

# Innovations Embedded

**Board No:BM1P061FJ-EVK-001**

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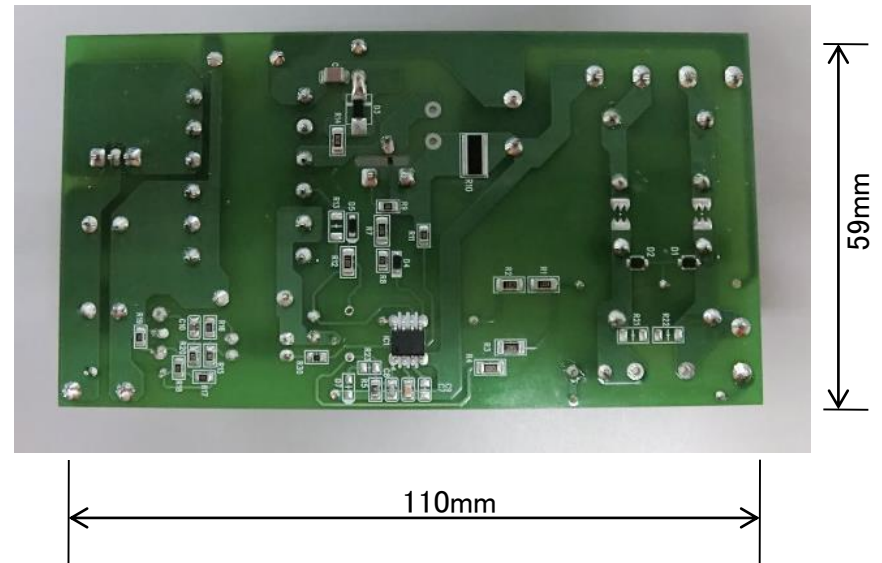
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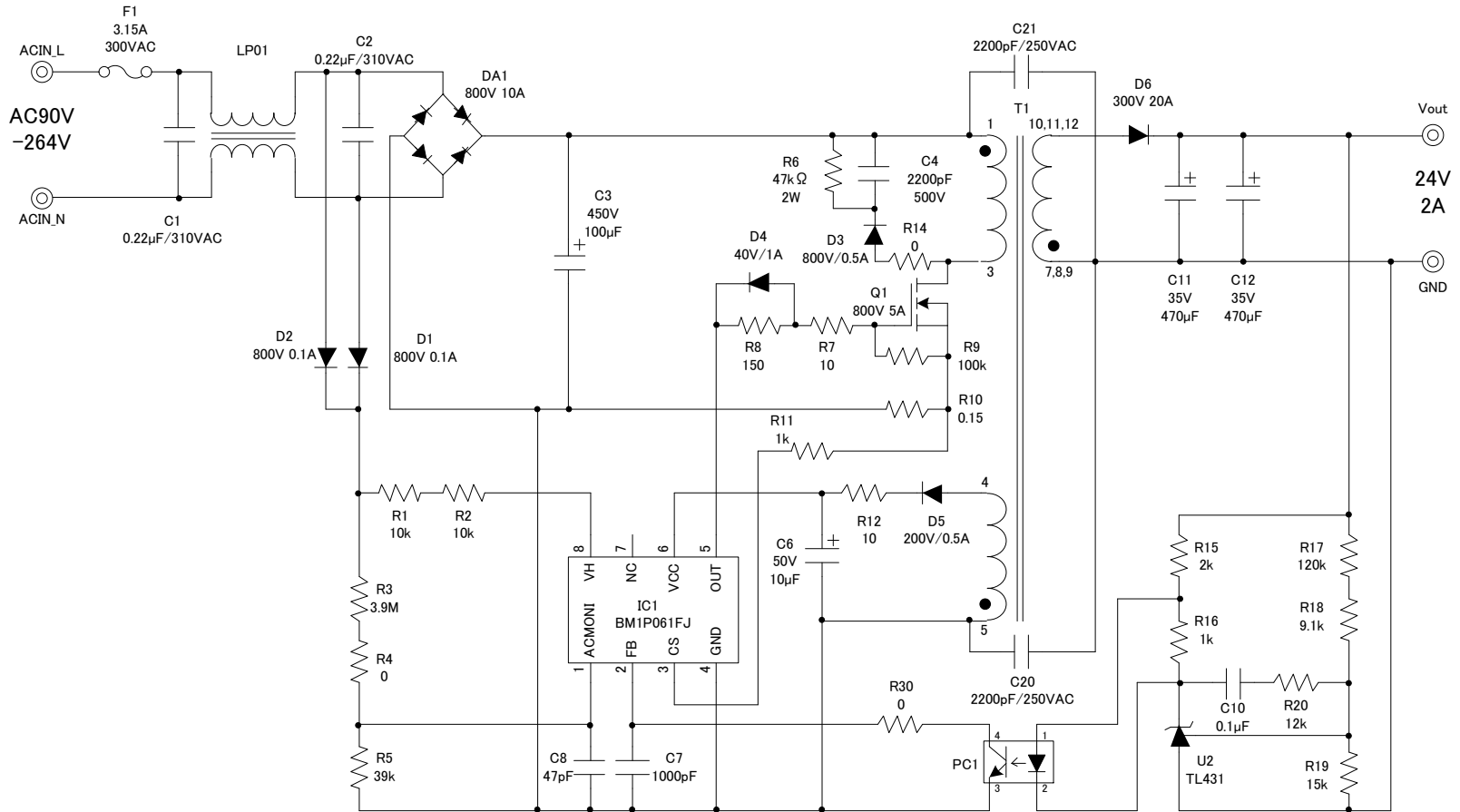
62UG056E Rev.002  
Dec. 2019

**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



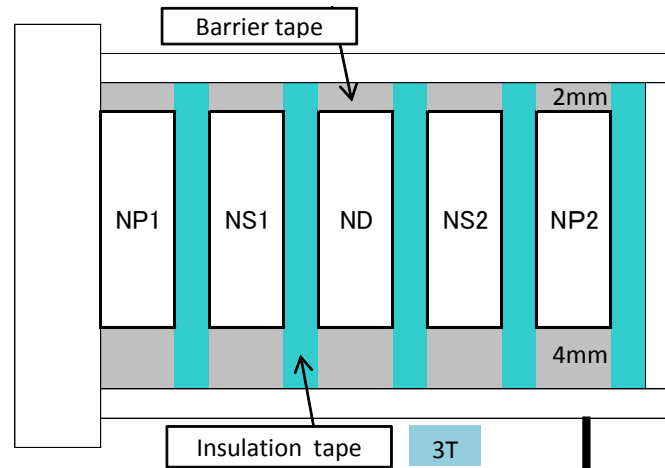
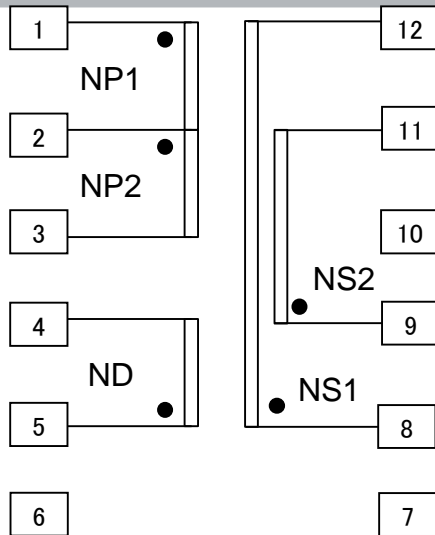


# Component List

Item	Spec	Parts name	Maker
C1	0.22 $\mu$ F/310VAC	890334025027CS	WURTH ELEKTRONIK
C2	0.22 $\mu$ F/310VAC	890334025027CS	WURTH ELEKTRONIK
C3	100 $\mu$ F/450V	450BXW100MEFR19 $\times$ 30	Rubycon
C4	2200pF/500V	CGJ5H4C0G2H222J115AA	TDK
C6	10 $\mu$ F/50V	UPM1H100MDD1TD	Nichicon
C7	1000pF/16V	0805B102K500NT	FH
C8	47pF/100V	GCM1882C2A470JA01D	Murata
C10	0.1 $\mu$ F/100V	HMK107B7104MA-T	TaiyoYuden
C11	470 $\mu$ F/35V	UHD1V471MFD	Nichicon
C12	470 $\mu$ F/35V	UHD1V471MFD	Nichicon
C20	2200pF/250VAC	CS11-E2GA222MYNS	TDK
C21	2200pF/250VAC	CS11-E2GA222MYNS	TDK
DA1	800V/10A	D10XB80-7000	Shindengen
D1	800V/0.1A	RFU02VSM8S	Rohm
D2	800V/0.1A	RFU02VSM8S	Rohm
D3	800V/0.5A	CRF02	TOSHIBA
D4	40V/1A	RB160VAM-40	Rohm
D5	200V/0.5A	RF05VAM2S	Rohm
D6	300V/20A	RF2001T3DNZ	Rohm
F1	3.15A/300V	36913150000	Littelfuse
IC1		BM1P061FJ	Rohm
LP01	25mH/1A	SS26V-100250	TOKIN
Q1	800V/5A	R8005ANX	Rohm
R1	10k $\Omega$	MCR18EZPJ103	Rohm
R2	10k $\Omega$	MCR18EZPJ103	Rohm
R3	3.9M $\Omega$	KTR18EZPJ395	Rohm
R4	0 $\Omega$	MCR18EZPJ000	Rohm
R5	39k $\Omega$	MCR10EZPJ393	Rohm
R6	47k $\Omega$ /2W	ERG2SJ473E	Panasonic
R7	10 $\Omega$	MCR18EZPJ100	Rohm
R8	150 $\Omega$	MCR10EZPJ151	Rohm
R9	100k $\Omega$	MCR10EZPJ104	Rohm
R10	0.15 $\Omega$	LTR100JZPFLR150	Rohm

Item	Spec	Parts name	Maker
R11	1k $\Omega$	MCR10EZPJ102	Rohm
R12	10 $\Omega$	MCR18EZPJ100	Rohm
R14	0 $\Omega$	MCR18EZPJ000	Rohm
R15	2k $\Omega$	MCR10EZPJ202	Rohm
R16	1k $\Omega$	MCR10EZPJ102	Rohm
R17	120k $\Omega$	MCR10EZPF1203	Rohm
R18	9.1k $\Omega$	MCR10EZPF9101	Rohm
R19	15k $\Omega$	MCR10EZPF1502	Rohm
R20	12k $\Omega$	MCR10EZPJ123	Rohm
R30	0 $\Omega$	MCR03EZPJ000	Rohm
T1	EER28	YPP1178	Alpha Trans
U2		TL431	TI
PC1	5kV	LTV-817-B	LiteOn

# Trans Specification 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/N<sup>2</sup>

Inductance(1-3pin): 0.220 mH±15%

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

Rated Voltage: 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

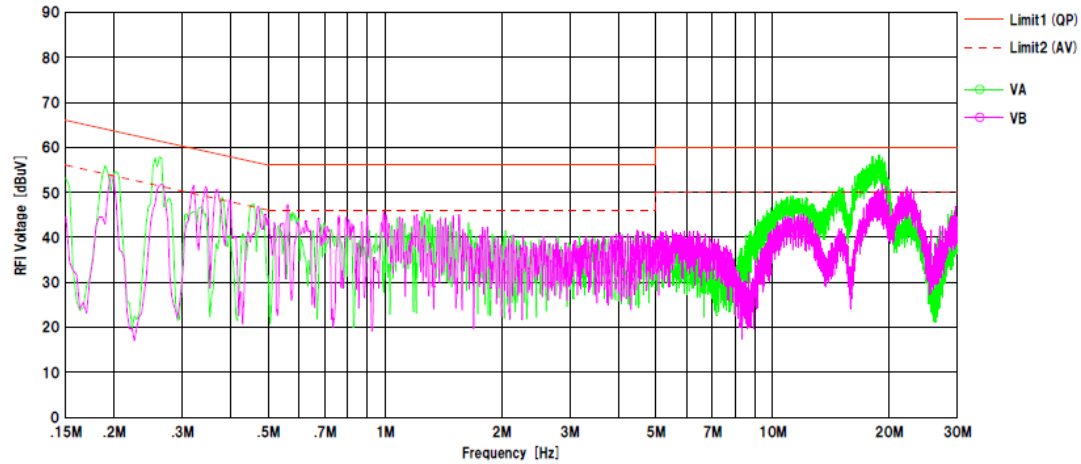
Winding end : Interpose the line drawn in a right angle

Winding direction : Unification

Vin(V)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	$\eta$ (%)
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

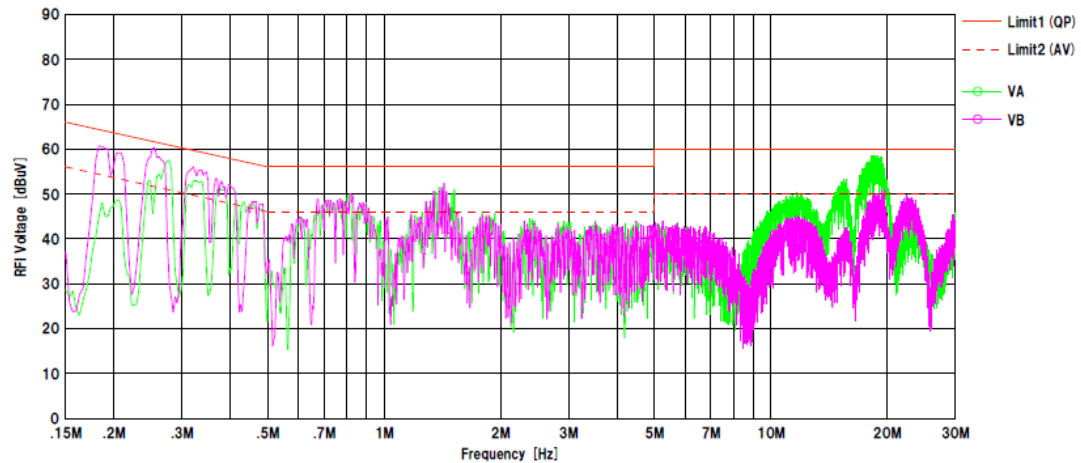
Vin: AC100V/50Hz  
Vout: 24V 2A

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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### Notes

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