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
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.

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
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

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Procure less parts/material

Discrete Component : 29 parts needed  
Power Module : only 1 part needed

Availability  

Power Modules

Discrete Component : 29 parts needed  
Power Module : only 1 part needed

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.
Equivalent function with EPM

**Discrete Component**

![Discrete Component Image]

\[S = 38\text{mm} \times 53\text{mm} = 2014\text{mm}^2\]

**EPM**

![EPM Image]

\[S = 38\text{mm} \times 31\text{mm} = 1023\text{mm}^2\]

\[1/2\text{ Size}\]

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**Compact Form**

**Power Modules**
### Compact Form

#### Power Modules

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<tr>
<th>Class</th>
<th>SPM series</th>
<th>EPM series</th>
<th>BPM series</th>
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Tamura Corporation of America  
www.tamuracorp.com  
1040 South Andreasen Dr. Ste 100  
Escondido, CA 92029  
1-800-472-6624
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

Support with Application Notes

80% Reduction

Reduce design hours, product development
Function

Power Modules

Possible to design
Switching Power Supply Easily

Key Internal Components

DC IN

OVP

Control IC

FET

Diode

Insulation Transformer

Voltage Sensing

Vcc

OTP

Photo-coupler

DC OUT
Applications

Power Modules

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

Dimensions
SPM series

Power Modules

Recommended
Hole Diameter / Land Dimension

Note: 1. The dimensional tolerance without directions is ± 0.5mm.

* Circled Numbers are Pin Number

(Component side) (Unit): mm

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EPM
External Dimension

Recommended
Hole Diameter / Land Dimension

Dimensions
EPM series

Power Modules

Note: The dimensional tolerance without directions is ± 0.5mm.
BPM
External Dimension

Dimensions
BPM series

Recommended
Hole Diameter / Land Dimension

* Circled numbers are Pin number
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