

# Quality Engineering Test Report

**SERIES: 65W TRIPLE OUTPUT OPEN FRAME SWITCHING POWER SUPPLY**

**SAMPLE:**

**A.PT-65A**

**V1:+5V / 5.5A  
V2:+12V/ 2.5A  
V3:- 5V / 0.5A**

**C.PT-65C**

**V1:+5V / 5.5A  
V2:+15V / 2A  
V3:- 15V / 0.5A**

**B.PT-65B**

**V1:+5V / 5.5A  
V2:+12V / 2.5A  
V3:- 12V / 0.5A**

**D.PT-65D**

**V1:+5V / 4A  
V2:+12V / 2A  
V3:+24V / 1A**

NO	TEST ITEM	TEST CONDITION/SPECIFICATION		RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING O/P:FULL LOAD	SPEC:90~264VAC	65VAC~267VAC	P
2	LINE REGULATION	I/P:90~264VAC O/P:FULL LOAD	SPEC: A: V1:±1% V2:±2% V3:±1% B: V1:±1% V2:±2% V3:±1% C: V1:±1% V2:±2% V3:±1% D: V1:±1% V2:±2% V3:±3%	A: V1: -0.5% ~ 0% V2: -0.05% ~ +1.4% V3: 0% ~ 0% B: V1: -0.24% ~ +0.12% V2: -0.05% ~ +0.82% V3: -0.04% ~ 0% C: V1: -0.36% ~ 0% V2: -0.04% ~ +0.91% V3: 0% ~ 0% D: V1: 0% ~ 0% V2: -0.097% ~ +1.7% V3: +0.07% ~ +1.7%	P
3	LOAD REGULATION	I/P:230VAC O/P: MIN. TO MAX.LOAD	SPEC: A: V1:±3% V2:±4% V3:±1% B: V1:±3% V2:±4% V3:±1% C: V1:±3% V2:±4% V3:±1% D: V1:±2% V2:±5% V3:±5%	A: V1: -0.5% ~ +0.5% V2: -0.98% ~ 1.09% V3: -0.12% ~ 0% B: V1: -0.74% ~ +0.62% V2: -0.78% ~ +0.72% V3: -0.05% ~ 0% C: V1: -0.62% ~ +0.74% V2: -1.2% ~ +0.96% V3: -0.04% ~ 0% D: V1: -1.6% ~ 1.1% V2: -0.2% ~ 0.6% V3: -1.3% ~ +1.4%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:90~264VAC O/P:MIN.TO MAX	SPEC: A: V1:±4% V2:±7% V3:±5% B: V1:±4% V2:±7% V3:±5% C: V1:±4% V2:±7% V3:±5% D: V1:±4% V2:±6% V3:±6%	A: V1: -1.36% ~ +1.12% V2: -1.25% ~ +4.84% V3: 0% ~ +0.74% B: V1: -1.38% ~ +1.0% V2: -1.2% ~ +4.1% V3: 0% ~ +1.4% C: V1: -1% ~ +1.12% V2: -1.96% ~ +3.08% V3: -0.58% ~ 0% D: V1: -1.6% ~ +1.9% V2: 6.9% ~ -4.49% V3: -3.5% ~ +7%	P

NO	TEST ITEM	TEST CONDITION/SPECIFICATION	RESULT	VERDICT
5	RIPPLE & NOISE	I/P:230VAC O/P: FULL LOAD SPEC: A: V1: 50mV V2:120mV V3: 50mV B: V1:50mV V2:120mV V3:100mV C: V1:50mV V2:120mV V3:100mV D: V1:50mV V2:100mV V3:200mV	A: V1: <u>12mV</u> V2: <u>30mV</u> V3: <u>11mV</u> B: V1: <u>13mV</u> V2: <u>90mV</u> V3: <u>15mV</u> C: V1: <u>10mV</u> V2: <u>94mV</u> V3: <u>12mV</u> D: V1: <u>15mV</u> V2: <u>61mV</u> V3: <u>50mV</u>	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC:0.9A	A: <u>0.71A</u>	P
7	MAX. INRUSH CURREN	I/P:230VAC O/P: FULL LOAD COLD START SPEC:40A	A: <u>27.05A</u>	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC: (-5%~+10%) A: 4.75V~5.5V B: 4.75V~5.5V C: 4.75V~5.5V D: 4.75V~5.5V	A: <u>4.22V~6.14V</u> B: <u>4.26V~6.26V</u> C: <u>4.26V~6.16V</u> D: <u>4.45V~5.8V</u>	P
9	SET UP TIME	I/P:230VAC\60Hz O/P:FULL LOAD SPEC:800mS	A: <u>558mS</u>	P
10	HOLD UP TIME	I/P:230VAC\60Hz O/P:FULL LOAD SPEC:20mS MIN.	A: <u>92mS</u>	P
11	EFFICIENCY	I/P:230VAC SPEC: A:76% B:77% C:77% D:79%	A: <u>76.68%</u> B: <u>77.91%</u> C: <u>78.21%</u> D: <u>79.16%</u>	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:73W~95W	A: <u>85W</u> B: <u>88W</u> C: <u>87W</u> D: <u>85W</u>	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:FULL LOAD SPEC:5.5V~6.5VDC ON V1	A: <u>6.15V</u> B: <u>6.27V</u> C: <u>6.35V</u> D: <u>5.88V</u>	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG----<0.5mA N-FG----<0.5mA	A: L-FG: <u>0.41mA</u> N-FG: <u>0.4mA</u>	P
15	INSULATION RESISTANCE	SPEC: O/P-FG :500VDC/100MΩ MIN. I/P-O/P :500VDC/100MΩ MIN. I/P-FG : 500VDC/100MΩ MIN.	A: O/P-FG: >100MΩ I/P-O/P: >100MΩ I/P-FG : >100MΩ	P
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3000VAC/ 1 MIN (10mA CUT-OFF) I/P - FG: 1500VAC/ 1 MIN (10mA CUT-OFF) O/P -FG : 500VAC/1MIN (10mA CUT-OFF)	A: NO BREAK I/P-O/P : <u>5.14mA</u> I/P-FG : <u>4.73mA</u> O/P-FG : <u>2.16mA</u>	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
17	BURNIN TEST	I/P: 230VAC O/P:FULL LOAD TA:23.1°C BURN-IN DURATION:2.5hrs	NO BREAK	P
18	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:82VAC O/P:80% LOAD AMBIENT TEMPERATURE:-9.4°C	A: AFTER 3 hrs POWER ON OK	P
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:48.4°C	A: AFTER 15 hrs NON BREAK	
		3.ACCELERATED LIFE TEST I/P:267 VAC O/P:FULL LOAD POWER ON :3 min POWER OFF :5 sec AMBIENT TEMPERATURE:85 °C AMBIENT HUMIDITY:95%	A: AFTER 9 hrs NON BREAK	

19	TEMPERATURE RISE $\Delta T$ OF PARTS	A: I/P :230VAC AFTER 2.5hrs BURN-IN O/P :FULL LOAD TA:23.1°C				P
		POSITION	P/N	TEMP	$\Delta T$	
		BD1	BRIDGE DIODE	54.9°C	31.8°C	
		Q1	MAIN TRANSISTER	68.9°C	45.8°C	
		T1	MAIN TRANSFORMER	77.5°C	54.4°C	
		D4	O/P DIODE	84.1°C	61°C	
		C22	O/P FILTER CAPACITOR	67.5°C	44.4°C	
		D5	O/P DIODE	82°C	58.9°C	
		RG1	7905	72.9°C	49.8°C	
		D1	CLAMPING DIODE	78.5°C	55.4°C	
		C5	I/P FILTER CAPACITOR	46.7°C	23.6°C	
FL1	LINE FILTER	45.2°C	22.1°C			

20	LIFE CYCLE	SUPPOSE C22 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULLLOAD Ta:25°C Tc22:69.4°C Life time:61897hrs I/P:230VAC O/P:FULLLOAD Ta:45°C Tc22:84.1°C Life time:22349hrs		P
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21	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	FUSE :F4A/250VAC UL BRIDGE DIODE :LT KB406G LINE FILTER :LS TF-484-R1 ET-20V TRANSFOMER :LS TF-443-R1 ETD-34 POWER SWITCHER :K2545 6A/600V TO-220F OUTPUT DIODE :SF10SC4 10A/40V TO-220F OUTPUT CAPACITOR :ELNA 3300uF/10V 105°C RJH INPUT CAPACITOR :HITACHI 150uF/400V,85°C P.C.B :PT-65-R2,CEM-1 2 OZ SS		
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DATE	SAMPLE	TEST RESULT	TEST	APPROVL
980611	PT-65A	PASS	劉鴻慶	MAX LIN
20020910	PRODUCT SAMPLE 9912A20 PT-65D	PASS	VINCENT	MAX LIN