

MODEL : DR-15-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 120 mVp-p (Max)	I/P : 230VAC O/P : FULL LOAD Ta : 25°C	V1 : 34.4 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 10.8V~13.2V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	10.20 V~ 13.88 V/ 230 VAC 10.20 V~ 13.88 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : 1%~ -1 % (Max)	I/P : 100 VAC / 264 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : 0.3 %~ -0.3 %	P
4	LINE REGULATION	V1 : 1 %~ -1 % (Max)	I/P : 100VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0 %~ 0 %	P
5	LOAD REGULATION	V1 : 1 %~ -1 % (Max)	I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C	V1 : 0.21 %~ -0.21 %	P
6	SET UP TIME	230VAC : 1000 ms (Max) 115 VAC : 1000 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 91 ms 115VAC/ 182 ms	P
7	RISE TIME	230VAC : 50 ms (Max) 115VAC : 50 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 9.2 ms 115VAC/ 8.9 ms	P
8	HOLD UP TIME	230VAC : 70 ms (TYP) 115VAC : 16 ms (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 88 ms 115VAC/ 17.6 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : < 5 %	P
10	DYNAMIC LOAD	V1 : 1200 mVp-p	I/P : 230 VAC O/P : FULL /Min LOAD 90%DUTY/ 1KHZ Ta : 25°C	187 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	85VAC~264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	63V~264V	P
			I/P : LOW-LINE-3V= 82 V HIGH-LINE+15%=300 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	47HZ ~63 HZ NO DAMAGE OSC	I/P : 100 VAC ~ 264 VAC O/P : FULL~MIN LOAD Ta : 25°C	TEST : OK	P
3	EFFICIENCY	84 % (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	84.4%	P
4	INPUT CURRENT	230V/ 0.48 A(TYP) 115V/ 0.88 A(TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 0.16 A/ 230 VAC I = 0.28 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 65 A(TYP) 115V/ 35 A(TYP) COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 39 A/ 230 VAC I = 20 A/ 115 VAC	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 160 %	I/P : 230 VAC I/P : 115 VAC O/P : TESTING Ta : 25°C	141%/ 230 VAC 141%/ 115 VAC Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 13.8 V~ 16.2 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	15.6V/ 230 VAC 15.6V/ 115 VAC Shut off o/p voltage, clamping by zener diode	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 264 VAC O/P : FULL LOAD Ta : 25°C	NO DAMAGE Hiccup Mode	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : DR-15-12 1. ROOM AMBIENT BURN-IN : 2.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 28 °C 2. HIGH AMBIENT BURN-IN : 1.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50.2 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 112 % LOAD Ta : 25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230 VAC O/P : 100 % LOAD Ta= -25 °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 : 272 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 : 230 VAC O/P : FULL LOAD	± 0.001 % (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-O/P : 3.6 KVAC/min Ta : 25°C	I/P-O/P : 0.955 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P : 500VDC>100MΩ	I/P-O/P : 500 VDC Ta : 25°C	I/P-O/P : 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV : Certificate NO : R50147188 UL : File NO : E183223			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P : 230 /240/220VAC/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				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	DR-15-12 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT	I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME= 164297 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME= 28439 HRS		P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 1172.3K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 30,000 hours @ TA 50°C			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	U1 Rated PWM TOP254EN 700V/2.08A	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Full Load (3)Output Short Ta : 25°C	(1) 664 V (2) 616 V (3) 608 V	P
2	Diode Peak Voltage	D100 Rated SB360 3A/60V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Full Load (3)Output Short Ta : 25°C	(1) 61.6 V (2) 58.8 V (3) 46.4 V	P
3	Clamp Diode Peak Voltage	D1 Rated FRD 1A/1KV	I/P : High-Line +3V = 267 V O/P : (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta : 25°C	(1) 410 V (2) 376 V	P
4	Control IC Voltage Test	U1 Rated PWM TOP254EN : 9V	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 Ta : 25°C	(1) 5.863 V (2) 5.881 V (30) 5.881 V	P
5	Input Capacitor Voltage	C 5 Rated 33u/400V 105°C KMG	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 Ta : 25°C	(1) 362.3 V (2) 368.2 V (3) 368.3 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/12/26	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/3/17	PRODUCT SAMPLE W0901B01	PASS	SANFORD SU	VINCENT TSENG
2009/4/10	PRODUCT SAMPLE W0903D01	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023