AQC100 Series

100 W Switching Power Module for PCB Mounting

CoolPower Solutions

KEY FEATURES



- Switching Power Module for PCB Mountable
- High Efficiency up to 93% Typical
- Active PFC Function, >0.95 (230Vac), >0.99 (115Vac)
- Universal Input: 90-264 VAC
- Low Leakage Current, <250uA
- Four M3 Mounting Holes Optional on Bottom Side
- Remote ON/OFF Control
- Screw Terminal For Optional
- EN55022 Class B Meets
- Class I and Class II Construction
- Continuous Short Circuit Protection with Hiccup Mode and Auto Recover
- 3-Years Product Warranty

ELECTRICAL SPECIFICATIONS

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No.		AQC100-12S	AQC100-15S	AQC100-24S	AQC100-48S
Max Output Wattage (W)		85 W	85W	100W	100W
Input	Voltage	90-264 VAC or 120-370 VDC			
	Frequency (Hz)	47-63 Hz			
	Current (Full load)	<2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)			
	Inrush Current (<2ms)	< 30 A max. (115 VAC) / < 60 A max. (230 VAC)			
	Leakage Current	< 0.5 mA max.			
	Power Factor	PF>0.99 (115 VAC) / PF>0.95 (230 VAC) at Full Load			
Output	Voltage (V.DC.)	12V	15V	24V	48V
	Voltage Accuracy	±2%			
	Current (A) max	7.08	5.66	4.2	2.1
	Line Regulation (LL-HL) (typ.)	±1%			
	Load Regulation (5-100%) (typ.)	±1%			
	Minimum Load	3%			
	Maximum Capacitive Load	50,000μF	40,000μF	6,000μF	560μF
	Ripple & Noise max.	120mV	150mV	200mV	240mV
	Efficiency (typ.)	90%	90%	92%	93%
	Hold-up Time	10 ms (110 VAC) min.			
	Switching Frequency	100~133 kHz			
Protection	Over Power Protection	Auto recovery, 105 ~ 180% rated output power			
	Over Voltage Protection	Zener diode clamp			
	Short Circuit Protection	Auto recovery, Hiccup mode			
Isolation	Input-Output (V.AC)	3000V			
	Input-FG (V.AC)	1500V			
	Output-FG (V.AC)	500V			
Environment	Operating Temperature	-25°C…+70°C (with derating)			
	Storage Temperature	-25°C…+85°C			
	Temperature Coefficient	±0.03%/°C (0~50°C)			
	Humidity	95% RH			
	MTBF	>250,000 h @ 25°C (MIL-HDBK-217F, Notice 1)			
	Vibration	10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.			
Physical	Dimension (L x W x H)	4.3 x 2.3 x 1.18 Inches (109.0 x 58.5 x 30.0 mm) Tolerance ±0.1 mm			
	Weight	310 g			
	Cooling Method	Free convection			
Safety	Agency Approvals	CE, UL60950-1, CB			
EMC	EMI (Conducted & Radiated Emission)	EN61000-6-3、EN 55022 class B (Conductive plane to be connected to safety earth)			
	EMS (Noise Immunity)	EN 55024、EN61000-4-2,3,4,5,6,8,11			
	Surge	2KV L-N, 4KV L N-FG			

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AQC100 Series

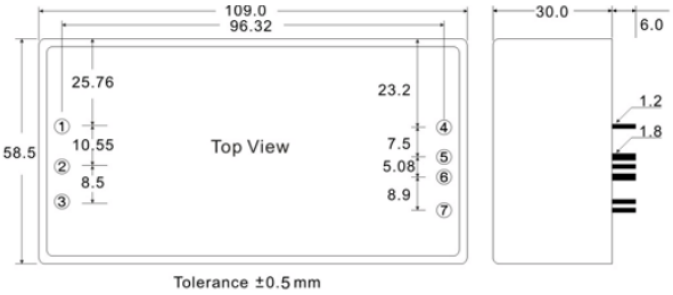
100 W Switching Power Module for PCB Mounting

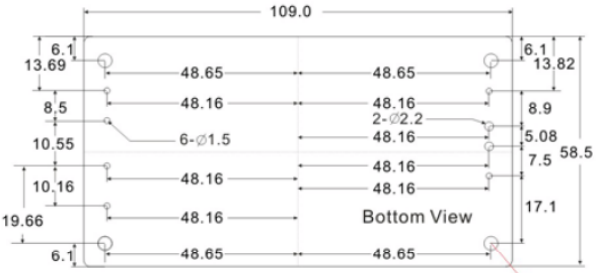
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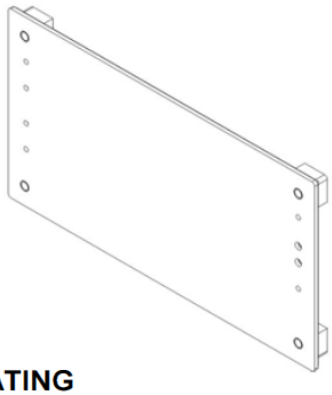
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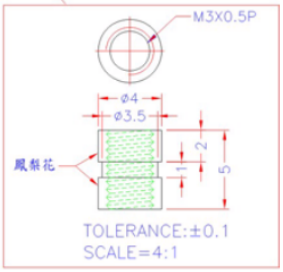
1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. Hold-up Time measured at 90% Vout.
3. It's necessary Varistor 14S471K at L / N input side in parallel.
4. It's necessary 10R / 15φ thermistor at L input side in series connection.
5. The minimum load increases by 0.16% for every drop of one degree of temperature(at input=90~219Vac)

MECHANICAL DIMENSION (Top View)









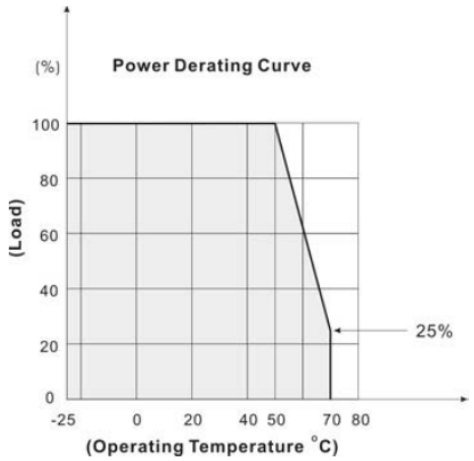
PIN#	Φ	SINGLE
1	1.2±0.1%mm	AC IN (N)
2	1.2±0.1%mm	AC IN (L)
3	1.2±0.1%mm	FG
4	1.2±0.1%mm	ON / OFF (Provide +5Vdc Controlled)
5	1.8±0.1%mm	+DC OUT
6	1.8±0.1%mm	-DC OUT
7	1.2±0.1%mm	Trim

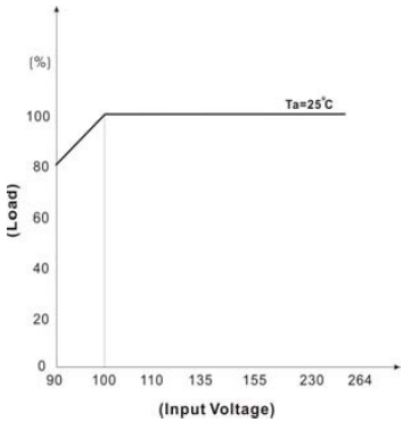
Remark:

Please reserve the pin 4 hole on PCB.

If the remote on/off function is not required, please connect the pin 4 circuit layout with pin6, or keep pin 4 floating.

DERATING





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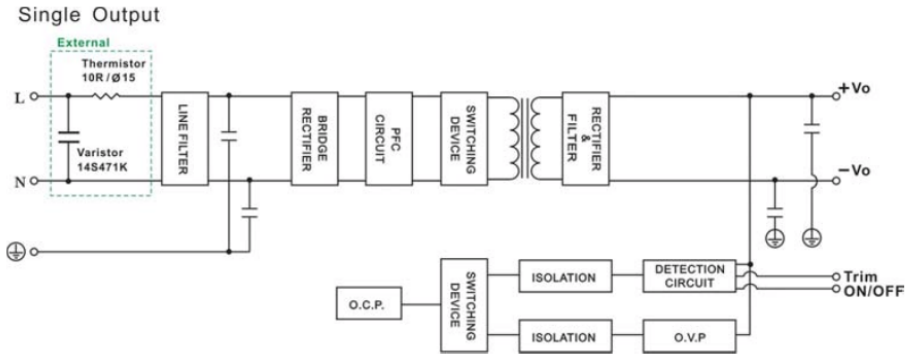
AQC100 Series

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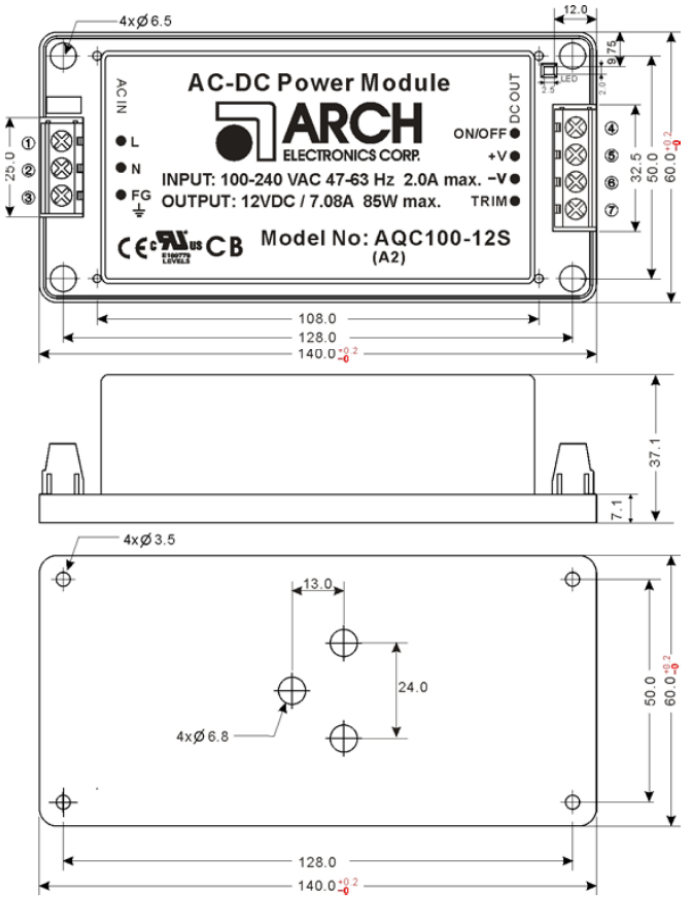
BLOCK DIAGRAM

	12S			15S			24S			48S		
Trim → -V	+5% 85KΩ	~	0% 1.5M	+5% 95KΩ	~	0% 1.7M	+5% 90KΩ	~	0% 4M	+5% 85KΩ	~	0% 15M
Trim → +V	0% 1.5M	~	-5% 220KΩ	0% 1.7M	~	-5% 300KΩ	0% 4M	~	-5% 600KΩ	0% 15M	~	-5% 1.5MΩ



SCREW TERMINAL

AQC100-A2





PIN#	Single
1	AC IN (L)
2	AC IN (N)
3.	FG ⏚
4	ON/OFF
5	+DC OUT
6	-DC OUT
7	Trim

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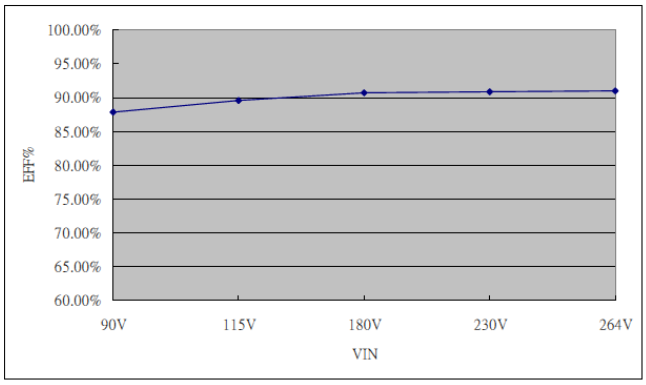
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EFFICIENCY VERSUS LOAD

AQC100-12S

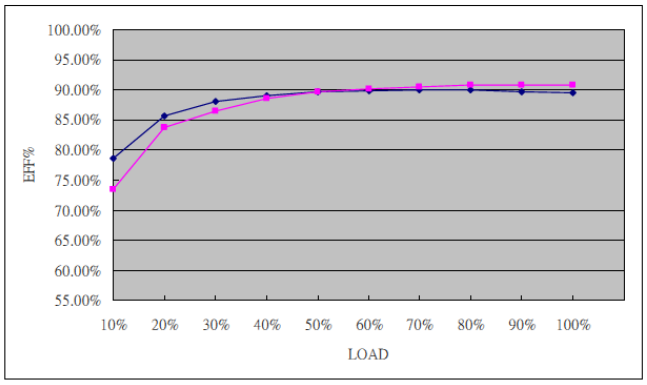
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	87.87	89.51	90.67	90.88	90.96



LOAD VS Efficiency

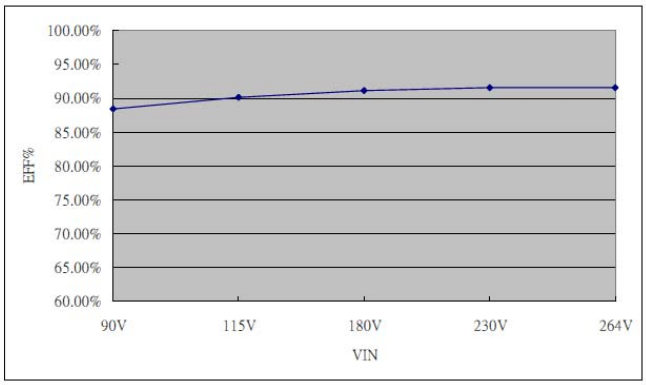
Load (%)	10	20	30	40	50
115V (%)	78.62	85.67	88.07	89.14	89.76
230V (%)	73.49	83.84	86.57	88.55	89.76
Load (%)	60	70	80	90	100
115V (%)	89.95	90.00	90.02	89.77	89.51
230V (%)	90.22	90.58	90.83	90.85	90.88



AQC100-15S

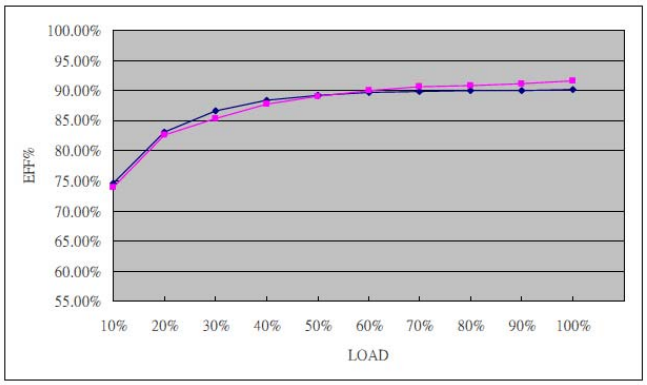
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	88.41	90.17	91.11	91.59	91.53



LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	74.53	83.09	86.59	88.41	89.20
230V (%)	73.94	82.70	85.31	87.77	89.14
Load (%)	60	70	80	90	100
115V (%)	89.70	89.93	89.99	90.11	90.17
230V (%)	89.97	90.63	90.91	91.15	91.59



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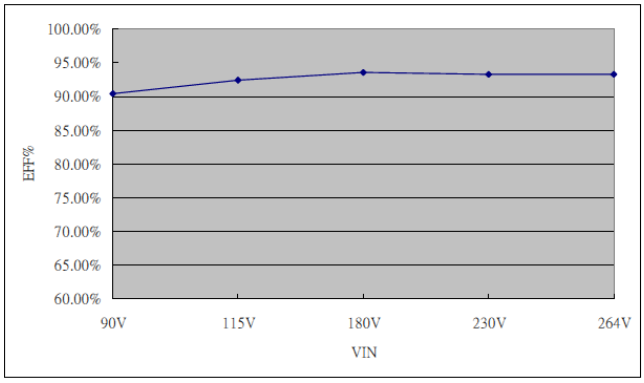
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EFFICIENCY VERSUS LOAD

AQC100-24S

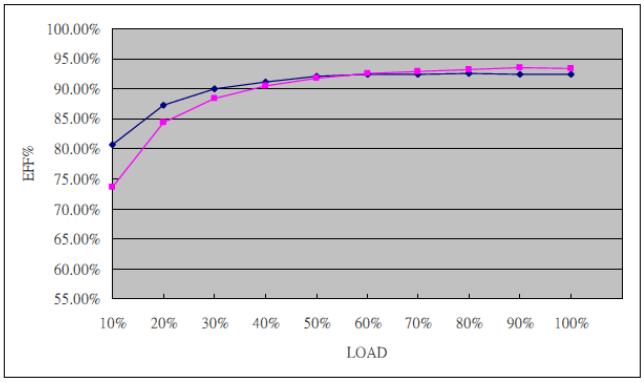
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	90.45	92.45	93.62	93.35	93.26



LOAD VS Efficiency

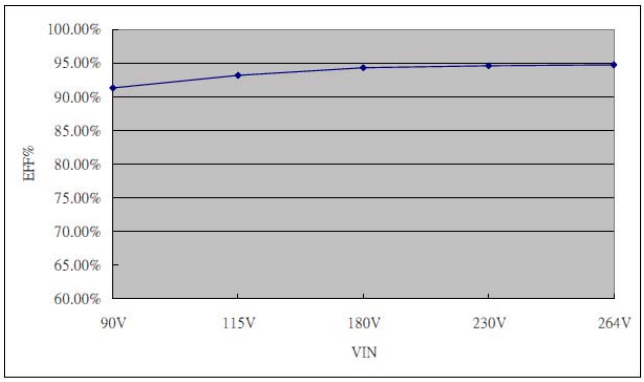
Load (%)	10	20	30	40	50
115V (%)	80.71	87.31	90.00	91.22	92.10
230V (%)	73.64	84.39	88.42	90.56	91.76
Load (%)	60	70	80	90	100
115V (%)	92.41	92.51	92.53	92.47	92.45
230V (%)	92.54	92.97	93.28	93.52	93.35



AQC100-48S

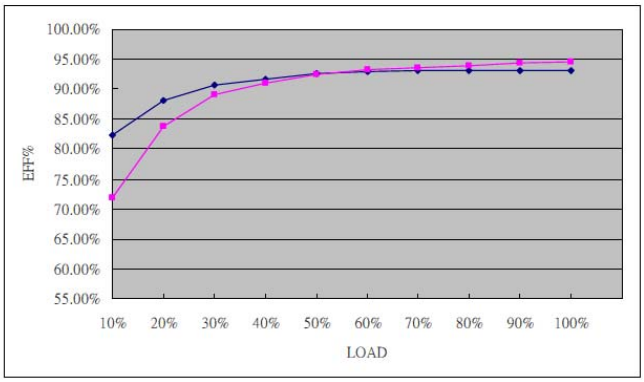
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	91.22	93.13	94.24	94.59	94.66



LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	82.39	88.10	90.73	91.67	92.58
230V (%)	71.87	83.73	89.12	91.05	92.41
Load (%)	60	70	80	90	100
115V (%)	92.92	93.02	93.11	93.16%	93.13
230V (%)	93.18	93.63	93.95	94.32	94.59



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