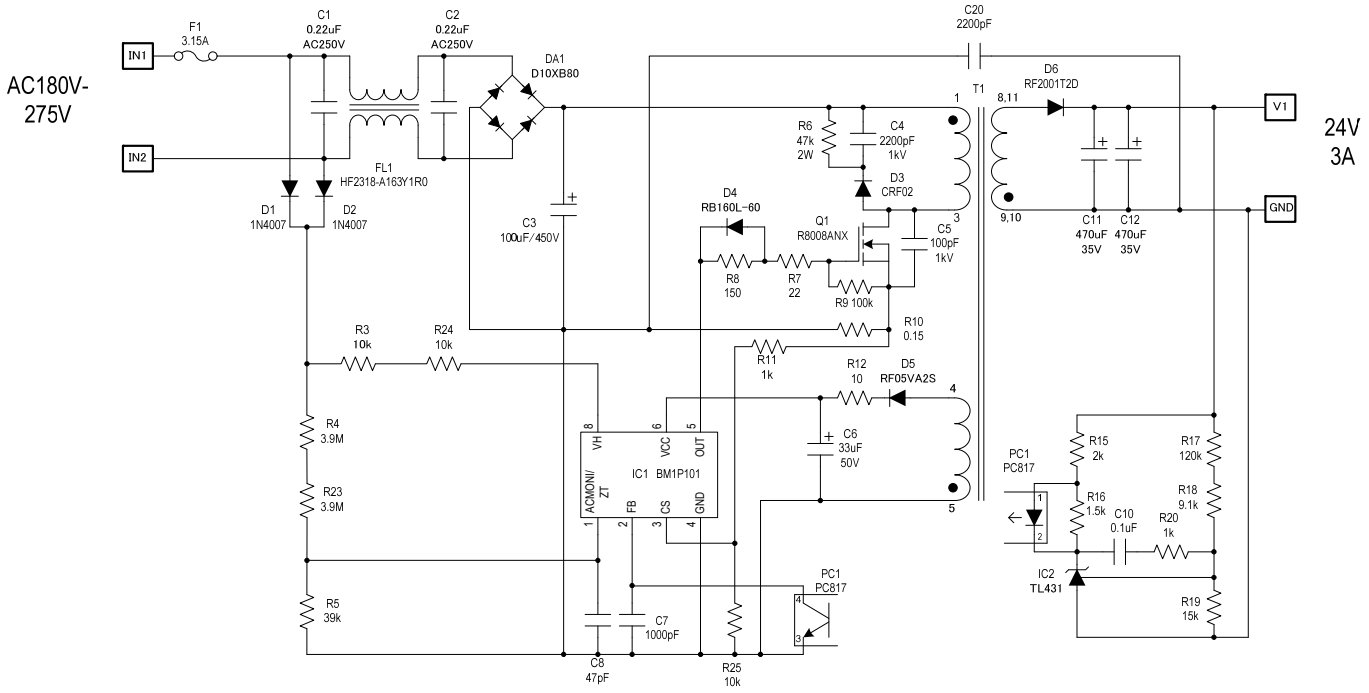
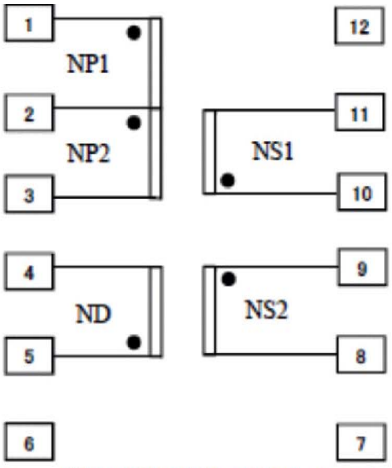
AC/DC Converter Controller Application Information

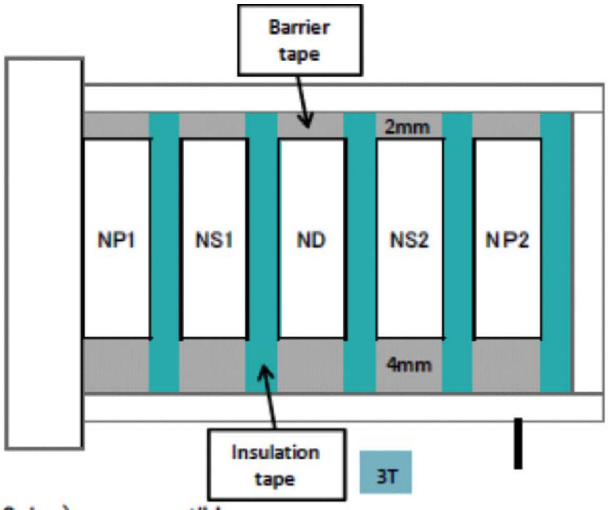
IC Product Name	BM1P101FJ
Control Method	PWM
Input	180 Vac to 275 Vac
Output	24V 3A
Type	Isolation
Document Number	2-I-2400300-0002-00
Revision	001

Reference Circuit



Transformer Specification





Core: JFE MB3 EER-28.5A or compatible

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

AL-Value: 100.3 nH/N^2

Inductance(1-3pin): 0.231 mH±15%

Coil	Terminal	Turns	Wire	Winding Method
NP1	'1-2	24	2UEW 0.4	1 Layer FIT
NS1	'10-11	12	2UEW 0.4×2	1 Layer FIT
ND	'5-4	8	2UEW 0.4×3	1 Layer FIT
NS2	'9-8	12	2UEW 0.4×2	1 Layer FIT
NP2	'2-3	24	2UEW 0.4	1 Layer FIT

Po=72W

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

巻始め：バリアテープ固定
巻終り：直角引き出し挟み込み処理
巻方向 ： 統一

Bill of Materials

Item	Spec	Parts name	Maker
C1	0.22uF/AC250V X-Cap	LE224	Okaya
C2	0.22uF/AC250V X-Cap	LE224	Okaya
C3	100uF/450V	KXJ 100uF 450V	Nippon Chemi-con
C4	2200pF/1kV	CK45-B3AD222KY*N	TDK
C5	100pF/1kV	CC45SL3AD101JY*N	TDK
C6	33uF/50V	PJ 33uF 50V	Nichicon
C7	1000pF/16V	GRM219B711H102K	Murata
C8	47pF/16V	GRM219B711H470K	Murata
C10	0.1uF/50V	GRM21BB11H104KA01B	Murata
C11	470uF/35V Low-Z	HD 470uF 35V	Nichicon
C12	470uF/35V Low-Z	HD 470uF 35V	Nichicon
C20	2200pF/1kV	CS11-E2GA222MYNS	TDK
DA1	800V/10A	D10XB80	Shindengen
D1	800V/1A	1N4007	
D2	800V/1A	1N4007	
D3	FRD 700V/0.5A	RFN1L7S	Rohm
D4	60V/1A	RB160L-60	Rohm
D5	FRD 200V/0.5A	RF05VA2S/RF05VAM2S	Rohm
D6	FRD 200V/20A	RF2001T2D/RFN20T2D	Rohm
F1	3.15A		
FL1		HF2318-A163Y1R0	TDK
IC1		BM1P101FJ	Rohm
IC2		TL431	
PC1		PC817	SHARP
Q1	800V/8A	R8008ANX	Rohm
R3	10kΩ	MCR18EZPJ104	Rohm
R4	3.9MΩ/0.25W	MCR18EZPJ395	Rohm
R5	39kΩ	MCR10EZPJ393	Rohm
R6	47kΩ/2W	100kΩ//100kΩ 2 パラ	
R7	22Ω/0.25W	MCR18EZPJ220	Rohm
R8	150Ω	MCR10EZPJ151	Rohm
R9	100kΩ	MCR10EZPJ104	Rohm
R10	0.2Ω/1W	0.39Ω//0.39Ω 2 パラ	
R11	1kΩ	MCR10EZPJ102	Rohm
R12	10Ω/0.25W	MCR18EZPJ100	Rohm
R15	2kΩ	MCR10EZPJ202	Rohm
R16	1.5kΩ	MCR10EZPJ152	Rohm
R17	120kΩ	MCR10EZPF1203	Rohm
R18	9.1kΩ	MCR10EZPF9101	Rohm
R19	15kΩ	MCR10EZPF1502	Rohm
R20	1kΩ	MCR10EZPJ102	Rohm
R23	3.9MΩ/0.25W	MCR18EZPJ395	Rohm
R24	10kΩ	MCR18EZPJ104	Rohm
R25	10kΩ	MCR10EZPJ103	Rohm
T1	EER28		

Typical Characteristics

＜レギュレーション/効率＞

Vin:AC180V 50Hz

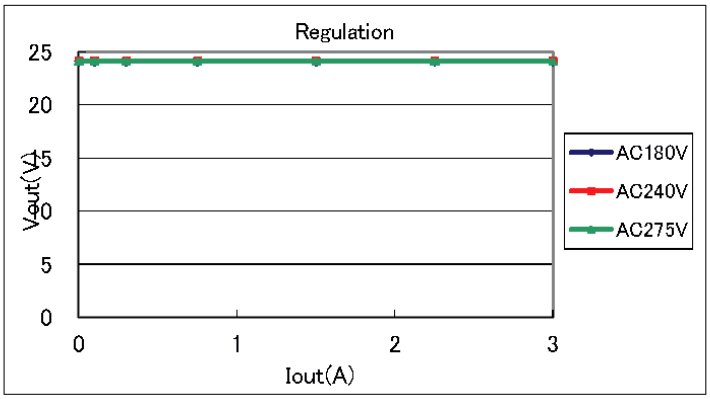
Iout(A)	Vout(V)	Pout(W)	Pin(W)	η(%)
0	24.15	0	0.059	-
0.1	24.15	2.415	2.939	82.2
0.3	24.15	7.245	8.204	88.3
0.75	24.15	18.11	20.77	87.2
1.5	24.15	36.22	41.04	88.3
2.25	24.14	54.32	61.87	87.8
3	24.14	72.42	82.44	87.8

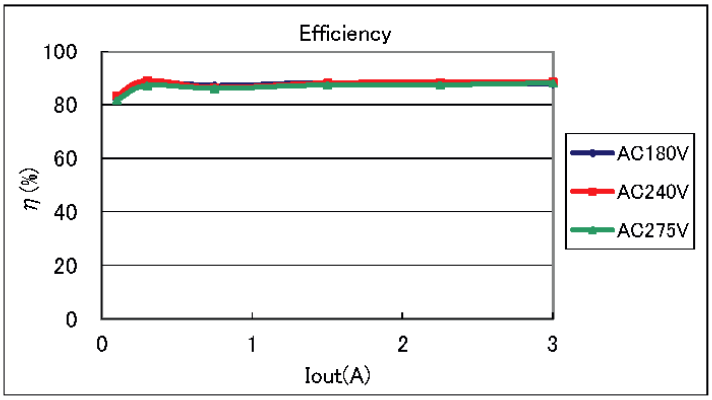
Vin:AC240V 50Hz

Iout(A)	Vout(V)	Pout(W)	Pin(W)	η(%)
0	24.15	0	0.091	-
0.1	24.15	2.415	2.895	83.4
0.3	24.15	7.245	8.137	89.0
0.75	24.15	18.11	20.95	86.4
1.5	24.15	36.22	41.11	88.1
2.25	24.14	54.32	61.41	88.5
3	24.14	72.42	81.85	88.5

Vin:AC275V 50Hz

Iout(A)	Vout(V)	Pout(W)	Pin(W)	η(%)
0	24.15	0	0.174	-
0.1	24.15	2.415	2.957	81.7
0.3	24.15	7.245	8.313	87.2
0.75	24.15	18.11	21.04	86.1
1.5	24.15	36.22	41.46	87.4
2.25	24.14	54.32	62.16	87.4
3	24.14	72.42	82.20	88.1





＜待機時電力＞　抵抗負荷にて測定

Vin:AC240V/50Hz時

RL(kΩ)	Vout(V)	Iout(mA)	Pout(W)	Pin(W)	η(%)
47	24.15	0.514	0.012	0.088	14.1
1.8	24.15	13.42	0.324	0.472	68.7

Revision History

Date	Revision	Changes
7.Mar.2014	001	New Release

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JAPAN	USA	EU	CHINA
CLASSⅢ	CLASSⅢ	CLASSⅡb	CLASSⅢ
CLASSⅣ		CLASSⅢ	

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