



Test report:MLR060-24F

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Output function test

NO.	Test item	Specication	Test condition	Result	Verdict
1	Ripple & noise	V1:150mVp-p	I/P:230VAC O/P:Full load Ta:25°C	45.6mVp-p	P
2	Output voltage tolerance	CH1:21.8V ~29V	I/P:230VAC O/P:Min load Ta:25°C	CH1: 21.3V ~ 30V	P
3	Output voltage tolerance	V1:1%~-1%	I/P:85VAC/277VAC O/P:Full/min load Ta:25°C	V1:0.09%~- 0.11%	P
4	Line regulation	V1:1%~-1%	I/P:85VAC/277VAC O/P:Full load Ta:25°C	V1:0.04%~- 0.07%	P
5	Load regulation	V1:1%~-1%	I/P:230VAC O/P:Full/min load Ta:25°C	V1:0.09%~- 0.11%	P
6	Set up time	230VAC/500ms(Max) 115VAC/500ms(Max)	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	193ms/230VAC 104ms/115VAC	P
7	Rise time	230VAC/50ms(Max) 115VAC/50ms(Max)	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	25.6ms/230VAC 27.9ms/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	89.5ms/230VAC 18.9ms/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	68.9–277VAC 97.2–390VDC	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	90%	I/P:230VAC O/P:Full load Ta:25°C	89.00%	P
4	Input current	230V/0.8A 115V/1.2A	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	I=0.5A/230VAC I=1A/115VAC	P
5	Inrush current	230V/60A 115V/30A cold start	I/P:230VAC I/P:115VAC O/P:Full load Ta:25°C	I=54.6A/230VAC I=23.6A/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	133.2%/277VAC 133.2%/230VAC 133.2%/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	33.2V/277VAC 33.2V/230VAC 33.2V/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:MLR060-24F			P	
		1.Room ambient burn-in: 2HS				
		I/P:230VAC O/P:Full load Ta=21.2°C				
		2.High ambient burn-in: 2HS				
		I/P:230VAC O/P:Full load Ta=49.8°C				
		NO.	P/N	Room ambient Ta= 21.2°C		High ambient Ta=49.8°C
		1	LF1	49.6		72.9
		2	BD1	54.6		77.6
		3	C5	55.9		80.9
		4	Q1	67.9		88.9
		5	D42	71.9		94.6
		6	T1	85.3		106.8
		7	C105	66.4		87.9
		8	Q100	76.9		98.9
9	LF101	63.9	87.9			
10	U1	59.8	81.9			
2	Over load burn-in test	NO damage 1 Hours	I/P:230VAC O/P:123% 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:1.7mA 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	13A/600V	I/P:280VAC O/P:(1)Full load turn on (2)Output short (3)Full load continue Ta:25°C	VIN: 280VAC VDS: 562V 503V 559V	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	106.3V 78.9V 106.5V	P
3	Input capacitor voltage	120uF/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	376V 399V 377V	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 24.9V 22.4V 0.63V 11.6V 3.29V 11.6V 33.09 30V 21.6V 18.4V	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