



MODEL : DRH-120-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max)	I/P: 400 VAC O/P:FULL LOAD Ta:25°C	V1: 17mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 24 V- 28 V	I/P: 400 VAC I/P: 500 VAC O/P:MIN LOAD Ta:25°C	21.28V- 29.49 V/ 400VAC 21.28V- 24.49 V/ 500 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %- -1 % (Max)	I/P: 340VAC / 550 VAC O/P:FULL/ MIN % LOAD Ta:25°C	V1: 0.25 %- -0.25%	P
4	LINE REGULATION	V1: 0.5 %- -0.5 % (Max)	I/P: 340 VAC ~ 550 VAC O/P:FULL LOAD Ta:25°C	V1: 0.11%- -0.11%	P
5	LOAD REGULATION	V1: 0.5 %- -0.5\ % (Max)	I/P: 400 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 0.11%- -0.11%	P
6	SET UP TIME	400 VAC/ 1700 ms (Max) 500 VAC/ 1000 ms (Max)	I/P: 400 VAC I/P: 500 VAC O/P:FULL LOAD Ta:25°C	400 VAC/ 1320ms 500 VAC/ 716ms	P
7	RISE TIME	400 VAC/ 120 ms (Max) 500 VAC/ 120 ms (Max)	I/P: 400 VAC I/P: 500 VAC O/P:FULL LOAD Ta:25°C	400 VAC/ 88ms 500 VAC/ 88ms	P
8	HOLD UP TIME	400 VAC/ 16 ms (TYP) 500 VAC/ 30 ms (TYP)	I/P: 400 VAC I/P: 500 VAC O/P:FULL LOAD Ta:25°C	400 VAC/ 25ms 500 VAC/ 44ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 400 VAC O/P:FULL LOAD Ta:25°C	TEST: < 5%	P
10	DYNAMIC LOAD	V1: 2400 mVp-p	I/P: 400 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	98mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	340VAC~ 550 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	280V~ 550 V	P
			I/P: LOW-LINE-3V= 337 V HIGH-LINE+15%= 632 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST: OK	
2	INPUT FREQUENCY RANGE	47 HZ ~ 63 HZ NO DAMAGE OSC	I/P: 340VAC ~ 550 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	85 % (TYP)	I/P: 400 VAC O/P:FULL LOAD Ta:25°C	85.7%	P
4	INPUT CURRENT	400 V/ 0.65 A(TYP) 500 V/ 0.6 A (TYP)	I/P: 400 VAC I/P: 500 VAC O/P:FULL LOAD Ta:25°C	I = 0.52A/ 400 VAC I = 0.48A/ 500 VAC	P
5	INRUSH CURRENT	400V/ 50 A(TYP) COLD START	I/P: 400 VAC O/P:FULL LOAD Ta:25°C	I = 28A/ 400 VAC	P
6	LEAKAGE CURRENT	< 3.5 mA / 530VAC	I/P: 530 VAC O/P:Min LOAD Ta:25°C	L-FG: 1 mA N-FG: 1 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 160 %	I/P: 400 VAC I/P: 500 VAC O/P:TESTING Ta:25°C	128%/ 400 VAC 136%/ 500 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 30 V~ 36 V	I/P: 400 VAC I/P: 500 VAC O/P:MIN LOAD Ta:25°C	34.5V/ 400 VAC 34.5V/ 500 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: 85± 5°C O.T.P NO DAMAGE	I/P: 400 VAC O/P:FULL LOAD	O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 550 VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Constant Current Limiting	P



ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																
1	TEMPERATURE RISE TEST	<p>MODEL : DRH-120-24</p> <p>1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P: 400 VAC O/P: FULL LOAD Ta= 35 °C</p> <p>2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 400 VAC O/P: FULL LOAD Ta= 46.9 °C</p> <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 35 °C</th> <th>HIGH AMBIENT Ta= 46.9 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>L106</td><td>TR-561</td><td>56.0°C</td><td>76.9°C</td></tr> <tr><td>2</td><td>D4</td><td>BY228 5A/1.5KV PH</td><td>68.5°C</td><td>87.2°C</td></tr> <tr><td>3</td><td>LF1</td><td>TR-560</td><td>55.3°C</td><td>75.7°C</td></tr> <tr><td>4</td><td>D100</td><td>SF20NC15M 150V/20A SHI</td><td>66.3°C</td><td>87.0°C</td></tr> <tr><td>5</td><td>C114</td><td>1500U/35V NCC 105°C KY</td><td>72.7°C</td><td>92.8°C</td></tr> <tr><td>6</td><td>T1 COIL</td><td>TF-1275</td><td>86.4°C</td><td>107.1°C</td></tr> <tr><td>7</td><td>U1</td><td>2842 ON</td><td>81.2°C</td><td>101.9°C</td></tr> <tr><td>8</td><td>Q8</td><td>TIP122 5A/100V FAIR</td><td>54.6°C</td><td>75.1°C</td></tr> <tr><td>9</td><td>C71</td><td>100U/50V NCC 105°C KY</td><td>54.2°C</td><td>75.8°C</td></tr> <tr><td>10</td><td>LF2</td><td>TR-277</td><td>47.6°C</td><td>67.3°C</td></tr> <tr><td>11</td><td>Q7</td><td>C5353 3A/800V TOS</td><td>57.8°C</td><td>77.5°C</td></tr> <tr><td>12</td><td>D33</td><td>SF5408 3A/1KV TEL</td><td>75.2°C</td><td>96.5°C</td></tr> <tr><td>13</td><td>Q36</td><td>K2850 6A/900V FUJI</td><td>63.9°C</td><td>85.5°C</td></tr> <tr><td>14</td><td>J2</td><td>錳銅線</td><td>95.9°C</td><td>116.5°C</td></tr> <tr><td>15</td><td>C5</td><td>68U/400V RUB 105°C KXW</td><td>51.7°C</td><td>70.2°C</td></tr> </tbody> </table>	NO	Position	P/N	ROOM AMBIENT Ta= 35 °C	HIGH AMBIENT Ta= 46.9 °C	1	L106	TR-561	56.0°C	76.9°C	2	D4	BY228 5A/1.5KV PH	68.5°C	87.2°C	3	LF1	TR-560	55.3°C	75.7°C	4	D100	SF20NC15M 150V/20A SHI	66.3°C	87.0°C	5	C114	1500U/35V NCC 105°C KY	72.7°C	92.8°C	6	T1 COIL	TF-1275	86.4°C	107.1°C	7	U1	2842 ON	81.2°C	101.9°C	8	Q8	TIP122 5A/100V FAIR	54.6°C	75.1°C	9	C71	100U/50V NCC 105°C KY	54.2°C	75.8°C	10	LF2	TR-277	47.6°C	67.3°C	11	Q7	C5353 3A/800V TOS	57.8°C	77.5°C	12	D33	SF5408 3A/1KV TEL	75.2°C	96.5°C	13	Q36	K2850 6A/900V FUJI	63.9°C	85.5°C	14	J2	錳銅線	95.9°C	116.5°C	15	C5	68U/400V RUB 105°C KXW	51.7°C	70.2°C			P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 400VAC O/P: 124 % LOAD Ta: 25°C	TEST : OK	P																																																																																
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 400VAC O/P: 100 % LOAD Ta= -20 °C	TEST : OK	P																																																																																
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 567 VAC O/P:FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																
5	TEMPERATURE COEFFICIENT	± 0.03 %(0-50°C)	I/P: 400 VAC O/P:FULL LOAD	± 0.01 %(0-50°C)	P																																																																																
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C		TEST : OK	P																																																																																

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: 0.5 KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 5.76mA I/P-FG: 4.02mA O/P-FG: 0.29mA 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	I/P-O/P: 6GΩ I/P-FG: 9GΩ O/P-FG: 6GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	7mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO : E 183223			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 400 VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS A	I/P: 380 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS A	I/P: 380 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: 380 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 380 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: 380 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

**M.T.B.F & LIFE CYCLE CALCULATION**

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C114 IS THE MOST CRITICAL COMPONENT I/P: 400VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 223363 HRS I/P: 400VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 22372 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 178.7KHRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 30 Rated 2SK2850 : 900 V 6 A	I/P:High-Line +3V =553V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 558 V (2) 544 V (3) 386 V	P
2	Diode Peak Voltage	D 100 Rated SF20NC15M : 150 V 20 A	I/P:High-Line +3V =553V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 90 V (2) 115 V (3) 82 V	P
3	Input Capacitor Voltage	C 5 Rated : 68 u / 400 V 105°C	I/P:High-Line +3V =267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change (4)Burn-IN 1 Hour Ta:25°C	(1) 434 V (2) 396 V (3) 396 V (4) 390 V	P
4	Control IC Voltage Test	U1 Rated UC2842 : 30 V	I/P:High-Line +3V =267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change (4) Output Short Ta:25°C	(1) 19.9 V (2) 19.9 V (3) 19.9 V (4) 19.9 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2004/12/23	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2005/4/11	PRODUCT SAMPLE W0501E43	PASS	VINCENT TSENG	MAX LIN
2005/11/15	PRODUCT SAMPLE W0510A02	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023