



- .LOW COST, HIGH RELIABILITY
- .105°C OUTPUT CAPACITOR
- .INTERNATIONAL AC INPUT RANGE
- .HIGH EFFICIENCY, LOW WORKING TEMPERATURE
- .SOFT-START CIRCUIT, LIMITING AC SURGE CURRENT
- .SHORT CIRCUIT, OVERLOAD, OVER VOLTAGE PROTECTED
- .COMPACT SIZE, LIGHT WEIGHT
- .100% FULL LOAD BURN-IN TEST
- .BUILT IN EMI FILTER, LOW RIPPLE NOISE



MODEL	VQ-120B				VQ-120C				VQ-120D			
	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
DC OUTPUT VOLTAGE	5V	12V	-5V	-12V	5V	15V	-5V	-15V	5V	12V	24V	-12V
OUTPUT V. TOLERANCE	±2%	±6%	±6%	±6%	±2%	+10,-5%	±6%	+10,-5%	±2%	±6%	±6%	±6%
OUTPUT RATED CURRENT	11A	4A	1A	1A	10A	3.5A	1A	1A	8A	2A	2A	1A
OUTPUT CURRENT RANGE	2-12A	0.5-5A	0.2-1A	0.2-1A	2-12A	0.5-5A	0.2-1A	0.2-1A	2-12A	0.2-5A	0.2-2A	0.2-1A
RIPPLE & NOISE (p-p)	80mV	120mV	80mV	120mV	80mV	150mV	80mV	150mV	80mV	120mV	180mV	120mV
LINE REGULATION	±0.5%	±1%	±1%	±1%	±0.5%	±1%	±1%	±1%	±0.5%	±1%	±1%	±1%
LOAD REGULATION	±0.5%	±5%	±5%	±5%	±0.5%	±6%	±5%	±6%	±0.5%	±5%	±5%	±5%
DC OUTPUT POWER	120W				122.5W				124W			
EFFICIENCY	77%				76%				80%			
DC VOLTAGE ADJ.	CH1:+10,-5%				CH1:+10,-5%				CH1:+10,-5%			
INPUT VOLTAGE RANGE	88~132VAC / 176~264VAC SELECTED BY SWITCH 47~63Hz; 240~370VDC											
AC CURRENT	2.5A/115V 1.25A/230V											
INRUSH CURRENT	COLD START 35A											
LEAKAGE CURRENT	<3.5mA/240VAC											
OVERLOAD PROTECTION	105%~135% TYPE:OUTPUT SHUTDOWN RESET:RECYCLE AC ON / OFF											
OVER VOLTAGE PROTECTION	CH1:5.75~6.75V											
OVER TEMP. PROTECTION	-----											
TEMP. COEFFICIENT	±0.03% / °C (0~50°C)											
SETUP, RISE, HOLD UP TIME	200ms, 50ms, 20ms											
VIBRATION	10~500Hz, 2G 10min./1cycle, PERIOD FOR 60min. EACH AXES											
WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC											
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:500VDC / 100M Ohms											
WORKING TEMP., HUMIDITY	-10°C~+60°C(REFER TO OUTPUT DERATING CURVE), 20%~90% RH											
STORAGE TEMP., HUMIDITY	-20°C~+85°C, 10%~95% RH											
DIMENSION	199*110*50mm CASE:906											
WEIGHT	0.88Kgs											
SAFETY STANDARDS	UL1950, TUV EN60950 APPROVED											
EMC STANDARDS	CISPR22 (EN55022) CLASS B, IEC801-2,3,4, IEC555-2 VERIFICATION											

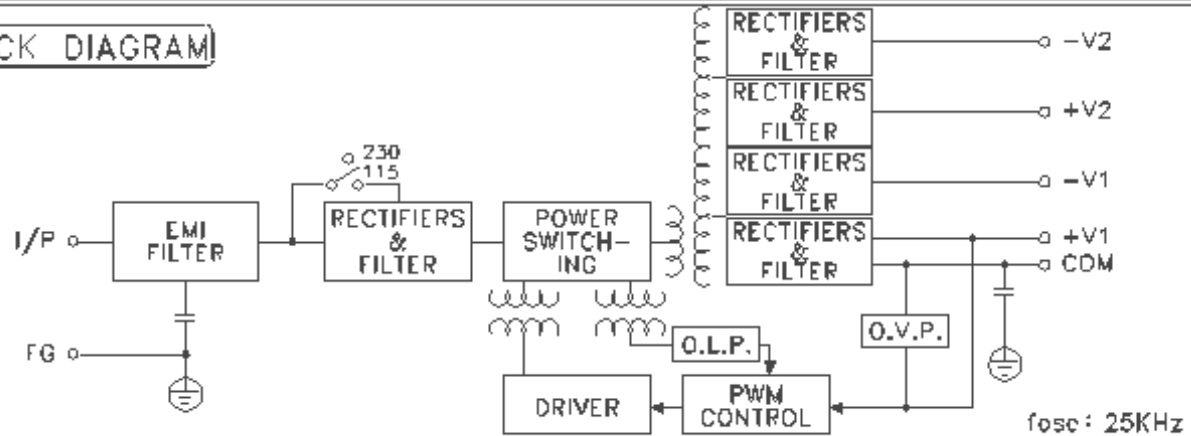
NOTE :

- 1.ALL PARAMETERS ARE SPECIFIED AT 230VAC INPUT, RATED LOAD, 25°C 70% RH. AMBIENT.
- 2.TOLERANCE: INCLUDE SET UP TOLERANCE, LINE REGULATION, LOAD REGULATION.
- 3.RIPPLE & NOISE ARE MEASURED AT 20MHz BY USING A 12" TWISTED PAIR TERMINATED WITH A 0.1uF & 47uF CAPACITOR.
- 4.LINE REGULATION IS MEASURED FROM LOW LINE TO HIGH LINE AT RATED LOAD.
- 5.LOAD REGULATION IS MEASURED FROM 20% TO 100% RATED LOAD, AND OTHER OUTPUT AT 60% RATED LOAD.
- 6.EACH OUTPUT PROVIDE UP TO MAXIMUM CURRENT, BUT TOTAL LOAD CAN NOT EXCEED MAX. OUTPUT POWER.
- 7.C2,3,11 MUST BE REMOVED.

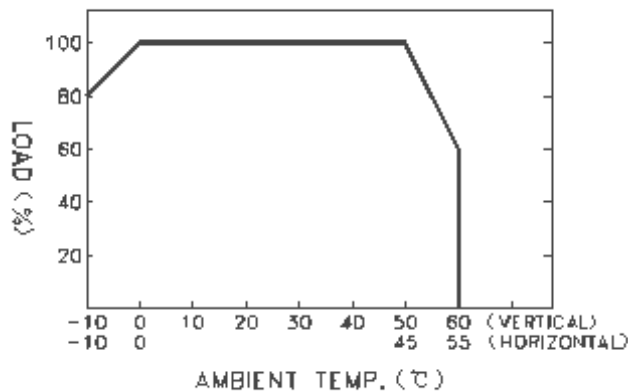
JUN.11.98



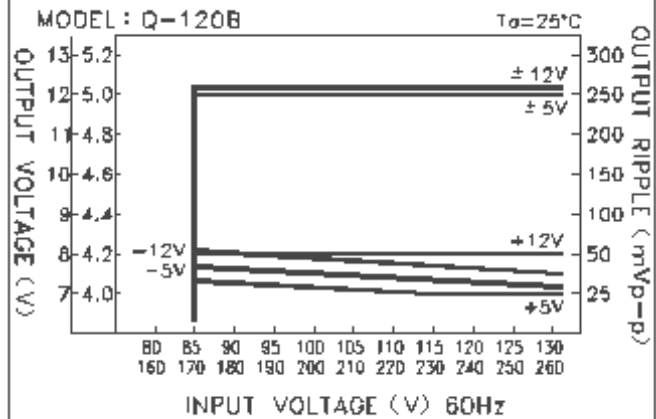
BLOCK DIAGRAM



OUTPUT DERATING



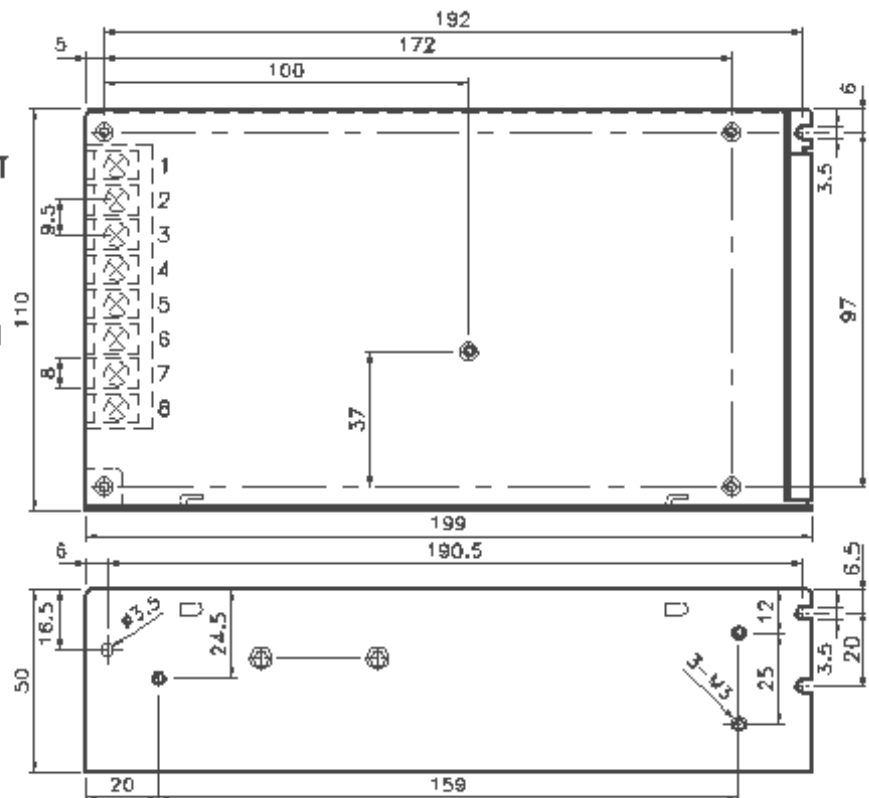
STATIC CHARACTERISTICS



DIMENSION (mm)

- ☒ CASE : 906
- ☒ TERMINAL PIN NO. ASSIGNMENT
- ☒ PIN 1,2 : AC INPUT
- ☒ PIN 3 : FG $\oplus$
- ☒ PIN 4,5 : DC OUTPUT
- ☒ PIN 6 : DC OUTPUT -V1
- ☒ PIN 7 : DC OUTPUT COM
- ☒ PIN 8 : DC OUTPUT +V1

MODEL	Q-120B	Q-120C	Q-120D
PIN NO.			
4	+12V	+15V	+24V
5	-12V	-15V	+12V





Quality Engineering Test Report

SERIES: VQ-120 120W AC-DC QUAD OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A : VQ-120B V1: 5V / 11A B : VQ-120C V1: 5V / 10A C : VQ-120D V1: 5V / 8A
V2: 12V / 4A V2: 15V / 3.5A V2: 12V / 2A
V3: -5V / 1A V3: -5V / 1A V3: 24V / 2A
V4: -12V / 1A V4: -15V / 1A V4: -12V / 1A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:176~264VAC O/P:FULL LOAD	C:139VAC~267VAC	P
2	LINE REGULATION	I/P:176~264VAC SPEC: O/P:FULL LOAD A: V1: $\pm 0.5\%$ V2: $\pm 1\%$ V3: $\pm 1\%$ V4: $\pm 1\%$ B: V1: $\pm 0.5\%$ V2: $\pm 1\%$ V3: $\pm 1\%$ V4: $\pm 1\%$ C: V1: $\pm 0.5\%$ V2: $\pm 1\%$ V3: $\pm 1\%$ V4: $\pm 1\%$	A: V1: 0% ~ +0.12% V2: -0.1% ~ +0.2% V3: -0.1% ~ +0.1% V4: -0.1% ~ +0.25% B: V1: -0.12% ~ 0% V2: -0.04% ~ +0.19% V3: -0.48% ~ +0.23% V4: -0.07% ~ +0.23% C: V1: 0% ~ 0.118% V2: -0.049% ~ +0.098% V3: -0.049% ~ +0.176% V4: -0.048% ~ +0.097%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A: V1: $\pm 0.5\%$ V2: $\pm 5\%$ V3: $\pm 5\%$ V4: $\pm 5\%$ B: V1: $\pm 0.5\%$ V2: $\pm 6\%$ V3: $\pm 5\%$ V4: $\pm 6\%$ C: V1: $\pm 0.5\%$ V2: $\pm 5\%$ V3: $\pm 5\%$ V4: $\pm 5\%$	A: V1: -0.12% ~ +0.12% V2: -0.62% ~ +1.54% V3: -1.32% ~ +1.69% V4: -1.62% ~ +2.43% B: V1: -0.24% ~ 0% V2: -0.75% ~ +1.54% V3: -0.72% ~ +1.47% V4: -1.41% ~ +3.19% C: V1: -0% ~ 0.118% V2: 0% ~ +1.24% V3: -0.099% ~ +1.48% V4: -0.71% ~ +1.58%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:176~264VAC SPEC: O/P:20% TO FULL LOAD A: V1: $\pm 2\%$ V2: $\pm 6\%$ V3: $\pm 6\%$ V4: $\pm 6\%$ B: V1: $\pm 2\%$ V2: -5%~+10% V3: $\pm 6\%$ V4: -5%~+10% C: V1: $\pm 2\%$ V2: $\pm 6\%$ V3: $\pm 6\%$ V4: $\pm 6\%$	A: V1: -0.38% ~ +0.26% V2: -4.17% ~ +5.31% V3: -3.64% ~ +5.86% V4: -2.9% ~ +5.83% B: V1: -0.38% ~ +0.12% V2: -2.85% ~ +4.9% V3: -3.26% ~ +5% V4: -2.42% ~ +4.67% C: V1: -0.13% ~ +0.35% V2: -2.07% ~ +3.21% V3: -1.23% ~ +3.53% V4: -1.65% ~ +4.19%	P



NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
5	RIPPLE&NOISE	I/P:230VAC O/P:FULL LOAD SPEC: A: V1: 80mV V2: 120mV V3: 80mV V4: 120mV B: V1: 80mV V2: 150mV V3: 80mV V4: 150mV C: V1: 80mV V2: 120mV V3: 180mV V4: 120mV	A: V1: 45mV V2: 38mV V3: 22mV V4: 35mV B: V1: 34mV V2: 49mV V3: 25mV V4: 42mV C: V1: 25mV V2: 24mV V3: 50mV V4: 27mV	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC:1.25A	C:1.233A	P
7	MAX. INRUSH CURREN	I/P:230VAC O/P: FULL LOAD SPEC:30A	C:29.05A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC: -5%~+10%	A: 4.38V~5.82V B: 4.43V~5.75V C: 4.44V~5.79V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:200mS	C: 13.6mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:20mS	C: 33.9mS	P
11	EFFICIENCY	I/P:230VAC O/P:FULL LOAD SPEC: A:77% B:76% C:80%	A:80% B:81% C:83.11%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~135%	A:125.8% B:122.4% C:120%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:FULL LOAD SPEC:5.75~6.75V	A: 6.21V B: 6.58V C: 6.2V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<3.5mA N-FG--<3.5mA	A: L-FG:1.01mA N-FG:1.07mA	P
15	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/100M Ohms MIN. I/P-FG: 500VDC/100M Ohms MIN. O/P-FG: 500VDC/100M Ohms MIN.	C: O/P-FG >100M Ohms I/P-O/P >100M Ohms I/P-FG >100M Ohms	P
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 4.3KVDC/ 1 min. (10mA CUT-OFF) I/P - FG: 2.2KVDC/ 1 min. (10mA CUT-OFF) O/P - FG: 0.75KVDC/ 1 min. (10mA CUT-OFF)	C: I/P-O/P :0.002mA I/P-FG :0.002mA O/P-FG :0.002mA	P
17	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:24.7°C BURN-IN DURATION : 2 hrs	C:NON BREAK	P