



MODEL : SD-200B-12

## OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 120 mVp-p (Max)	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	V1: 9 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 11V- 16 V	I/P: 24 VDC O/P:MIN LOAD Ta:25°C	9.89 V- 18.13 V	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %~ -1 % (Max)	I/P:24VDC / 36 VDC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.11 %~ -0.11 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P:24 VDC / 36 VDC O/P:FULL LOAD Ta:25°C	V1: 0.05 %~ -0.05 %	P
5	LOAD REGULATION	V1: 1 %~ -1 % (Max)	I/P: 24 VDC O/P:FULL -MIN LOAD Ta:25°C	V1: 0.1 %~ -0.1 %	P
6	SET UP TIME	300 ms (Max)	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	44 ms	P
7	RISE TIME	50 ms (Max)	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	19 ms	P
8	OVER/UNDERSHOOT TEST	< ±5%	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
9	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 24 VDC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	324 mVp-p	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	19VDC- 36 VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	15 V- 36 V	P
			I/P: LOW-LINE-0.2V= 18.8 V HIGH-LINE+5%= 37.8 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN ( AC POWER ON/OFF NO DAMAGE )	TEST: OK	
2	EFFICIENCY	82 % (TYP)	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	82.8 %	P
3	INPUT CURRENT	10.6 A (TYP)	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	I = 10 A	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %- 135 %	I/P: 24 VDC O/P:TESTING Ta:25°C	120 % Shunt down Re-power ON	P
2	OVER VOLTAGE PROTECTION	CH1: 16.8 V- 20 V	I/P: 24 VDC O/P:MIN LOAD Ta:25°C	19.2 V Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: 100 ± 5 °C O.T.P. NO DAMAGE	I/P: 24 VDC 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: 24 VDC O/P: FULL LOAD Ta:25°C	NO DAMAGE Shunt down Re-power ON	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																
1	TEMPERATURE RISE TEST	MODEL : SD-200B-12 1. ROOM AMBIENT BURN-IN : 1 HRS I/P: 24 VDC O/P: FULL LOAD Ta= 31.3 °C 2. HIGH AMBIENT BURN-IN : 3HRS I/P: 24 VDC O/P: FULL LOAD Ta= 43.8 °C																																																																																			
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 31.3 °C</th> <th>HIGH AMBIENT Ta= 43.8 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF2</td><td>TR-507</td><td>75.0°C</td><td>85.1°C</td></tr> <tr><td>2</td><td>Q4</td><td>PSMN009 100A/100V PH</td><td>87.4°C</td><td>96.5°C</td></tr> <tr><td>3</td><td>C6</td><td>3300U/50V RUB YXA 105°C</td><td>78.5°C</td><td>87.6°C</td></tr> <tr><td>4</td><td>U1</td><td>SG3525</td><td>81.9°C</td><td>91.3°C</td></tr> <tr><td>5</td><td>T1 COIL</td><td>TF-945</td><td>81.6°C</td><td>91.6°C</td></tr> <tr><td>6</td><td>T1 CORE</td><td>TF-945</td><td>86.0°C</td><td>93.8°C</td></tr> <tr><td>7</td><td>Q1</td><td>PSMN009 100A/100V PH</td><td>82.6°C</td><td>92.2°C</td></tr> <tr><td>8</td><td>Q5</td><td>C4242 7A/400V FUJI</td><td>70.9°C</td><td>80.1°C</td></tr> <tr><td>9</td><td>RG1</td><td>7815 1A/15V ON</td><td>66.6°C</td><td>76.4°C</td></tr> <tr><td>10</td><td>C25</td><td>100U/25V RUB 105°C</td><td>68.1°C</td><td>77.3°C</td></tr> <tr><td>11</td><td>D100</td><td>30CPQ150 30A/150V IR</td><td>85.6°C</td><td>93.4°C</td></tr> <tr><td>12</td><td>D101</td><td>30CPQ150 30A/150V IR</td><td>64.2°C</td><td>73.8°C</td></tr> <tr><td>13</td><td>L100</td><td>TR-382</td><td>82.2°C</td><td>92.7°C</td></tr> <tr><td>14</td><td>C111</td><td>2200U/25V RUB 105°C</td><td>64.7°C</td><td>74.0°C</td></tr> <tr><td>15</td><td>D101</td><td>21DQ10 2A/100V NI</td><td>85.5°C</td><td>93.5°C</td></tr> </tbody> </table>	NO	Position	P/N	ROOM AMBIENT Ta= 31.3 °C	HIGH AMBIENT Ta= 43.8 °C	1	LF2	TR-507	75.0°C	85.1°C	2	Q4	PSMN009 100A/100V PH	87.4°C	96.5°C	3	C6	3300U/50V RUB YXA 105°C	78.5°C	87.6°C	4	U1	SG3525	81.9°C	91.3°C	5	T1 COIL	TF-945	81.6°C	91.6°C	6	T1 CORE	TF-945	86.0°C	93.8°C	7	Q1	PSMN009 100A/100V PH	82.6°C	92.2°C	8	Q5	C4242 7A/400V FUJI	70.9°C	80.1°C	9	RG1	7815 1A/15V ON	66.6°C	76.4°C	10	C25	100U/25V RUB 105°C	68.1°C	77.3°C	11	D100	30CPQ150 30A/150V IR	85.6°C	93.4°C	12	D101	30CPQ150 30A/150V IR	64.2°C	73.8°C	13	L100	TR-382	82.2°C	92.7°C	14	C111	2200U/25V RUB 105°C	64.7°C	74.0°C	15	D101	21DQ10 2A/100V NI	85.5°C	93.5°C	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 24 VDC O/P: 116 % LOAD Ta:25°C	TEST : OK	P																																																																																
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 24 VDC 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 40 °C NO DAMAGE	I/P: 36 VDC O/P:FULL LOAD Ta= 40 °C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																
5	TEMPERATURE COEFFICIENT	± 0.03 %(0-50°C)	I/P: 24 VDC O/P:FULL LOAD	± 0.01%(0-50°C)	P																																																																																
6	VIBRATION TEST	1 Carton & 1 Set Operating at I/P: 24 VDC NO LOAD (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: 1.5 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 1.8 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 4.23 mA I/P-FG: 4.31 mA O/P-FG: 9.37 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	I/P-O/P: 10 G Ω I/P-FG: 11G Ω O/P-FG: 7 G Ω NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	11 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO :			N/A

### E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RADIATION	EN55022 CLASS B	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
2	E.S.D	EN61000-4-2 INDUSTRY AIR:8KV / Contact:4KV	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	CRITERIA A	P
3	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 24 VDC O/P:FULL LOAD Ta:25°C	CRITERIA A	P
4	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 C 111 IS THE MOST CRITICAL COMPONENT I/P: 24VDC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 185353 HRS I/P: 24VDC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 40912 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 218.2K HRS			P

**COMPONENT STRESS TEST**

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) <b>Peak Voltage</b>	Q 1 Rated PSMM009 100W : 100V 100A	I/P:High-Line +3V =39 VDC O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 36 V (2) 83.2 V (3) 83.2 V	P
2	Diode <b>Peak Voltage</b>	D 100 Rated 30CPQ150 : 150 V 30 A	I/P:High-Line +3V = 39 VDC O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 94.8 V (2) 105 V (3) 0 V	P
3	<b>Input Capacitor Voltage</b>	C 8 Rated : 3300 u / 50 V / 105°C	I/P:High-Line +3V = 39 VDC O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25°C	(1) 39.2 V (2) 39.6 V (3) 41.6 V	P
4	<b>Control IC Voltage Test</b>	U 1 Rated SG3525 : 35 V	I/P:High-Line +3V = 39 VDC O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25°C	(1) 14.7 V (2) 14.6 V (3) 14.6 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2004/6/7	RD SMAPLE	PASS	VINCENT TSENG	MAX LIN
2004/8/20	PRODUCT SMAPLE A407A22	PASS	VINCENT TSENG	MAX LIN
2004/10/27	PRODUCT SMAPLE W0410A17	PASS	VINCENT TSENG	MAX LIN
2004/11/25	PRODUCT SMAPLE W0411A24	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023