

**Innovations
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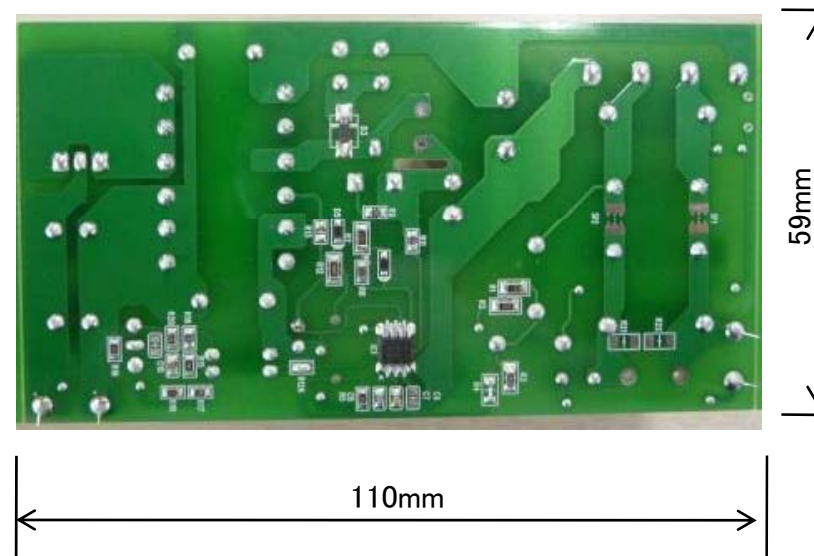
Board No:BM1P061FJEVK-001

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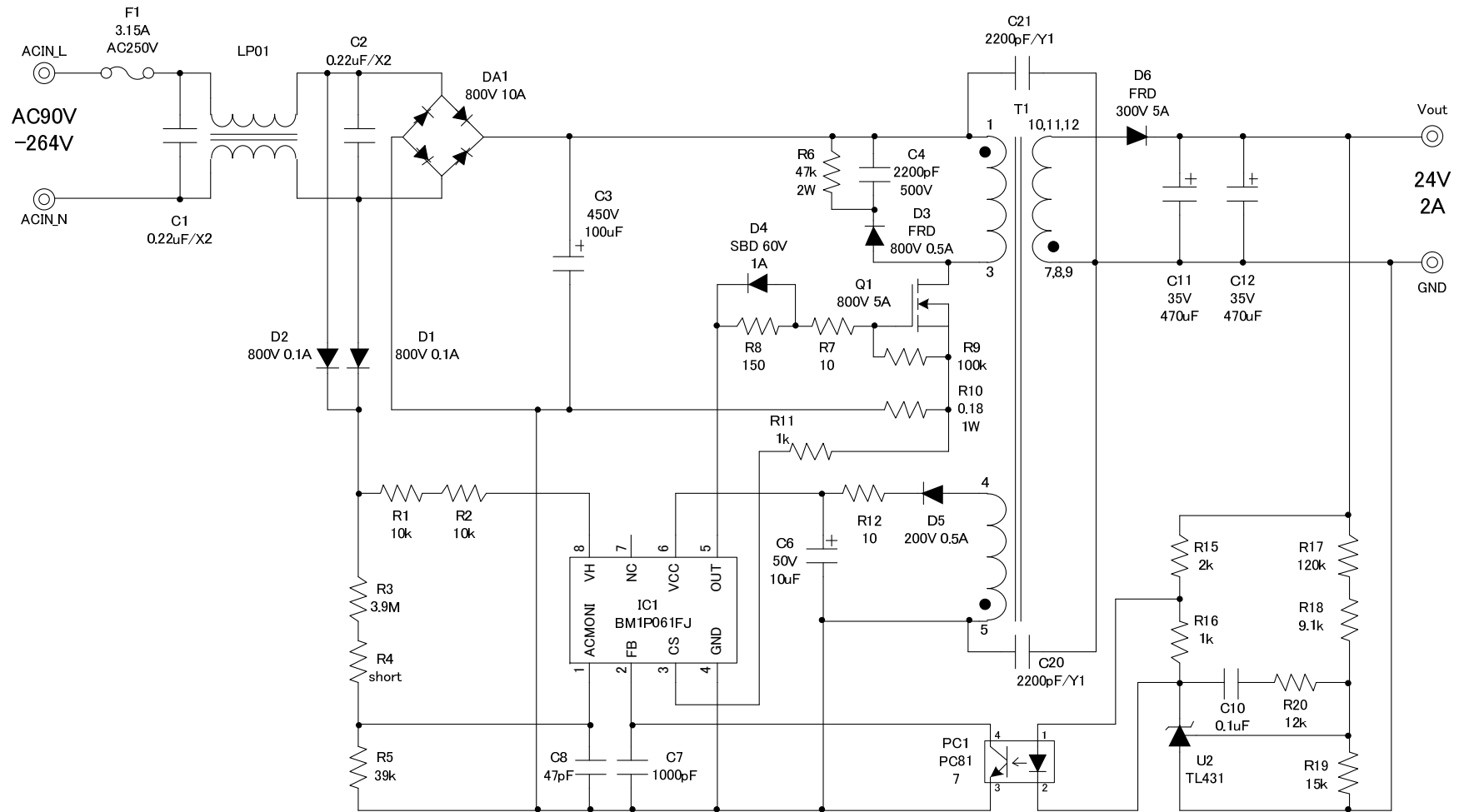
ROHM Co.,Ltd.

Reference Board Specification

Description		Symbol	Min	Typ	Max	Unit	Condition
Input	Voltage	Vin	90		264	Vac	
	Frequency	fac	47	50/60	63	Hz	
	No Load Input Power				100	mW	Vin: AC100V/230V
Output	Voltage	Vout	22.8	24	25.2	V	
	Current	Iout	2			A	
	Ripple Voltage	Vripple			100	mV	20MHz Bandwidth
	Efficiency		80			%	Output: 24V 2A



Application Schematic

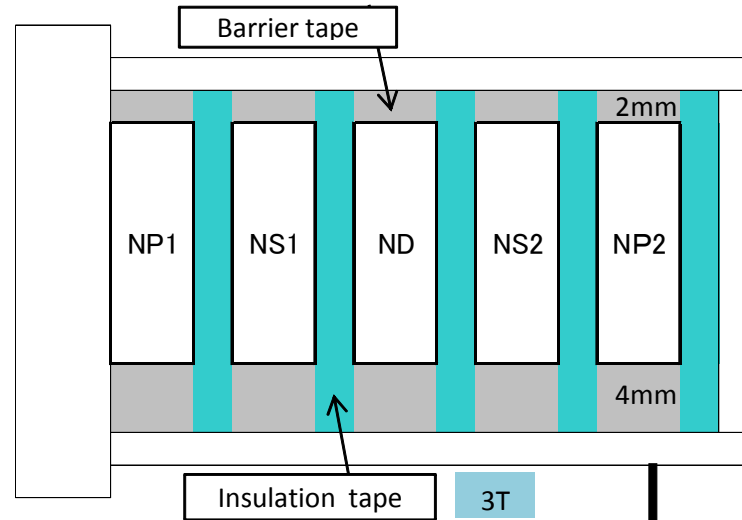
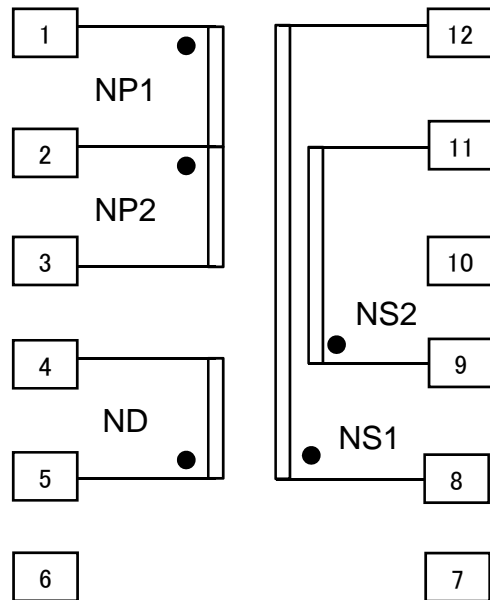


Component List

Item	Spec	Parts name	Maker
C1	0.1uF/X2	LE224	Okaya
C2	0.1uF/X2	LE224	Okaya
C3	100uF/450V	450V 100uF	
C4	2200pF/500V	CK45-R3AD222KYNS	TDK
C6	10uF/50V	10uF 50V	
C7	1000pF/16V	1000pF/16V 1608	
C8	47pF/16V	47pF/16V 1608	
C10	0.1uF/25V	0.1uF/25V 1608	
C11	Low-Z 470uF/35V	Low-Z 470uF/35V	
C12	Low-Z 470uF/35V	Low-Z 470uF/35V	
C20	2200pF/Y1	2200pF/Y1	
C21	2200pF/Y1	2200pF/Y1	
DA1	800V/10A	D10XB80	Shindengen
D1	800V/0.1A	1N4007	
D2	800V/0.1A	1N4007	
D3	FRD 800V 0.5A	FRD 800V 1A	
D4	SBD/FRD 40V 1A	RB160VA-40TR	Rohm
D5	200V 0.5A	RF05VA2STR	Rohm
D6	FRD 300V 5A	RF2001T3D	Rohm
F1		3.15A/AC250V	
IC1		BM1P061FJ	Rohm
LP01		SS26V-100250	NEC Tokin
Q1	800V 5A	R8005ANX	Rohm
R1	10k Ω	MCR18EZHZJ103	Rohm
R2	10k Ω	MCR18EZHZJ103	Rohm
R3	3.9M Ω	MCR18EZHZJ395	Rohm
R4	short		
R5	39k Ω	MCR10EZPJ393	Rohm
R6	47k Ω /2W	47k Ω /2W	
R7	10 Ω	MCR18EZPJ100	Rohm
R8	150 Ω	MCR10EZPJ151	Rohm
R9	100k Ω	MCR10EZPJ104	Rohm
R10	0.15 Ω /1W	LTR100 0.15 Ω	Rohm

Item	Spec	Parts name	Maker
R11	1k Ω	MCR10EZPJ102	Rohm
R12	10 Ω	MCR18EZHZJ100	Rohm
R15	2k Ω	MCR10EZPJ202	Rohm
R16	1k Ω	MCR10EZPJ102	Rohm
R17	120k Ω	MCR10EZPJ124	Rohm
R18	9.1k Ω	MCR10EZPJ912	Rohm
R19	15k Ω	MCR10EZPJ153	Rohm
R20	12k Ω	MCR10EZPJ123	Rohm
T1	EER28	YPP1178	Tomita
U2		TL431	
PC1		PC817	

Transformer:YPP1178 (EER28)



Core: JFE MB3 EER-28.5A or compatible

Bobbin: JFE BER28.5SP12 Vertical/Terminal Pins 6-6(12pins) or compatible

AL-Value: 137.5 nH/N²

Inductance(1-3pin): 0.220 mH±15%

Coil	Terminal	Turns	Wire	Winding Method
NP1	'1-2	20	2UEW 0.45	1 Layer FIT(密)
NS1	'8-12	16	2UEW 0.5	1 Layer FIT(密)
ND	'5-4	10	2UEW 0.45	1 Layer SPACE(均等)
NS2	'9-11	16	2UEW 0.5	1 Layer FIT(密)
NP2	'2-3	20	2UEW 0.45	1 Layer FIT(密)

耐圧 P-S :AC3.0kVrms 1MIN. 2mA or AC3.6kVrms 1s 2mA

PS-CORE:AC1.5kVrms 1MIN. 2mA or AC1.8kVrms 1s 2mA

IR : P-S,PS-CORE 100 MΩ MIN. at DC 500V

Winding beginning: Fix by barrier tape

Winding end: Interpose the line drawn
in a right angle

Winding direction: Unification

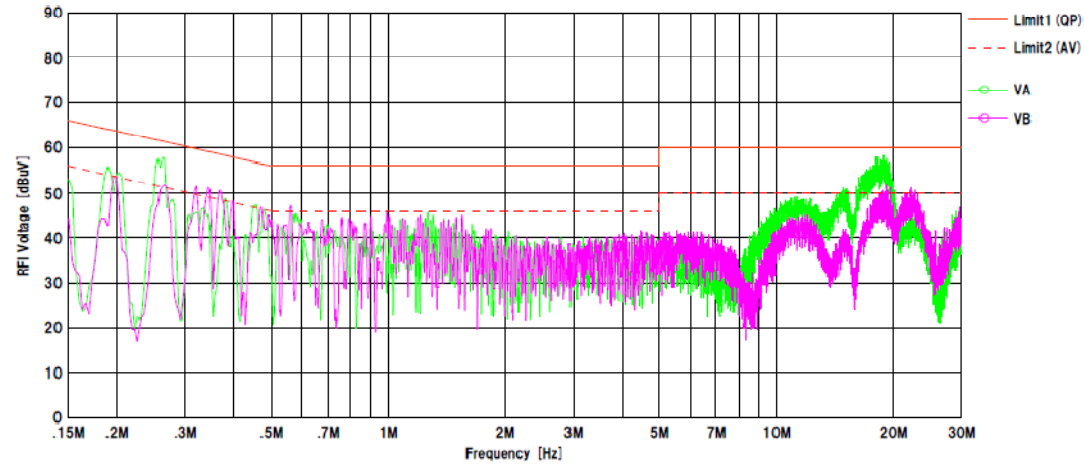
Measurement Data

Vin(V)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	η (%)
90	0.054	23.88	0	0	-
	0.434	23.88	0.01	0.239	55.0
	13.70	23.87	0.5	11.93	87.1
	27.69	23.86	1	23.86	86.2
	42.11	23.86	1.5	35.79	85.0
	56.92	23.86	2	47.72	83.8
100	0.055	23.88	0	0	-
	0.433	23.88	0.01	0.239	55.1
	13.52	23.89	0.5	11.94	88.4
	27.51	23.86	1	23.86	86.7
	41.70	23.86	1.5	35.79	85.8
	56.22	23.86	2	47.72	84.9
230	0.081	23.88	0	0	-
	0.457	23.88	0.01	0.239	52.3
	13.61	23.86	0.5	11.93	87.7
	26.94	23.85	1	23.85	88.5
	40.45	23.84	1.5	35.76	88.4
	54.10	23.84	2	47.68	88.1
264	0.094	23.88	0	0	-
	0.469	23.88	0.01	0.239	50.9
	13.48	23.86	0.5	11.93	88.5
	26.80	23.84	1	23.84	89.0
	40.31	23.84	1.5	35.76	88.7
	53.96	23.83	2	47.67	88.3

Conduction EMI

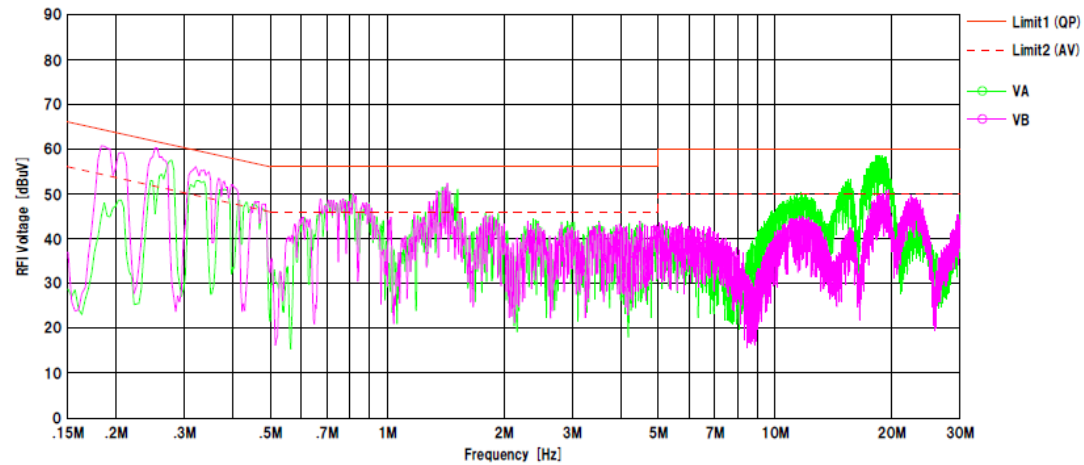
Vin: AC100V/50Hz
Vout: 24V 2A

Limit1 : CISPR Pub 22 Class B
Limit2 : CISPR Pub 22 Class B (AV)



Vin: AC230V/50Hz
Vout: 24V 2A

Limit1 : CISPR Pub 22 Class B
Limit2 : CISPR Pub 22 Class B (AV)



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