

MODEL	PMA15F-3R3	PMA15F-5	PMA15F-12	PMA15F-15	PMA15F-24
MAX OUTPUT WATTAGE[W]	9.9	15	15.6	15	16.8
DC OUTPUT	3.3V 3A	5V 3A	12V 1.3A	15V 1A	24V 0.7A

SPECIFICATIONS

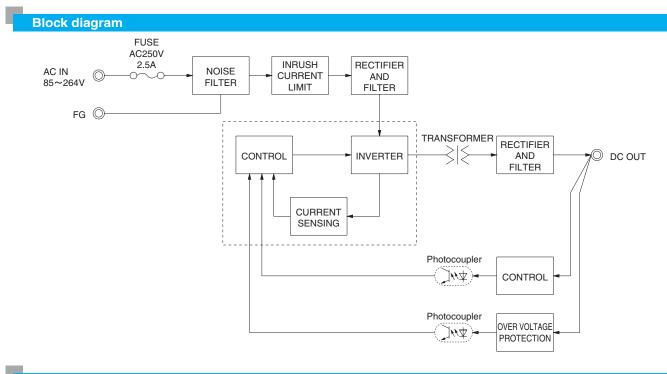
	MODEL		PMA15F-3R3	PMA15F-5	PMA15F-12	PMA15F-15	PMA15F-24	
	VOLTAGE[V]		AC85 - 264 1 ¢ (Ret	fer to the Instruction	Manual 1.1 and 3.2)	*3		
	CURRENT[A]	ACIN 100V	0.30typ (lo=100%)	0.40typ (lo=100%				
	CORRENT[A]	ACIN 200V	0.15typ (lo=100%)	0.20typ (lo=100%)			
	FREQUENCY[Hz]		50 / 60 (47 - 440)					
NPUT		ACIN 100V	66typ	70typ	74typ	76typ	76typ	
	EFFICIENCY[%]	ACIN 200V	67typ	74typ	78typ	79typ	79typ	
		ACIN 100V	15typ (lo=100%) (At cold start)					
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%) (At cold start)					
	LEAKAGE CURREN	T[mA]	0.05/0.10max (ACIN	100V/240V 60Hz	, Io=100%, According	g to IEC60601-1)		
	VOLTAGE[V]		3.3	5	12	15	24	
	CURRENT[A]		3.0	3.0	1.3	1.0	0.7	
	LINE REGULATION[mV]		20max	20max	48max	60max	96max	
	LOAD REGULATION	l[mV]	40max	40max	100max	120max	150max	
	RIPPLE[mVp-p]	0 to +50℃	80max	80max	120max	120max	120max	
	*1	-10 - 0°C	140max	140max	160max	160max	160max	
	RIPPLE NOISE[mVp-p]	0 to +50℃	120max	120max	150max	150max	150max	
OUTPUT	*1	-10 - 0℃	160max	160max	180max	180max	180max	
		0 to +50℃	50max	50max	120max	150max	240max	
	TEMPERATURE REGULATION[mV]	-10 to +50℃	60max	60max	150max	180max	290max	
	DRIFT[mV] *2		20max	20max	48max	60max	96max	
	START-UP TIME[ms]		200typ (ACIN 100V, Io=100%) *Start-up time is 700ms typ for less than 1 minute of applying input again from turning off the input volta					
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)					
	OUTPUT VOLTAGE ADJUSTMENT	[RANGE[V]	2.85 to 3.60	4.50 to 5.50	10.00 to 13.20	13.20 to 18.00	19.20 to 27.00	
	OUTPUT VOLTAGE SET	TING[V]	3.30 to 3.40	5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	
	OVERCURRENT PROT	ECTION	Works over 105% o	f rating and recovers	s automatically			
ROTECTION	OVERVOLTAGE PROTE	CTION[V]	4.00 to 5.25	5.75 to 7.00	15.00 to 18.00	20.00 to 25.00	30.00 to 37.00	
IRCUIT AND	OPERATING INDICA	TION	LED (Green)					
Inchio	REMOTE ON/OFF		Not provided					
	INPUT-OUTPUT		AC4,000V 1minute,	Cutoff current = 10r	nA, DC500V 50M Ω n	nin (At Room Tempera	ature)	
SOLATION	INPUT-FG		AC2,000V 1minute,	Cutoff current = 10r	nA, DC500V 50M Ω n	nin (At Room Tempera	ature)	
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M Ω min (At Room Temperature)					
	OPERATING TEMP., HUMID.AND	O ALTITUDE	-10 to +70℃, 20 - 9	0%RH (Non conden	sing), 3,000m (10,00	0 feet) max *3		
NVIRONMENT	STORAGE TEMP., HUMID.AND	ALTITUDE	-20 to +75℃, 20 - 9	0%RH (Non conden	sing), 9,000m (30,000	feet) max		
	VIBRATION		10 - 55Hz, 19.6m/s ²	(2G), 3minutes peri	od, 60minutes each a	along X, Y and Z axis		
	IMPACT		196.1m/s2 (20G), 11	96.1m/s ² (20G), 11ms, once each X, Y and Z axis				
AFETY AND	AGENCY APPROVA	LS	UL60601-1, C-UL (CSA-C22.2 No.601.1), EN60601-1					
IOISE	CONDUCTED NOISE	-	Complies with FCC-	B, VCCI-B, CISPR22	-B, EN55011-B, EN55	5022-B		
REGULATIONS	HARMONIC ATTENU	JATOR	Complies with IEC6	1000-3-2 (Not built-	in to active filter * 4)			
OTHERS	CASE SIZE/WEIGHT	•	31×78×103mm (V	V×H×D) / 230g ma	x (without cover)			
	COOLING METHOD		31×78×103mm (W×H×D) / 230g max (without cover) Convection					

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Derating is required.
*4 When two or more units are used, they may not comply with the harmonic attenuator. Please

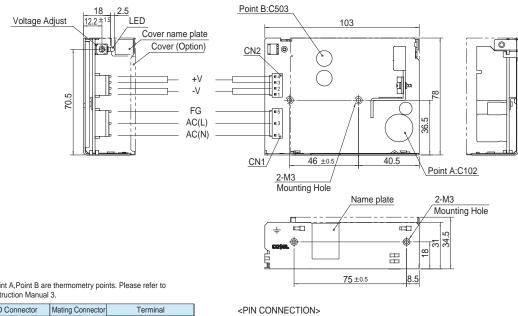
- Parallel operation with other model is not possible.
- Derating is required when operated with cover. A sound may occur from power supply at peak loading. *
- contact us for details.





External view





% Point A,Point B are thermometry points. Please refer to Instruction Manual 3.

I/C	O Connector	Mating Connector	T	erminal
014	1-1123724-3	4 4400700 5	Chain	1123721-1
CINT	1-1123724-3	1-1123722-5	Loose	1318912-1
010	4 4400700 4	4 4400700 4	Chain	1123721-1
CN2	1-1123723-4	1-1123722-4	Loose	1318912-1
		1)	Mfr : Tyco E	Electronics AMP)
		is Mfr.Tyco Electr		

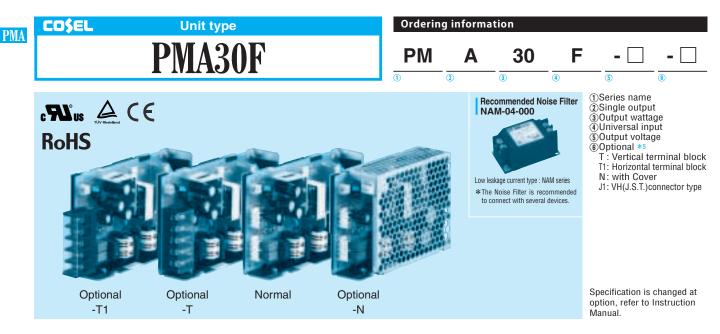
⁻J1 : (J.S.T) connector type -T : Vertical terminal block type

CN1		CN2	
Pin No.	Input	Pin No.	Output
1	AC(N)	1, 2	-V
2		1, 2	- v
3	AC(L)	3, 4	+V
4		3, 4	+v
5	FG		

% Tolerance : ±1

- Mass : 230g or less (without cover)
- * PCB Material/thickness : CEM-3 / 1.6mm
- * Chassis material : Electric galvanizing steel board
- % Keep drawing current per pin bellow 5A of CN2.
- % Dimensions in mm
- % Mounting torque : 0.6N \cdot m (6.3kgf \cdot cm) max
- % Please connect safety ground to the unit in 2-M3 holes.

⁻T1 : Horizontal terminal block type Refer to Instruction Manual 4.



MODEL	PMA30F-3R3	PMA30F-5	PMA30F-12	PMA30F-15	PMA30F-24
MAX OUTPUT WATTAGE[W]	19.8	30	30	30	31.2
DC OUTPUT	3.3V 6A	5V 6A	12V 2.5A	15V 2A	24V 1.3A

SPECIFICATIONS

	MODEL		PMA30F-3R3	PMA30F-5	PMA30F-12	PMA30F-15	PMA30F-24	
	VOLTAGE[V]		AC85 - 264 1 ϕ (Refer to the Instruction Manual 1.1 and 3.2) *3					
		ACIN 100V	0.50typ (lo=100%)	0.70typ (lo=100%))			
	CURRENT[A]	ACIN 200V	0.30typ (lo=100%)	0.40typ (lo=100%))			
	FREQUENCY[Hz]	_	50 / 60 (47 - 440)					
NPUT		ACIN 100V	67typ	71typ	76typ	77typ	77typ	
	EFFICIENCY[%]	ACIN 200V	69typ	74typ	78typ	80typ	80typ	
		ACIN 100V	15typ (lo=100%) (At cold start)					
	INRUSH CURRENT[A]		30typ (Io=100%) (A	At cold start)				
	LEAKAGE CURREN	T[mA]	0.05 / 0.10max (AC	IN 100V / 240V 60H	z, Io=100%, Accordin	g to IEC60601-1)		
	VOLTAGE[V]		3.3	5	12	15	24	
	CURRENT[A]		6.0	6.0	2.5	2.0	1.3	
	LINE REGULATION[mV]		20max	20max	48max	60max	96max	
	LOAD REGULATION	<u> </u>	40max	40max	100max	120max	150max	
	RIPPLE[mVp-p]	0 to +50°C		80max	120max	120max	120max	
	*1	-10 - 0°C	140max	140max	160max	160max	160max	
	RIPPLE NOISE[mVp-p]		120max	120max	150max	150max	150max	
OUTPUT	*1	-10 - 0°C		160max	180max	180max	180max	
ſ	TEMPERATURE REGULATION[mV]	0 to +50℃		50max	120max	150max	240max	
		-10 to +50℃		60max	150max	180max	290max	
	DRIFT[mV] *2			20max	48max	60max	96max	
	START-UP TIME[ms]		200typ (ACIN 100V, lo=100%) * Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input volta					
	HOLD-UP TIME[ms]		20typ (ACIN 100V,					
	OUTPUT VOLTAGE ADJUSTMENT		2.85 to 3.60	4.50 to 5.50	10.00 to 13.20	13.20 to 18.00	19.20 to 27.00	
	OUTPUT VOLTAGE SET	TING[V]	3.30 to 3.40	5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	
ROTECTION	OVERCURRENT PROT			of rating and recovers				
CIRCUIT AND	OVERVOLTAGE PROTE		4.00 to 5.25	5.75 to 7.00	15.00 to 18.00	20.00 to 25.00	30.00 to 37.00	
THERS	OPERATING INDICA	TION	LED (Green)					
	REMOTE ON/OFF		Not provided					
	INPUT-OUTPUT		,	,	nA, DC500V 50MΩ m	· · ·	/	
SOLATION	INPUT-FG				nA, DC500V 50MΩ m			
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M Ω min (At Room Temperature)					
	OPERATING TEMP., HUMID.AND				sing), 3,000m (10,00			
INVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max					
	VIBRATION		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis					
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis					
SAFETY AND	AGENCY APPROVA		UL60601-1, C-UL (CSA-C22.2 No.601.1), EN60601-1					
IOISE	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B					
REGULATIONS	HARMONIC ATTENU			61000-3-2 (Not built-i	/			
OTHERS	CASE SIZE/WEIGHT	•	```	N×H×D) / 240g max	x (without cover)			
	COOLING METHOD		Convection					

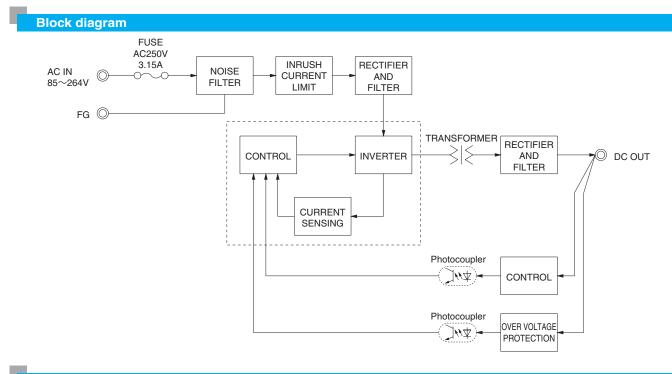
asured by 20MHz scope or Rip Noise meter (equivalent to KEISOKU-GIKEN: *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Derating is required.
*4 When two or more units are used, they may not comply with the harmonic attenuator. Please

*

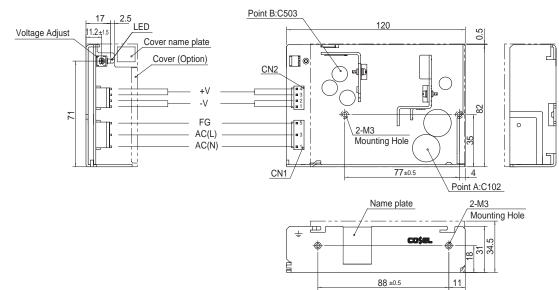
- Parallel operation with other model is not possible.
- Derating is required when operated with cover. A sound may occur from power supply at peak loading. *
- contact us for details.
- A-182





External view





% Point A,Point B are thermometry points. Please refer to Instruction Manual 3.

I/C	O Connector	Mating Connector	Terminal		
014	1-1123724-3	1-1123722-5	Chain	1123721-1	
CIN1	1-1123724-3	1-1123722-5	Loose	1318912-1	
010	1-1123723-4	1-1123722-4	Chain	1123721-1	
CINZ	1-1123723-4	1-1123722-4	Loose	1318912-1	
		()	Mfr : Tyco E	Electronics AMP)	

I/O Connector is Mfr.Tyco Electronics AMP
 Option : -J1 : (J.S.T) connector type
 -T : Vertical terminal block type
 -T1 : Horizontal terminal block type

Refer to Instruction Manual 4.

<PIN CONNECTION>

		CN2	
Input		Pin No.	Output
AC(N)		1.0	-V
		1, 2	- V
AC(L)		2.4	+V
		3, 4	+v
FG			
	AC(N) AC(L)	Input AC(N) AC(L)	Input Pin No. AC(N) 1, 2 AC(L) 3, 4

% Tolerance : ±1

※ Mass : 240g or less (without cover)

※ PCB Material/thickness : CEM-3 / 1.6mm

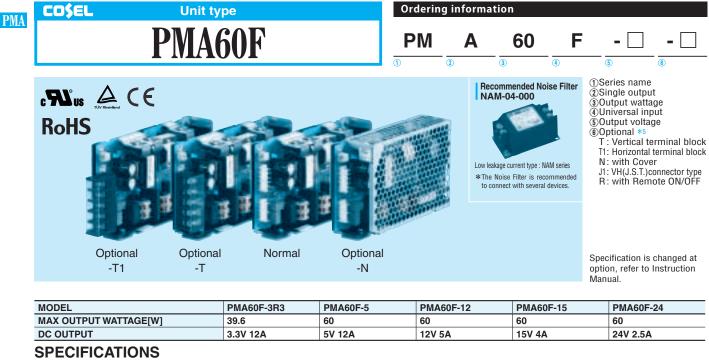
% Chassis material : Aluminum

% Keep drawing current per pin bellow 5A of CN2.

※ Dimensions in mm

[※] Mounting torque : 0.49N ⋅ m (5kgf ⋅ cm) max

[%] Please connect safety ground to the unit in 2-M3 holes.



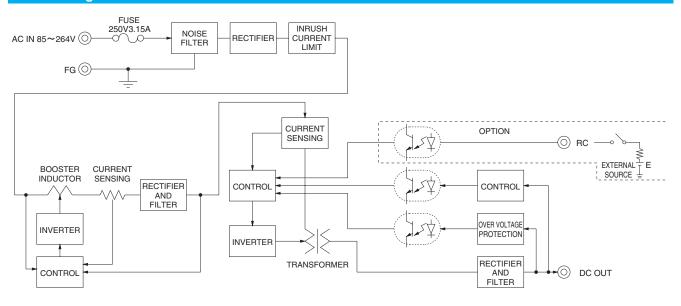
	MODEL		PMA60F-3R3	PMA60F-5	PMA60F-12	PMA60F-15	PMA60F-24		
	VOLTAGE[V]		AC85 - 264 1 φ (R	efer to the Instructi	on Manual 1.1)				
		ACIN 100V	0.7typ (lo=100%)	0.8typ (lo=100%	(o)				
	CURRENT[A]	ACIN 200V	0.4typ (lo=100%) 0.5typ (lo=100%)						
	FREQUENCY[Hz]		50 / 60 (47 - 63)						
		ACIN 100V	77typ	80typ	80typ	81typ	81typ		
NPUT	EFFICIENCY[%]	ACIN 200V	78typ	83typ	82typ	83typ	83typ		
	POWER FACTOR	ACIN 100V	0.98typ						
	(lo=100%)	ACIN 200V	0.85typ 0.90typ						
		ACIN 100V	15typ (lo=100%)	15typ (lo=100%) (At cold start)					
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%)						
	LEAKAGE CURREN	T[mA]	JI ()	· /)Hz, Io=100%, Accordi	ng to IEC60601-1)			
	VOLTAGE[V]		3.3	5	12	15	24		
	CURRENT[A]		12.0	12.0	5.0	4.0	2.5		
	LINE REGULATION	mV]	20max	20max	48max	60max	96max		
	LOAD REGULATION		40max	40max	100max	120max	150max		
	RIPPLE[mVp-p]		80max	80max	120max	120max	120max		
	*1	-10 - 0°C		140max	160max	160max	160max		
	RIPPLE NOISE[mVp-p]	0 to +50°C	120max	120max	150max	150max	150max		
OUTPUT	*1		160max	160max	180max	180max	180max		
1		0 to +50°C		50max	120max	150max	240max		
	TEMPERATURE REGULATION[mV]		60max	60max	150max	180max	290max		
	DRIFT[mV]	*2	20max	20max	48max	60max	96max		
	START-UP TIME[ms]		250typ (ACIN 100V, Io=100%)						
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)						
	OUTPUT VOLTAGE ADJUSTMENT	RANGEIVI	2.85 to 3.60	4.50 to 5.50	10.00 to 13.20	13.20 to 18.00	19.20 to 27.00		
	OUTPUT VOLTAGE SET		3.30 to 3.40	5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96		
	OVERCURRENT PROT			of rating and recov			2 100 10 2 1100		
PROTECTION	OVERVOLTAGE PROTEC		4.00 to 5.25	5.75 to 7.00	15.00 to 18.00	20.00 to 25.00	30.00 to 37.00		
CIRCUIT AND	OPERATING INDICA		LED (Green)	0.10 10 1.00	10.00 10 10.00	20.00 10 20.00	30.00 10 07.00		
OTHERS	REMOTE ON/OFF			d external power so	urce)				
	INPUT-OUTPUT-RC	*3			0 mA, DC500V 50M Ω n	nin (At Room Tempera	ature)		
SOLATION	INPUT-FG				0mA, DC500V 50MΩ n				
	OUTPUT RC-FG	*3			mA, DC500V 50MΩ mi				
	OPERATING TEMP., HUMID.AND		,		ensing), 3,000m (10,00	<u> </u>	/		
	STORAGE TEMPHUMID.AND		,		ensing), 9,000m (30,00	/			
INVIRONMENT	VIBRATION		,		eriod, 60minutes each a	/			
	IMPACT		,	11ms, once each X,	,				
AFETY AND	AGENCY APPROVAL	LS		(CSA-C22.2 No.601					
	CONDUCTED NOISE				22-B, EN55011-B, EN55	5022-B			
REGULATIONS			Complies with IEC	, ,	,, _,, _				
	CASE SIZE/WEIGHT			(W×H×D) / 350g n	nax (without cover)				
OTHERS	COOLING METHOD		Convection						

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

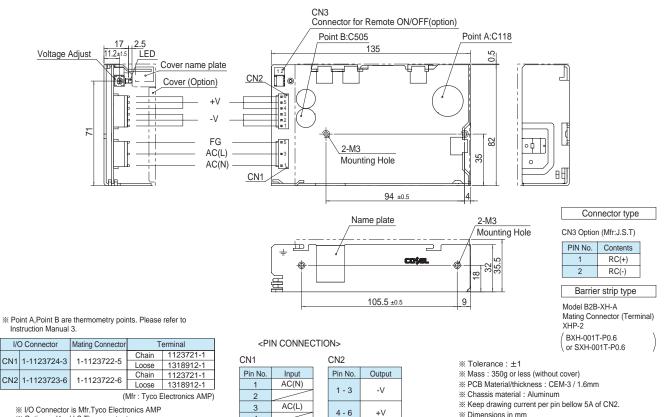
3 Applicable when Remote ON/OFF (optional) is added. RC is insulated with input, output and FG.
 *4 Derating is required.

- Parallel operation with other model is not possible. * Derating is required when operated with cover.
 - * A sound may occur from power supply at peak loading.

Block diagram



External view



% External size of option T,T1,R and N is different from standard model and refer to 4 Option of instruction manual for details.

Instruction Manual 3. Г

1/2	Connector	Mating Connector		erriniai
0.14	4 4400704 0	1-1123722-5	Chain	1123721-1
CINT	1-1123724-3	1-1123722-5	Loose	1318912-1
CNID	1-1123723-6	1-1123722-6	Chain	1123721-1
CINZ	1-1123723-0	1-1123722-0	Loose	1318912-1
		()	Mfr : Tyco E	Electronics AMP)

I/O Connector is Mfr.Tyco Electronics AMP
 Option : -11 : (J.S.T) connector type
 -T : Vertical terminal block type
 -T1 : Horizontal terminal block type

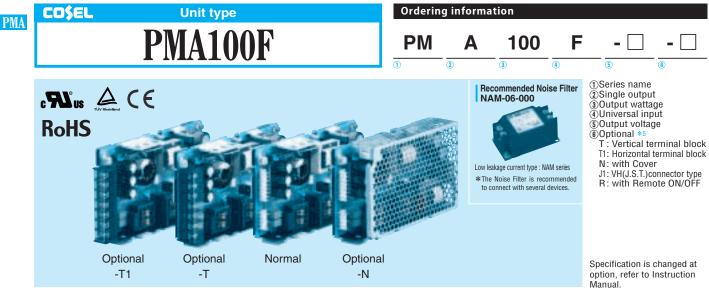
Refer to Instruction Manual 4.



% Dimensions in mm

% Mounting torque : 0.49N \cdot m (5kgf \cdot cm) max

% Please connect safety ground to the unit in 2-M3 holes.



MODEL	PMA100F-3R3	PMA100F-5	PMA100F-12	PMA100F-24	PMA100F-48
MAX OUTPUT WATTAGE[W]	66	100	102	108	100.8
DC OUTPUT	3.3V 20A	5V 20A	12V 8.5A	24V 4.5A	48V 2.1A

SPECIFICATIONS

	MODEL		PMA100F-3R3	PMA100F-5	PMA100F-12	PMA100F-24	PMA100F-48		
	VOLTAGE[V]		AC85 - 264 1 ¢ (Re	efer to the Instruction	on Manual 1.1)	·	·		
	CURRENT[A]	ACIN 100V	0.9typ (lo=100%)	1.3typ (lo=100%	»)				
	CORRENT[A]	ACIN 200V	0.5typ (lo=100%) 0.7typ (lo=100%)						
	FREQUENCY[Hz]		50 / 60 (47 - 63)	1					
		ACIN 100V	77typ	81typ	82typ	84typ	84typ		
INPUT	EFFICIENCY[%]	ACIN 200V	78typ	83typ	83typ	86typ	86typ		
	POWER FACTOR	ACIN 100V	0.98typ						
	(lo=100%)	ACIN 200V	0.85typ 0.90typ						
		ACIN 100V	20typ (lo=100%) (At cold start)						
	INRUSH CURRENT[A] ACIN 200V		40typ (lo=100%) (At cold start)					
	LEAKAGE CURREN	T[mA])Hz, Io=100%, Accordi	ng to IEC60601-1)			
	VOLTAGE[V]		3.3	5	12	24	48		
	CURRENT[A]		20.0	20.0	8.5	4.5	2.1		
	LINE REGULATION	mV]	20max	20max	48max	96max	192max		
	LOAD REGULATION		40max	40max	100max	150max	240max		
	RIPPLE[mVp-p]	0 to +50°C	80max	80max	120max	120max	150max		
	*1	-10 - 0°C	140max	140max	160max	160max	200max		
	RIPPLE NOISE[mVp-p]	0 to +50℃	120max	120max	150max	150max	250max		
OUTPUT	*1	-10 - 0°C	160max	160max	180max	180max	300max		
		0 to +50℃	50max	50max	120max	240max	480max		
	TEMPERATURE REGULATION[mV]	-10 to +50℃	60max	60max	150max	290max	600max		
	DRIFT[mV]	*2	20max	20max	48max	96max	192max		
	START-UP TIME[ms]		250typ (ACIN 100V, Io=100%)						
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)						
	OUTPUT VOLTAGE ADJUSTMENT	RANGE[V]	2.85 to 3.60	4.50 to 5.50	10.00 to 13.20	19.20 to 27.00	39.00 to 53.00		
	OUTPUT VOLTAGE SET		3.30 to 3.40	5.00 to 5.15	12.00 to 12.48	24.00 to 24.96	48.00 to 49.92		
	OVERCURRENT PROT	ECTION	Works over 105%	of rating and recove	ers automatically		1		
ROTECTION	OVERVOLTAGE PROTEC	CTION[V]	4.00 to 5.25	5.75 to 7.00	15.00 to 18.00	30.00 to 37.00	58.00 to 65.00		
CIRCUIT AND	OPERATING INDICA		LED (Green)						
DTHERS	REMOTE ON/OFF		Optional (Required	external power sou	irce)				
	INPUT-OUTPUT-RC	*3			$0 \text{m}\dot{A}$, DC500V 50M Ω n	nin (At Room Tempera	ature)		
SOLATION	INPUT-FG		AC2,000V 1minute	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature)					
	OUTPUT·RC-FG	*3	AC500V 1minute, Cutoff current = 25mA, DC500V 50M Ω min (At Room Temperature)						
	OPERATING TEMP., HUMID.AND) ALTITUDE	-10 to +70℃, 20 - 9	90%RH (Non conde	ensing), 3,000m (10,00	Ofeet) max *4	,		
	STORAGE TEMP., HUMID.AND	ALTITUDE			ensing), 9,000m (30,00				
INVIRONMENT	VIBRATION								
	IMPACT		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis 196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
SAFETY AND	AGENCY APPROVAL	LS	UL60601-1, C-UL (CSA-C22.2 No.601.1), EN60601-1						
NOISE	CONDUCTED NOISE		, ,		2-B, EN55011-B, EN55	5022-B			
REGULATIONS	HARMONIC ATTENU		Complies with IEC6						
	CASE SIZE/WEIGHT		34×93×168mm (nax (without cover)				
OTHERS	COOLING METHOD		Convection	, 3	. /				

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN: RM101).
 *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

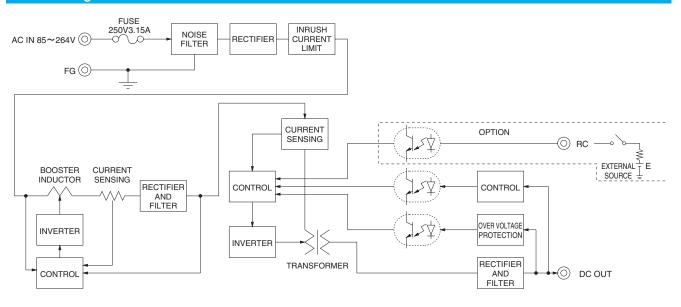
Prift is the change in DC output for an eight hour period after a half-hour warm-up at 25 C.
 Applicable when Remote ON/OFF (optional) is added. RC is insulated with input, output and FG.

*4 Derating is required.

*5 Please contact us about safety approvals for the model with option.
* Parallel operation with other model is not possible.

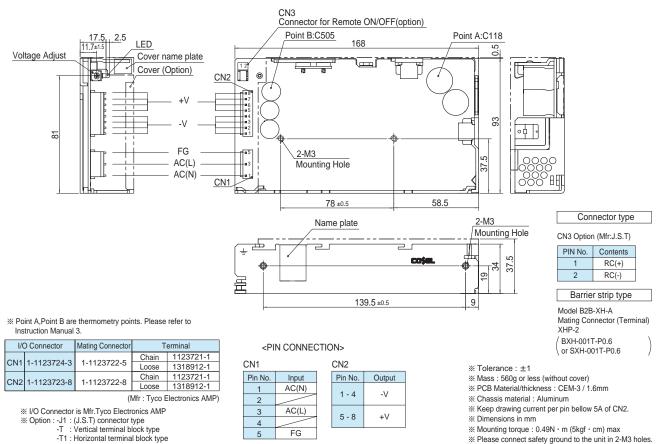
- Parallel operation with other model is not possis
 Derating is required when operated with cover.
- * A sound may occur from power supply at peak loading.

Block diagram



External view

Refer to Instruction Manual 4.



% External size of option T,T1,R and N is different from standard model and refer to 4 Option of instruction manual for details.