



Test Report: RKP-6K1U-24

2000~6000W Front End Power System

■ DESIGN VERIFY TEST

Output Function Test
Input Function Test
Protection Function Test
Control Function Test
Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test
E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	MAX. OUTPUT CURRENT	240A	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	240A	P
2	MAX. OUTPUT POWER	5760W	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	5798W	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC~264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	160 V~264V TEST : OK	P
			I/P : LOW-LINE-3V= 177 V HIGH-LINE+15%=300 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)		
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P : 180 VAC ~ 264 VAC O/P : FULL-MIN LOAD Ta : 25°C	TEST : OK	P
3	INPUT CURRENT	230V/ 7 A (TYP) 115V/ 13 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	S.P.S 1 : 9.337A/ 230VAC 15.13A/ 115VAC S.P.S 2 : 9.353A/ 230VAC 15.055A/ 115VAC S.P.S3 : 9.484A/ 230VAC 15.156A/ 115VAC	P
4	LEAKAGE CURRENT	< 3.5 mA / 230 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 2.3 mA N-FG : 2.25 mA	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	AUXILIARY POWER (AUX)	5V@0.3A(4.4~5.5V) 12V@0.8A(10.8~13.2V)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	1. 5.106 V0.3A 11.485 V0.8A	P
2	REMOTE ON/OFFCONTROL	Rc+ / Rc- ON/OFF&- S SHORTS POWER ON ON/OFF&- S OPEN POWER OFF	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	S.P.S1:SHORT POWER ON OK OPEN POWER OFF OK S.P.S2: SHORT POWER ON OK OPEN POWER OFF OK S.P.S3: SHORT POWER ON OK OPEN POWER OFF OK	P
3	REMOTE SENSE	S+ / S- >0.5V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	> 0.5 V	P
4	DC OK SIGNAL DC NG SIGNAL	HIGH:VOUT ≤ 75%Vout LOW:VOUT ≥ 85%Vout	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	S.P.S1: HIGH : 5.290V LOW: 0V S.P.S2: HIGH : 5.285V LOW: 0V S.P.S3: HIGH : 5.287V LOW: 0V	P
5	AC OK SIGNAL AC FAIL SIGNAL	AC OK ≥ 87V AC FAIL ≤ 75V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	AC ≥ 87V : 0 V AC ≤ 75V : 5.31 V	P
6	OUTPUT VOLTAGE TRIM	DC=0.5V Vo/p=100%±3% DC=1.5V Vo/p=90%±3% DC=3V Vo/p=100%±3% DC=4.5V Vo/p=110%±3%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	Vo =99.6% Vo = 89.79% Vo = 99.79% Vo = 109.8%	P
7	OVER TEMP WARNING	LOW : SW SHORT 0V~0.5V HIGH : SW OPEN 4.5V~5.5V	I/P: 230 VAC O/P:FULL LOAD Ta:TEST	S.P.S1: HIGH : 5.293V LOW: 0V S.P.S2: HIGH 5.295V LOW: 0V S.P.S3:HIGH :5.296V LOW: 0V	P
8	FAN FAIL SIGNAL	FAN FAIL	I/P: 230 VAC O/P:FULL LOAD	S.P.S1: HIGH : FAN FAIL: 5.292V LOW : FAN NORMAL 0V S.P.S2: HIGH : FAN FAIL: 5.293V LOW : FAN NORMAL 0V S.P.S3: HIGH : FAN FAIL: 5.292V LOW : FAN NORMAL 0V	P
9	CURRENT SHARING	RACK1-RACK2 -RACK3< 10%	I/P : 230 VAC O/P : FULL/50% LOAD Ta : 25°C	O/P : 100% RACK1 PIN W : 6426 W RACK2 PIN W : 6359 W RACK3 PIN W : 6340 W O/P : 50% RACK 1 PIN W : 3157 W RACK 2 PIN W : 3152 W RACK 3 PIN W : 3125 W	P

■ SAFETY & E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P : 3 KVAC/min I/P-FG : 1.5 KVAC/min O/P-FG : 0.7 KVDC/min	I/P-O/P : 3.6 KVAC/min I/P-FG : 1.8 KVAC/min O/P-FG : 0.84 KVDC/min Ta : 25°C	I/P-O/P : 33.47 mA I/P-FG : 25.50 mA O/P-FG : 0.002 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P : 500VDC>100MΩ I/P-FG : 500VDC>100MΩ O/P-FG : 500VDC>100MΩ	I/P-O/P : 500 VDC I/P-FG : 500 VDC O/P-FG : 500 VDC Ta : 25°C /70%RH	I/P-O/P : 4.73 GΩ I/P-FG : 6.25 GΩ O/P-FG : 6.49 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C / 70%RH	10 mΩ	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A CLASS D	I/P: 220/230/240 VAC/50HZ O/P:100%75%50%25% LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																																																																			
1	TEMPERATURE RISE TEST	MODEL : RKP-6K1U-48	<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>PART NUMBER</th> <th>HIGH AMBIENT Ta= 38.2°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF2</td><td>TR807</td><td>51.8°C</td></tr> <tr><td>2</td><td>BD2</td><td>30A/800V SILICON US30KB80R</td><td>64.8°C</td></tr> <tr><td>3</td><td>L2</td><td>TR931</td><td>46.1°C</td></tr> <tr><td>4</td><td>T601</td><td>TR624</td><td>41.5°C</td></tr> <tr><td>5</td><td>L1</td><td>TR931</td><td>45.8°C</td></tr> <tr><td>6</td><td>T600</td><td>TR624</td><td>38.3°C</td></tr> <tr><td>7</td><td>Q603</td><td>STP30N65M5 22A/650V TO220</td><td>50.3°C</td></tr> <tr><td>8</td><td>D610</td><td>STPSC806D 8A/600V TO220</td><td>52.4°C</td></tr> <tr><td>9</td><td>Q601</td><td>STP30N65M5 22A/650V TO220</td><td>44.3°C</td></tr> <tr><td>10</td><td>C5</td><td>330u/400V 105°C 30*30 VXH</td><td>49.5°C</td></tr> <tr><td>11</td><td>Q901</td><td>FCP22N60N 22A/600V TO220</td><td>61.1°C</td></tr> <tr><td>12</td><td>Q902</td><td>FCP22N60N 22A/600V TO220</td><td>67.7°C</td></tr> <tr><td>13</td><td>U1</td><td>TOP256EN</td><td>49.6°C</td></tr> <tr><td>14</td><td>C73</td><td>47u/25V L5Kh 5*11 KY</td><td>49.1°C</td></tr> <tr><td>15</td><td>C75</td><td>470u/25V UL7Kh 8*20 KY</td><td>47.9°C</td></tr> <tr><td>16</td><td>RG300</td><td>L7805CV 1.0A/5V TO220</td><td>51.6°C</td></tr> <tr><td>17</td><td>C320</td><td>470u/25V UL7Kh 8*20 KY</td><td>51.5°C</td></tr> <tr><td>18</td><td>C301</td><td>1500u/16V UL10Kh 10*20 ZLH</td><td>50.9°C</td></tr> <tr><td>19</td><td>C325</td><td>100u/25V L5Kh 6.3*11 KY</td><td>51.1°C</td></tr> <tr><td>20</td><td>L100</td><td>TF2099</td><td>66.3°C</td></tr> <tr><td>21</td><td>C110</td><td>470u/63V L10Kh 12.5*30 KY</td><td>54.9°C</td></tr> <tr><td>22</td><td>C113</td><td>470u/63V L10Kh 12.5*30 KY</td><td>54.1°C</td></tr> <tr><td>23</td><td>C551</td><td>1000u/16V UL10Kh 10*16 ZLH</td><td>41.2°C</td></tr> <tr><td>24</td><td>T1</td><td>TF2095</td><td>61.2°C</td></tr> <tr><td>25</td><td>T2</td><td>TF2096</td><td>69.6°C</td></tr> <tr><td>26</td><td>Q100</td><td>IRFB4227PbF 65A/200V</td><td>47.6°C</td></tr> <tr><td>27</td><td>Q104</td><td>IRFB4227PbF 65A/200V</td><td>56.7°C</td></tr> <tr><td>28</td><td>D110</td><td>YA868C15RSC 30A/150V</td><td>59.9°C</td></tr> <tr><td>29</td><td>TSW80</td><td>ST-22W-R0 70°C 100mm</td><td>49.1°C</td></tr> <tr><td>30</td><td>TSW81</td><td>ST-22W-R0 85°C 55mm</td><td>53.2°C</td></tr> <tr><td>31</td><td>U2</td><td>PWM UCC28220D</td><td>51.7°C</td></tr> </tbody> </table>			NO	Position	PART NUMBER	HIGH AMBIENT Ta= 38.2°C	1	LF2	TR807	51.8°C	2	BD2	30A/800V SILICON US30KB80R	64.8°C	3	L2	TR931	46.1°C	4	T601	TR624	41.5°C	5	L1	TR931	45.8°C	6	T600	TR624	38.3°C	7	Q603	STP30N65M5 22A/650V TO220	50.3°C	8	D610	STPSC806D 8A/600V TO220	52.4°C	9	Q601	STP30N65M5 22A/650V TO220	44.3°C	10	C5	330u/400V 105°C 30*30 VXH	49.5°C	11	Q901	FCP22N60N 22A/600V TO220	61.1°C	12	Q902	FCP22N60N 22A/600V TO220	67.7°C	13	U1	TOP256EN	49.6°C	14	C73	47u/25V L5Kh 5*11 KY	49.1°C	15	C75	470u/25V UL7Kh 8*20 KY	47.9°C	16	RG300	L7805CV 1.0A/5V TO220	51.6°C	17	C320	470u/25V UL7Kh 8*20 KY	51.5°C	18	C301	1500u/16V UL10Kh 10*20 ZLH	50.9°C	19	C325	100u/25V L5Kh 6.3*11 KY	51.1°C	20	L100	TF2099	66.3°C	21	C110	470u/63V L10Kh 12.5*30 KY	54.9°C	22	C113	470u/63V L10Kh 12.5*30 KY	54.1°C	23	C551	1000u/16V UL10Kh 10*16 ZLH	41.2°C	24	T1	TF2095	61.2°C	25	T2	TF2096	69.6°C	26	Q100	IRFB4227PbF 65A/200V	47.6°C	27	Q104	IRFB4227PbF 65A/200V	56.7°C	28	D110	YA868C15RSC 30A/150V	59.9°C	29	TSW80	ST-22W-R0 70°C 100mm	49.1°C	30	TSW81	ST-22W-R0 85°C 55mm	53.2°C	31	U2	PWM UCC28220D	51.7°C			P
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/180VAC O/P : 100 % LOAD Ta= -40 °C / -25°C	TEST : OK	P																																																																																																																																			
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																																																																			
4	TEMPERATURE COEFFICIENT	± 0.03 %/°C (0~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.008 %/°C (0~50°C)	P																																																																																																																																			

5	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC	OK	P
6	THERMAL SHOCK TEST	1. Thermal shock Temperature : -35°C~ +55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST turn on 58sec ; turn off 2sec	OK	P
7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 2G (5) Test Time : 60min in each axis (X.Y.Z) (6) Ta : 25°C	TEST : OK	P
8	CAPACITOR LIFE CYCLE	RCP-2000-48 SUPPOSE C110 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME	(1) 1013149 HRS (2) 154865 HRS (3) 253317 HRS (4) 309610HRS	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2010/12/16	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG

12.10.30 A50-F031