



Test Report: EDR-120-48

120W Single Output Industrial DIN RAIL

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

MODEL : EDR-120-48

DVT TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 150 mVp-p (Max)	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	V1: 46.2 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 48V~ 55 V	I/P: 230VAC/115VAC O/P: MIN LOAD Ta: 25°C	46.89V~57.71V/230VAC 46.89V~57.71V/115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %~ -1 % (Max)	I/P: 100VAC /264VAC O/P: FULL / MIN. LOAD Ta: 25°C	V1: -0.012%~0.037%	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P: 100VAC~ 264VAC O/P: FULL LOAD Ta: 25°C	V1: 0%~ 0.012%	P
5	LOAD REGULATION	V1: 1 %~ -1 % (Max)	I/P: 230VAC O/P: FULL ~MIN LOAD Ta: 25°C	V1: -0.012%~0.037%	P
6	SET UP TIME	230VAC/1200ms (Max) 115VAC/2500ms (Max)	I/P: 230VAC/115VAC O/P: FULL LOAD Ta: 25°C	230VAC/721.035ms 115VAC/1577.984ms	P
7	RISE TIME	230VAC/60ms (Max) 115VAC/60ms (Max)	I/P: 230VAC/115VAC O/P: FULL LOAD Ta: 25°C	230VAC/39.107ms 115VAC/39.458ms	P
8	HOLD UP TIME	230VAC/16ms (TYP.) 115VAC/10ms (TYP.)	I/P: 230VAC/115VAC O/P: FULL LOAD Ta: 25°C	230VAC/62.265ms 115VAC/13.687ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	<5%	P
10	DYNAMIC LOAD	V1: 4800 mVp-p	I/P: 230VAC O/P: (1) FULL /Min LOAD 90%DUTY/1KHZ (2) (1) FULL /Min LOAD 90%DUTY/3KHZ (3) FULL /Min LOAD 90%DUTY/5KHZ (4) FULL /Min LOAD 50%DUTY/120HZ Ta: 25°C	219mVp-p 195mVp-p 182mVp-p 368mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	66.043V~264V	P
			I/P: (1)LOW-LINE-3V=87 V HIGH-LINE+15%=300 V O/P:FULL/MIN LOAD ON: 30 Sec OFF: 30 Sec 10MIN (2)230Vac ON: 0.5 Sec OFF: 0.5 Sec 20MIN (3)230Vac ON:3Sec OFF:3Sec 12HOURS (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
4	EFFICIENCY	88.5% (TYP)	I/P:230 VAC O/P:FULL LOAD Ta:25°C	90.31%	P
5	INPUT CURRENT	230V/ 1.3A (Typ) 115V/ 2.25 A (Typ)	I/P: 230 VAC/115VAC O/P:FULL LOAD Ta:25°C	I =0.97A/ 230VAC I =1.91A/ 115VAC	P
6	INRUSH CURRENT	230V/35A (Typ) 115V/20A (Typ) COLD START	I/P:230VAC/115VAC O/P:FULL LOAD Ta:25°C	I =33.554A/ 230VAC I =17.573A/ 115VAC	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105%~130% RATED OUTPUT POWER	I/P: 264VAC I/P: 230VAC I/P: 100VAC O/P:TESTING Ta:25°C	116.0%/ 264VAC 115.6%/ 230VAC 116.8%/100VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH:56V~65V(Typ)	I I/P:264VAC I/P: 230VAC I/P: 90VAC O/P:MIN LOAD Ta:25°C	62.16V/ 264VAC 62.35V/ 230VAC 62.37V/90VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: NO DAMAGE	I/P: 230 VAC O/P:FULL LOAD	O.T.P. Active Shunt down Re-power ON	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Constant Current Limiting	P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 11 A/600 V	I/P:High-Line +3V =267V O/P: (1)Full Load input on/off (2)Output Short (3)FULL LOAD CONTINUE Ta:25°C	(1)510V (2)390V (3)502V	P
2	Diode Peak Voltage	D100 Rated 20A/300V	I/P:High-Line +3V =267 V O/P: (1)Full Load input on/off (2)Output Short (3)FULL LOAD CONTINUE Ta:25°C	(1) 274V (2)- 251V (3) 249V	P
3	Input Capacitor Voltage	C5 Rated: 180U/400V	I/P:High-Line +3V =267 V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Burn-IN 1Hour Ta:25°C	(1)366V (2)366V (3)362V	P
4	Control IC Voltage Test	PWM IC U1 1380 Rated 28 V(MAX) 9 V(MIN.)	I/P:High-Line +3V =267 V O/P:(1)FULL LOAD (2) Output Short (3)NO LOAD VR 下限.LOW LINE Ta:25°C	(2) 17.2V (3) 17.0V (4) 17.4V	P

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	EN 60950 I/P-O/P: 3KVAC/min I/P-FG: 2 KVAC/min O/P-FG:0.5KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:0.6 KVAC/min Ta:25°C	I/P-O/P:3.188mA I/P-FG:3.69mA O/P-FG:3.93m A 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: 9999MΩ I/P-FG: 9999MΩ O/P-FG: 9999MΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	EN 60950 FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	15mΩ BY CASE	P
4	LEAKAGE CURRENT	EN 60950 1mA< 240VAC	I/P:264 VAC O/P:Min LOAD Ta:25°C	L-FG:0.295mA N-FG:0.295:Ma	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:100%,LOAD Ta:25°C	PASS	P
2	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
3	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
4	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P

RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : EDR-120-12 1. ROOM AMBIENT BURN-IN : 1HRS I/P : 230VAC O/P : FULL LOAD Ta=23.0°C 2. HIGH AMBIENT BURN-IN : 1HRS I/P : 230VAC O/P : FULL LOAD Ta=43.5°C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 108% LOAD Ta : 25°C	TEST : OK	P



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3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/100VAC 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 CONTROL45°C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta=45°C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	±0.03%/°C (0~50°C)	I/P : 230 VAC O/P : FULL LOAD	0%/°C (0~50°C)	P
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -40°C~ +85°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
7	THERMAL SHOCK TEST	1. Thermal shock Temperature : -20°C~ +70°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
8	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
9	CAPACITOR LIFE CYCLE	SUPPOSE C105 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=45°C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta=45°C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta=45°C LIFE TIME		(1) 132585HRS (2) 32658HRS (3) 48474HRS (4) 93765HRS	P
10	MTBF	MIL-HDBK-217F TOTAL FAILURE RATE : 474.6KHRS			P
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 50,000 hours @ TA 50°C			P

SAMPLE	TESTER	APPROVAL
PRODUCT SAMPLE	FRANK	WANGDZ

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