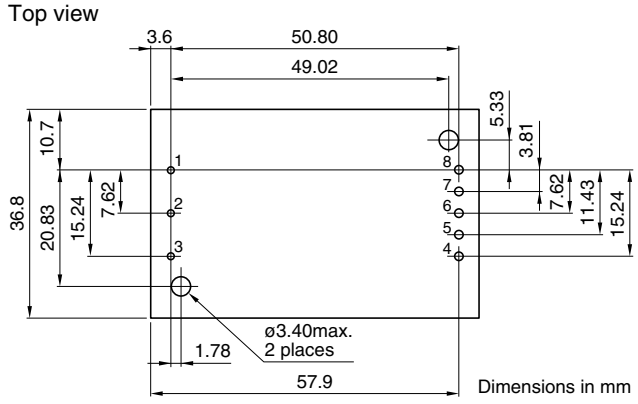


Top view



TERMINAL DESIGNATIONS AND FUNCTIONS

Top view



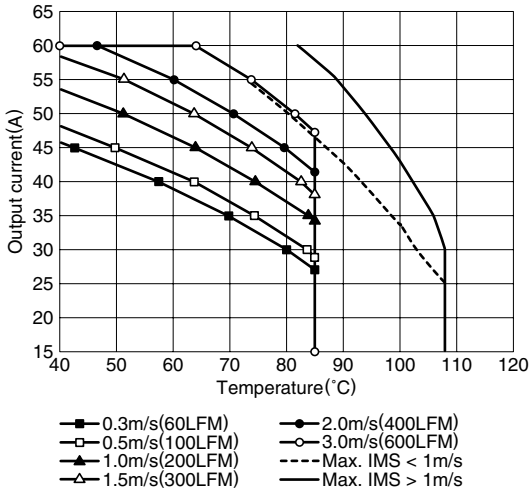
1	+Vin	DC input terminal (+)
2	On/Off	The output can be turned on/off externally.
3	–Vin	DC input terminal (–)
4	–Vout	DC output terminal (–)
5	–Sense	Remote sensing terminal (–)
6	Trim	The output voltage can be varied by an external resistor.
7	+Sense	Remote sensing terminal (+)
8	+Vout	DC output terminal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

OUTPUT POWER-AMBIENT TEMPERATURE (DERATING)

MAXIMUM OUTPUT CURRENT vs. AMBIENT TEMPERATURE(Ta)

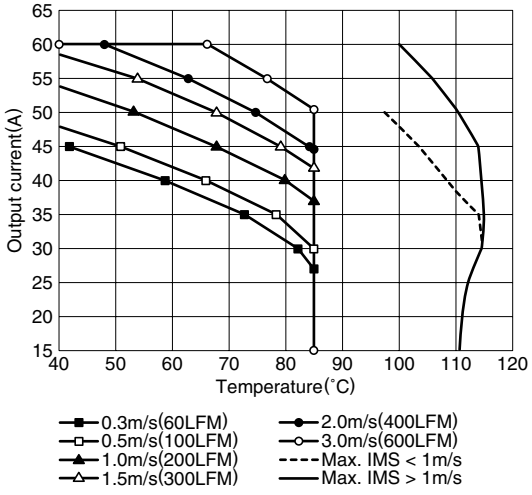
iQM48060A012V

Wind direction: Best orientaion, Vin=48V



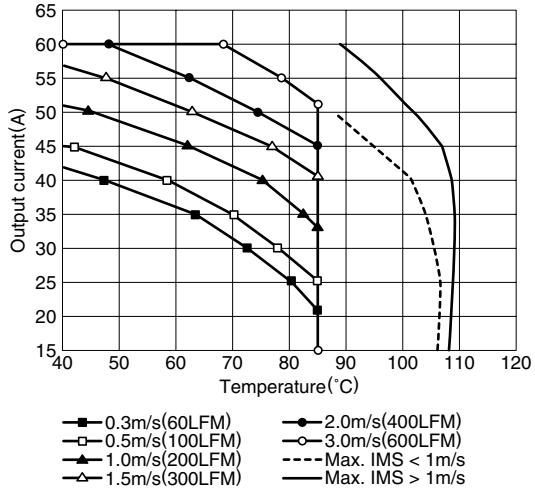
iQM48060A015V

Wind direction: Best orientaion, Vin=48V



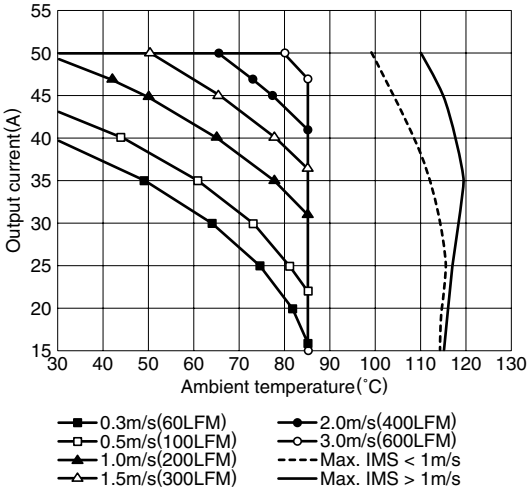
iQM48060A018V

Wind direction: Best orientaion, Vin=48V



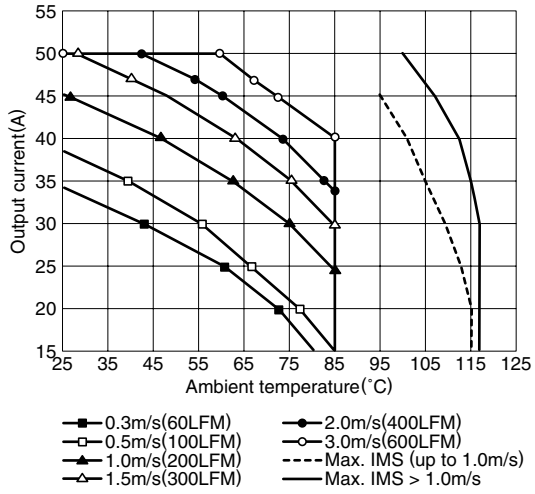
iQM48050A025V

Wind direction: Best orientaion, Vin=48V



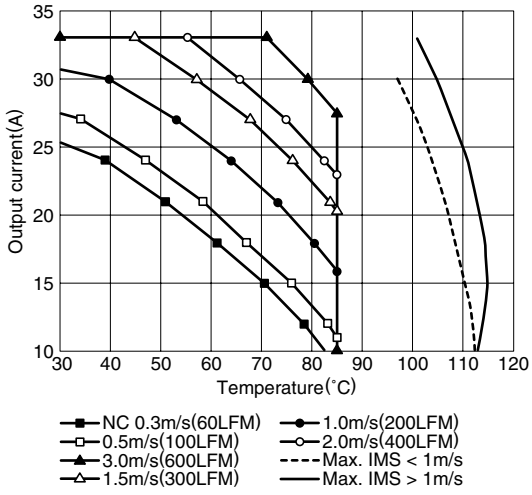
iQM48050A033V

Wind direction: Best orientaion, Vin=48V



iQM48033A050V

Wind direction: Best orientaion, Vin=48V

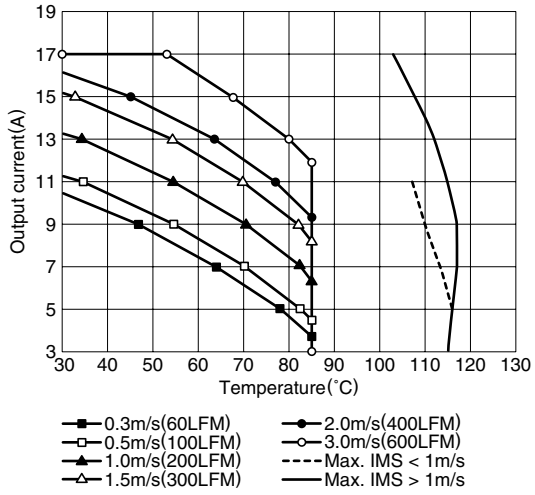


OUTPUT POWER-AMBIENT TEMPERATURE (DERATING)

MAXIMUM OUTPUT CURRENT vs. AMBIENT TEMPERATURE(Ta)

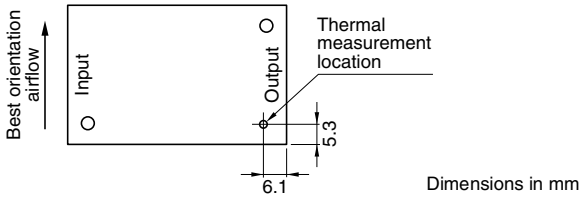
iQM48017A120V

Wind direction: Best orientaion, Vin=48V



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 +117 [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 50Hz	Acceleration: 0.5G
	50 to 500Hz	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 2mA]