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Tamura Power Module ~ Five Improvements]

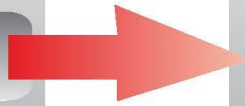
1. Standby Power

2. Noise Reduction

3. Availability

4. Compact Form

5. Facilitates Circuit Design



- Complied to Energy Star

- Reduced up to 1/10

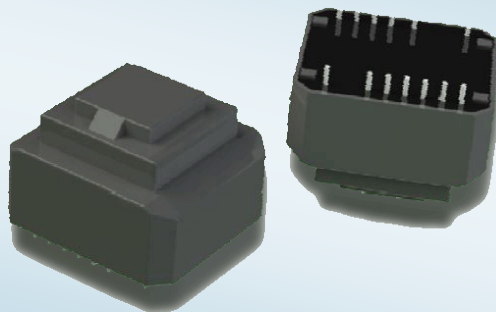
- 1 Power Module /less material

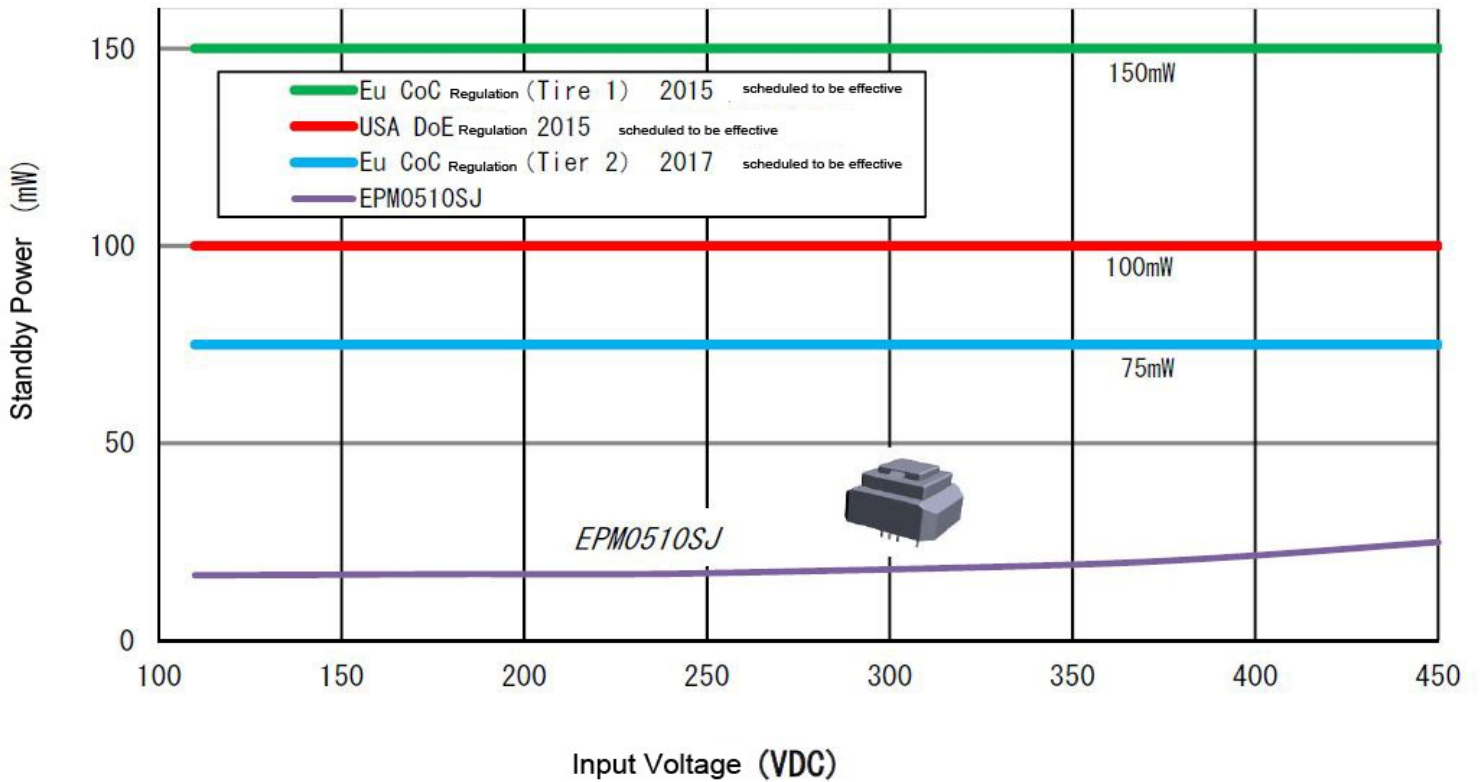
- 1/2 size than discrete

- 80% deduct of design time

[Improvements]

Power Modules

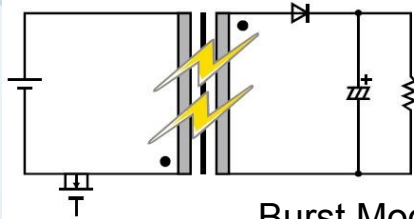




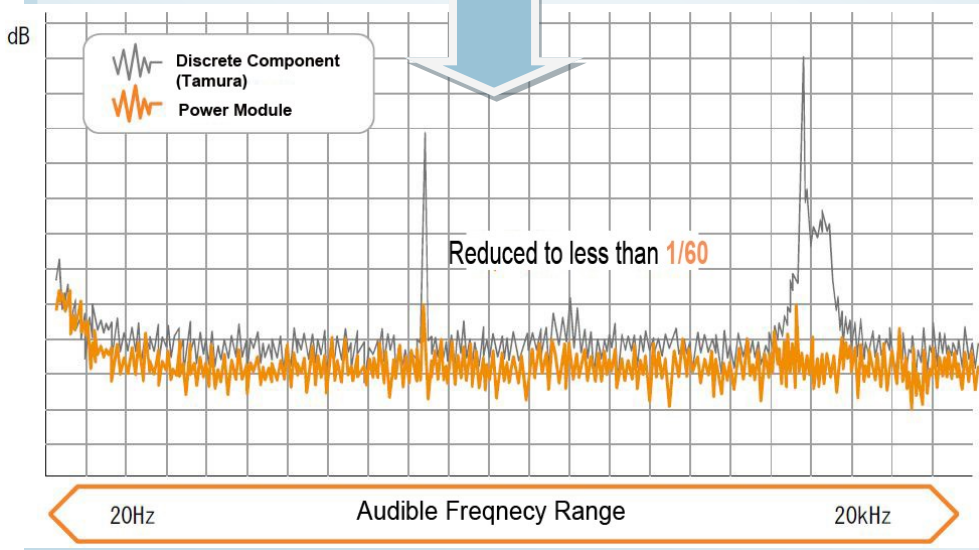
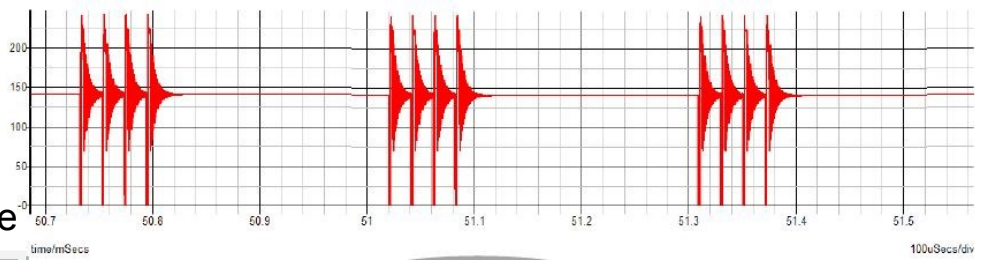
[Standby Power]

Power Modules

Complied with energy star (standby power requirements)
 Improved Efficient Standby Power



Burst Mode



With Tamura's original technology, EPM , SPM , BPM power modules can reduce noise from the power source up to 1/10 (comparison to our discrete component)

***Patent Pending**

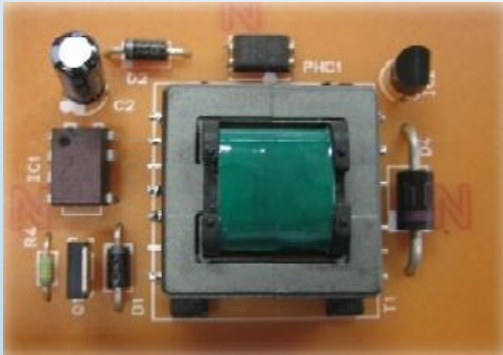
[Noise Reduction]

Power Modules

Efficiency is the key for high performance power supply. To achieve this, switching method is selected as for appropriate solution. The switching frequency is most like to be 30 to 150KHz. To improve efficiency more at low load, it is used to apply "burst mode". Burst mode frequency is within the audible frequency band; power supply would generate audible noise at low load with Standby Mode, and it is needed to be minimized. Mostly the roots of the audible noise was created by switching transfer. And depends on that structures, the level of noise would be changed.

Reference with PCB	Primary	Replacement Parts	Secondary	Total
EPM	6	1	3	10
Discrete	26	1	11	38

Procure less parts/material]



29 : 1



Discrete Component : 29 parts needed

Power Module : only 1 part needed

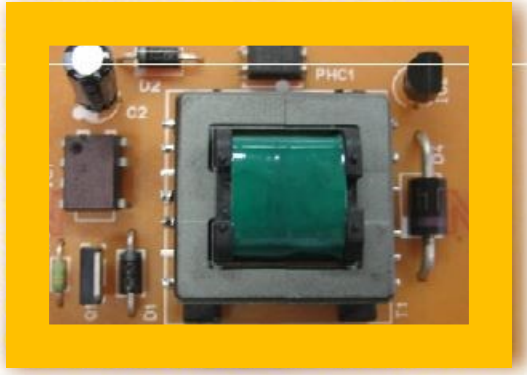
Availability

Power Modules

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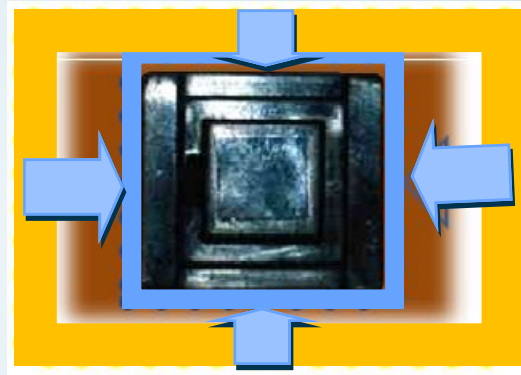
Equivalent function with EPM

Discrete Component



S = 38mm x 53 mm
= 2014 mm²

EPM



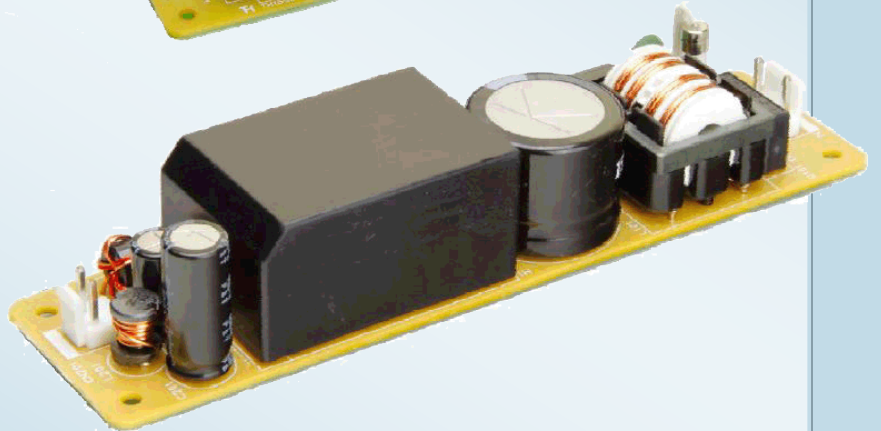
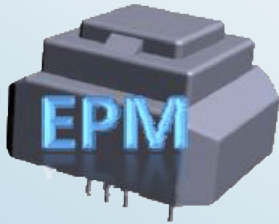
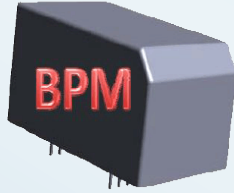
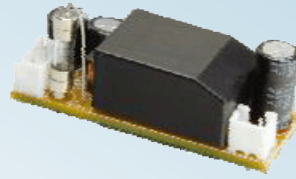
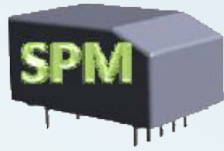
S = 38mm x 31 mm
= 1023 mm²

⇒
1/2 Size

**[Compact
Form]**


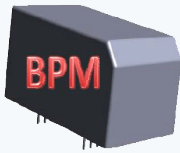

Power Modules

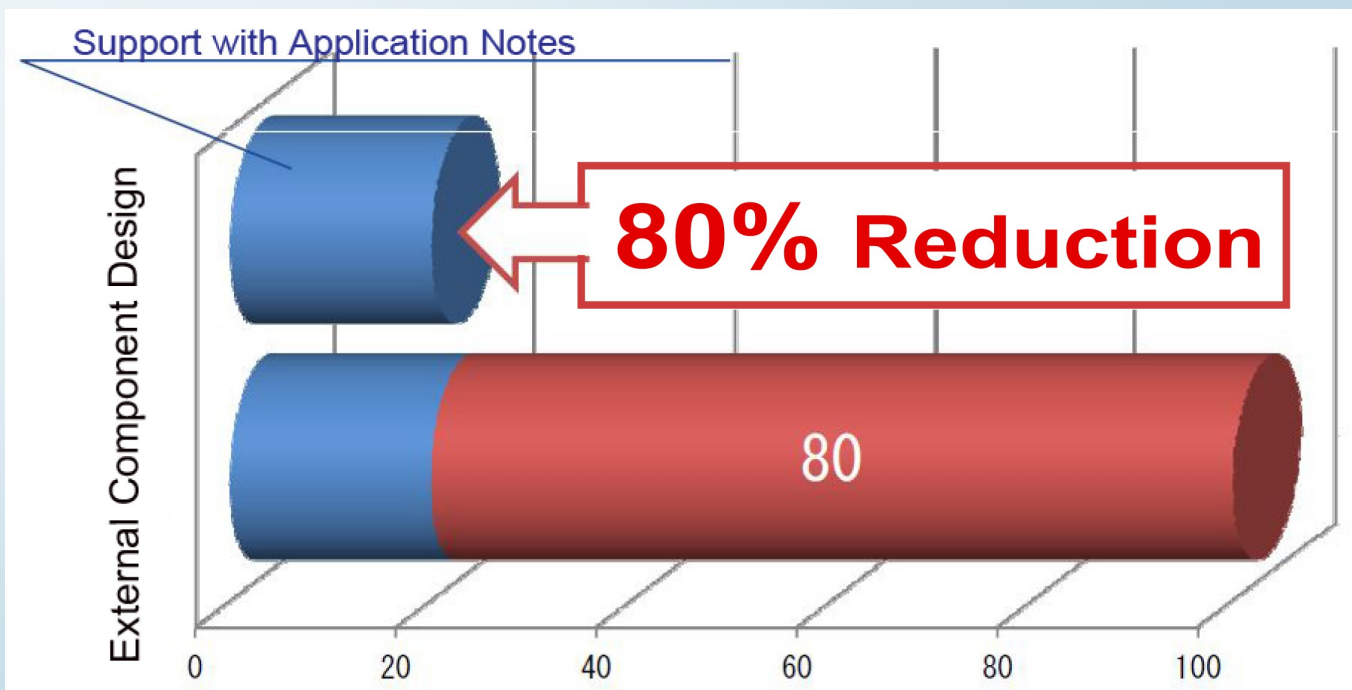
Examples



**Compact
Form**

Power Modules

	SPM series	EPM series	BPM series
Class	4W	15W	40W
Product			



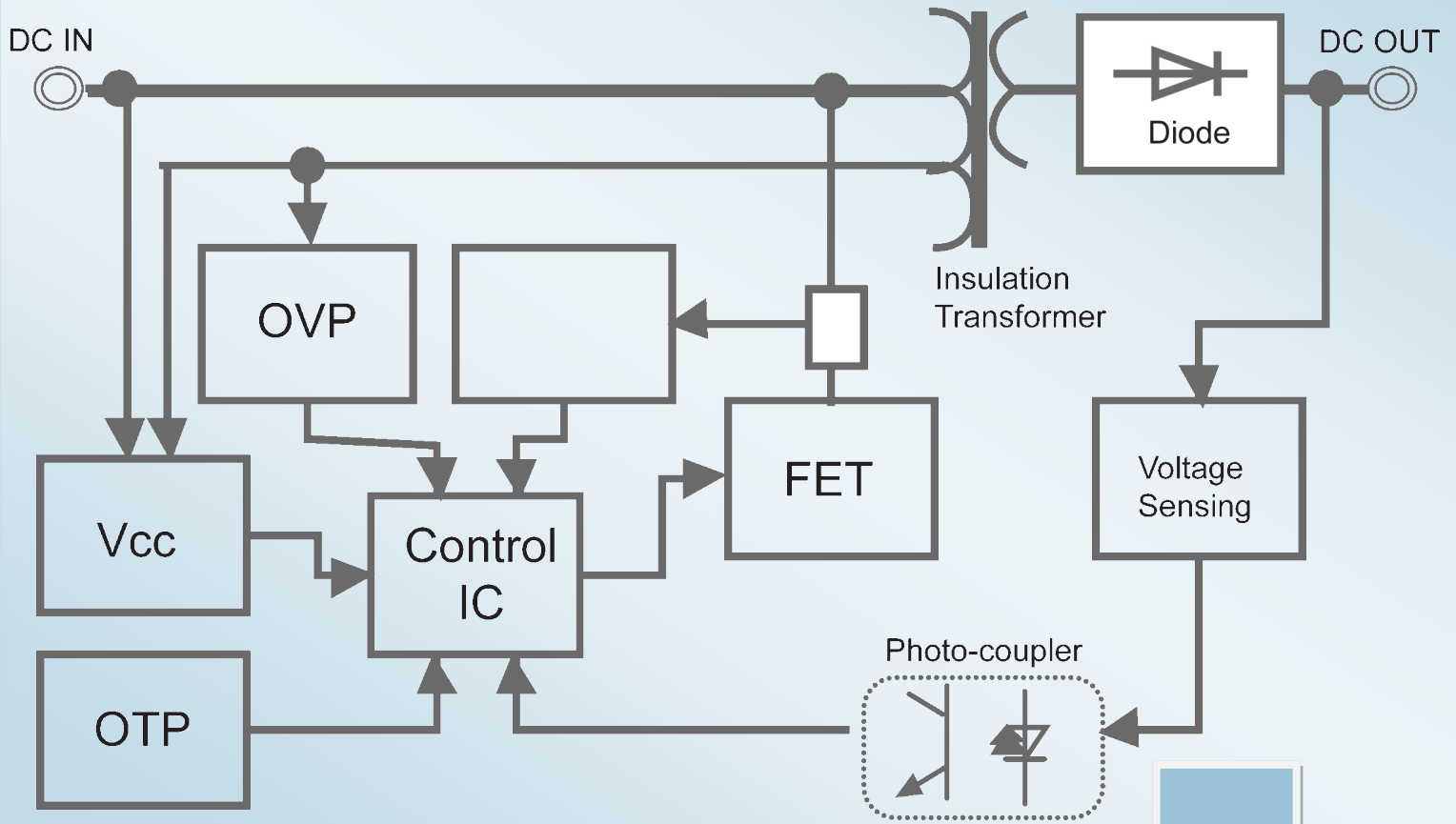
**[Facilitates
Circuit Design]**

Power Modules

Reduces :

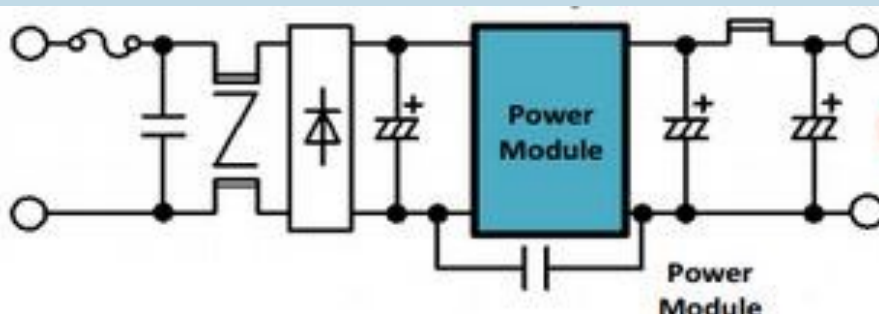
Trans Design , Circuit Design, IC control evaluation, Thermal Design,
PCB Design, EMI, EMC evaluation, Safety Standard Application ,
Material Procurement

Key Internal Components



Function

Power Modules



**Possible to design
Switching Power Supply
Easily**



Office Appliances



Smart Meter



AV equipment



LED



Solar



Consumer electronics



UPS



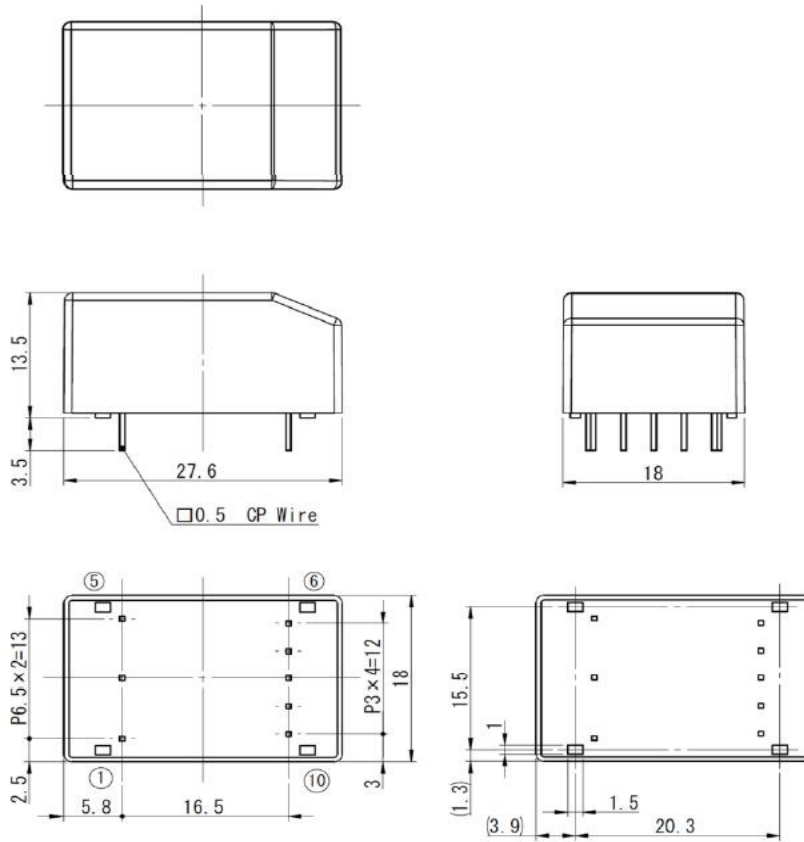
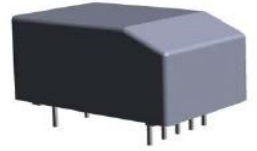
Inverter

Applications

Power Modules

Industrial Equipment, Information Processing Equipment, AV Equipment,
Consumer Electronics, Standby Power , etc.

SPM
External Dimension

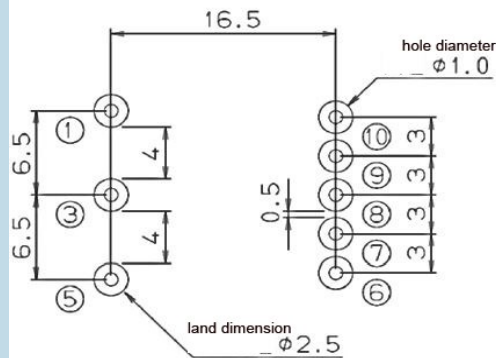


Note :1.The dimensional tolerance without directions is $\pm 0.5\text{mm}$.

**[Dimensions
SPM series]**

Power Modules

*Recommended
Hole Diameter /
Land Dimension*

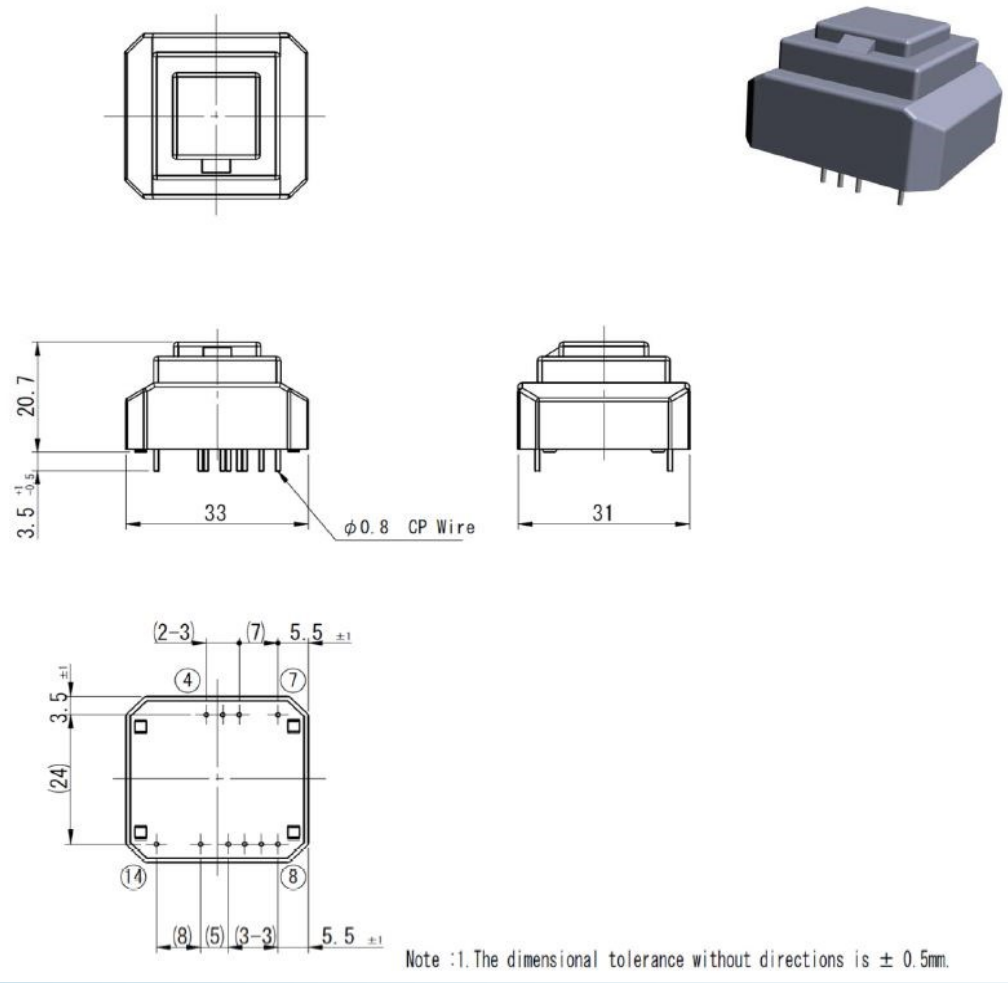


* Circled Numbers are Pin Number

(Component side)

(Unit) : mm

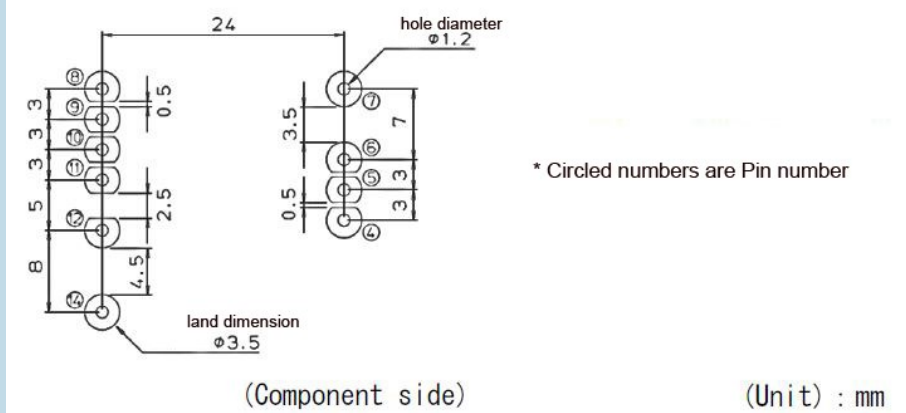
EPM
External Dimension



**[Dimensions
EPM series]**

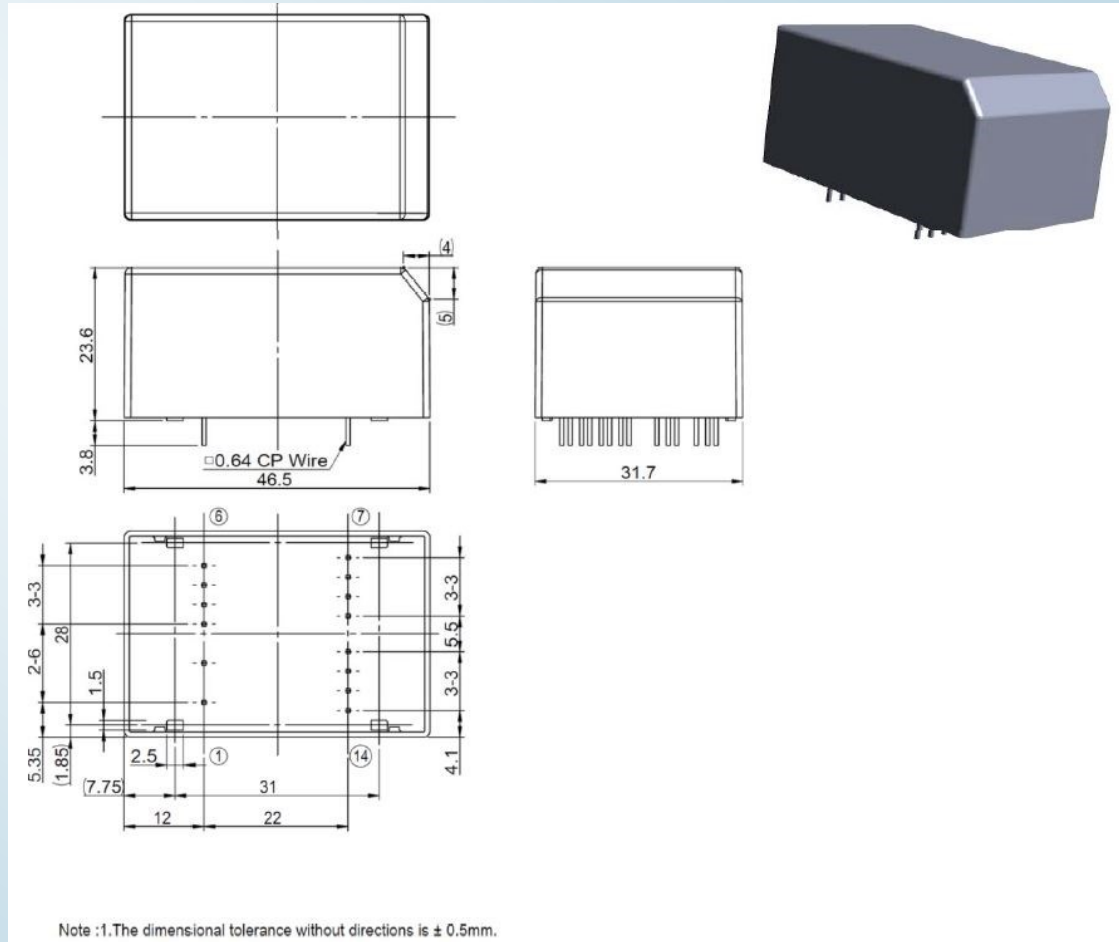
Power Modules

*Recommended
Hole Diameter /
Land Dimension*



(Component side) (Unit) : mm

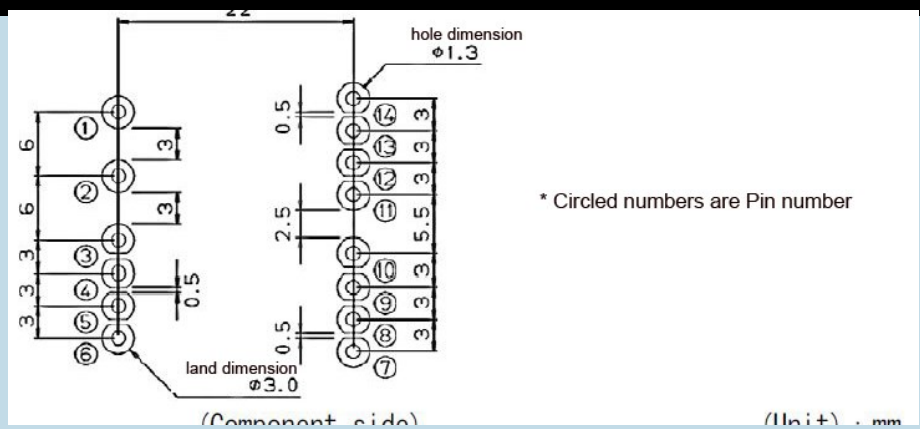
BPM
External Dimension



**[Dimensions
BPM series]**

Power Modules

*Recommended
Hole Diameter /
Land Dimension*





	Part Number	Output Voltage	Rated Load	Output Tolerance	Output	External Type	RoHS Compliant	Insulation (between Pri-Sec)
SPM	SPM0310SJ	3.3V	0.7A	±5%	1	SI8S	Yes	Reinforced Insulation
	SPM0507SJ	5V	0.7A	±5%				
	SPM1203SJ	12V	0.3A	±5%				
	SPM1502SJ	15V	0.24A	±5%				
	SPM2402SJ	24V	0.15A	±5%				

EPM	EPM0310SJ	3.3V	1A	±5%	1	FE19S	Yes	Reinforced Insulation	
	EPM0510SJ	5V	1A	±5%					
	EPM1205SJ	12V	0.5A	±5%					
	EPM1210SJ	12V	1A	±5%					
	EPM1505SJ	15V	0.5A	±5%					
	EPM1510SJ	15V	1A	±5%					
	EPM2405SJ	24V	0.5A	±5%					
	EP-MI20806D	8V	0.05A	±15%	2	FE19D	Yes	Reinforced Insulation	
		12V	0.2A	±10%					
		EP-MI22410D	12V	0.2A					±10%
			24V	0.1A					±5%
		EP-MI41626D	13.5V	0.3A					±10%
	16V		0.12A	±10%					



Product Line Up

Power Modules

BPM	BPM0390SJ	3.3V	9A	±5%	1	B32S	Yes	Reinforced Insulation
	BPM0508SJ	5V	8A	±5%				
	BPM1234SJ	12V	3.4A	±5%				
	BPM1527SJ	15V	2.7A	±5%				
	BPM2417SJ	24V	1.7A	±5%				

