



Test report:MLR030-24F

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Output function test

NO.	Test item	Specication	Test condition	Result	Verdict
1	Ripple & noise	V1:150mVp-p(Max)	I/P:230VAC O/P:Full load Ta:25°C	47.5mVp-p	P
2	Output voltage tolerance	CH1: 21.6V ~ 29V	I/P:230VAC O/P:Min load Ta:25°C	CH1: 19.6V ~ 30V	P
3	Output voltage tolerance	V1:1%~-1%(Max)	I/P:85VAC/277VAC O/P:Full/min load Ta:25°C	V1:0.33%~0.04%	P
4	Line regulation	V1:1%~-1%(Max)	I/P:85VAC/277VAC O/P:Full load Ta:25°C	V1:0%~-0.05%	P
5	Load regulation	V1:1%~-1%(Max)	I/P:230VAC O/P:Full/min load Ta:25°C	V1:0.13%~-0.13%	P
6	Set up time	230VAC/500ms(Max) 115VAC/500ms(Max)	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	119ms/230VAC 58.3ms/115VAC	P
7	Rise time	230VAC/50ms(Max) 115VAC/50ms(Max)	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	10.2ms/230VAC 10.9ms/115VAC	P
8	Hold up time	230VAC/30ms(Typ) 115VAC/12ms(Typ)	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	85.9ms/230VAC 19.5ms/115VAC	P
9	Over/undershoot test	< ±5%	I/P:230VAC O/P:Full load Ta:25°C	Test:< 5%	P

Input function test

NO.	Test item	Specication	Test condition	Result	Verdict
1	Input voltage range	85VAC~277VAC 120VDC~390VDC	I/P:Testing O/P:Full load Ta:25°C	67.5–277VAC 99.5–390VDC	P
			I/P: Low-line-3V=82V High-line+15%=300V O/P:Full/min load ON:30Sec. OFF:30Se 10MIN (AC power ON/OFF NO	ok	
2	Input frequency range	47Hz~63Hz NO damage	I/P:85AC~277VAC O/P:Full/min load Ta:25°C	ok	P
3	Efficiency	89%(TYP)	I/P:230VAC O/P:Full load Ta:25°C	90.00%	P
4	Input current	230V/0.48A 115V/0.88A	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	I=0.32A/230VAC I=0.58A/115VAC	P
5	Inrush current	230V/45A(TYP) 115V/25A(TYP) cold start	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	I=40.9A/230VAC I=17.9A/115VAC	P

Protection function test

NO.	Test item	Specication	Test condition	Result	Verdict
1	Over load protection	105-160%	I/P:277VAC I/P:230VAC I/P:85VAC O/P:Testing Ta:25°C	135.7%/277VAC 133%/230VAC 152%/85VAC See specification	P
2	Over voltage protection	CH1:30V~36V	I/P:277VAC I/P:230VAC I/P:85VAC O/P:Min load Ta:25°C	33.3V/277VAC 33.3V/230VAC 33.3V/85VAC Shut down Re-power ON	P
3	Short protection	Short every output 1 hour NO damage	I/P:277VAC I/P:85VAC O/P:Full load Ta:25°C	NO damage Hiccup mode	P

Environment test

NO.	Test item	Specication	Test condition	Result	Verdict		
1	Temperature rise test	Model:MLR030-24F				P	
		1.Room ambient burn-in: 2HS					
		I/P:230VAC O/P:Full load Ta=24.7°C					
		2.High ambient burn-in: 2HS					
		I/P:230VAC O/P:Full load Ta=49.6°C					
		NO.	P/N	Room ambient Ta= 24.7°C	High ambient Ta=49.6°C		
		1	ZNR1	36.2	60.6		
		2	LF2	45.3	67.9		
		3	Q1	68.9	93.5		
		4	T1 coil	73.9	96.7		
		5	C40	52.6	76.2		
		6	T1 core	76.1	97.8		
		7	C105	61.5	85.4		
		8	D100	85.9	106.9		
		9	LF101	45.6	69.4		
		10	U1	57.9	82.4		
		11	BD1	48.5	71.6		
12	D5	59.6	85.2				
13	RTH1	56.4	73.6				
14	LF1	43.9	65.8				
15	PCB	46.8	68.9				
16	C5	45.9	70.8				
2	Over load burn-in test	NO damage 1 Hours	I/P:230VAC O/P:121 %load Ta:25°C	ok	P		
3	Low temperature turn on test	Turn-in after 2 hour	I/P:277VAC/100VAC O/P:100 %load Ta:-30°C	ok			
4	Vibration test	(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) Ta:25°C		ok	P		

Safety test

NO.	Test item	Specication	Test condition	Result	Verdict
1	Withstand voltage	I/P-O/P:4.0KVAC/min	I/P-O/P:4.4KVAC/min Ta:25°C	I/P-O/P:1.59mA No damage	P
2	Isolation resistance	I/P-O/P:500VDC>100M Ω	I/P-O/P:500VDC Ta:25°C/70%RH	I/P-O/P:9999M Ω No damage	P

Componment stress tset

NO.	Test item	Specication	Test condition	Result	Verdict
1	Power transistor peak voltage	4.5A/600V	I/P:280VAC O/P:(1)Full load turn on (2)Output short (3)Full load continue Ta:25°C	VIN: 281VAC VDS: 512V 476V 511V	P
2	Diode peak voltage	20A/200V	I/P:280VAC O/P:(1)Full load turn on (2)Output short (3)Full load continue Ta:25°C	121V 119.2V 117.4V	P
3	Input capacitor voltage	68uF/400V	I/P:280VAC O/P:(1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Ta:25°C	387V 382V 387V	P
4	Control IC voltage test	U101:38V (max) 0V (min) U1:35V (max) 0V (min)	I/P:280VAC O/P:(1)Full Load (2)Output short (3)O.L.P Change (4)O.V.P (5)Low Line No Load Ta:25°C	U101 U1 26.2V 25.3V 12V 0.82V 12V 3.56V 34.9V 34.5V 20.2V 20.6V	P

E.M.C test

NO.	Test item	Specication	Test condition	Result	Verdict
1	HARMONIC	EN IEC 61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	/	P
2	CONDUCTION	EN 55032 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS	P
3	RADIATION	EN 55032 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS	P
4	E.S.D	EN 61000-4-2 LIGHT INDUSTRY AIR:8KV	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN 61000-4-4 LIGHT INDUSTRY INPUT: 2KV	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	EN 61000-4-5 LIGHT INDUSTRY L-N :2KV	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	CRITERIA A	P

Date	TEST	Check	Approver	Result
2023-9-6	JH HUANG	GQ Z	YX CHEN	PASS