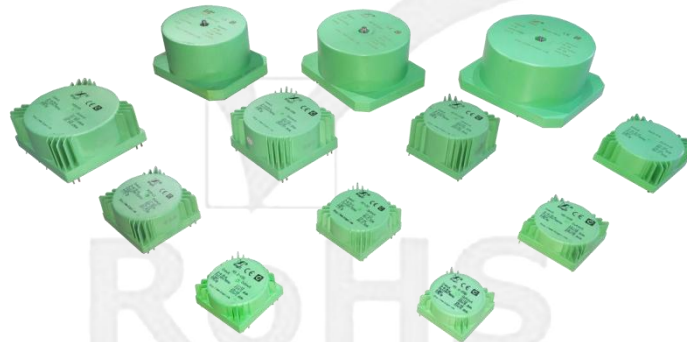


## “Green Cube” M Series PCB Mounting Toroidal Transformers

LI089V4/2016



### 1.Features:

- ① The transformers have fully-encapsulated printed circuit boards that can be directly welded and assembled, making them easy to use with a perfect outline.
- ② They have a compact and solid structure that is vibration-proof, moisture-proof, flame-resistant, and has high dielectric strength.
- ③ The transformers allow for different input and output configurations by changing the connection method.
- ④ They have low idle current, high power factor, good capacity to withstand over input voltage, and are strong in EMC.
- ⑤ A built-in temperature protector makes them safer to use.

### 2. Ambient Conditions:

- ① Ambient temperature:  $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- ② Relative humidity:  $\leq 90\%$  at  $40^{\circ}\text{C}$
- ③ Atmospheric pressure:  $860 \sim 1060\text{mbar}$  (about  $650 \sim 800\text{mmHg}$ )

**3.Insulation Rating:** Class B ( $130^{\circ}\text{C}$ )

### 4.Safety Features:

- ① Dielectric resistance:  $>1,000\text{M}\Omega$  in normal condition
- ② Insulation withstand voltage:  $4,000\text{V}$  (50Hz)/1 minute
- ③ Insulation withstand voltages: continuously 20 times impact of  $6\text{kV}$  (50Hz)/ $50\mu\text{S}$
- ④ Fire-retardant: in conformity with UL94-V0

**5.Rated Power:** 1.6VA, 3.2VA, 5VA, 7VA, 10VA, 15VA, 25VA, 35VA, 50VA, 90VA, 110VA, 160VA

### 6.Rated Voltage:

- ① Primary:  $2 \times 110\text{V} \pm 10\%$  50Hz-60Hz

Secondary: 2x6V, 2x7.5V, 2x9V, 2x12V, 2x15V, 2x18V, 2x21V, 2x24V, 2x27V

② We offer a non-standard series that can be customized to meet the specific requirements of our customers.

**7. Universal technical parameters:**

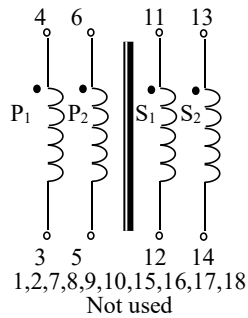
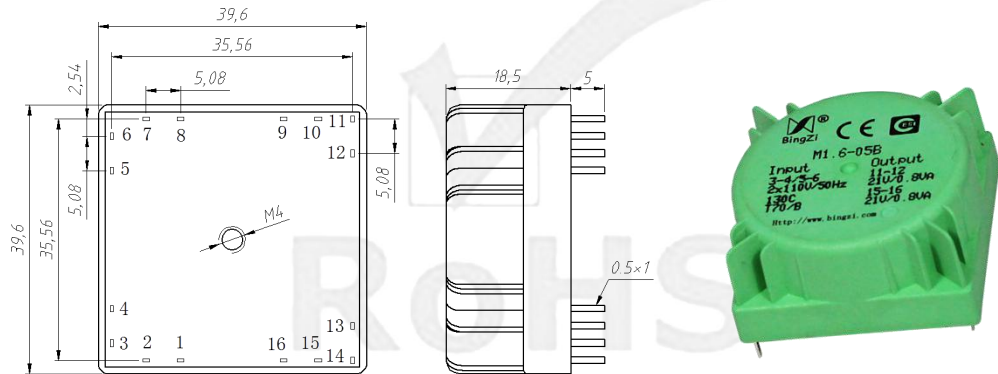
- Idle current:  $\leq 4\text{mA}$
- Idle loss:  $\leq 0.4\text{W}$
- Voltage regulation ratio:  $\leq 18\%$
- Temperature rise:  $\leq 28^\circ\text{C}$
- Weight: 300g
- Dimensions (LxWxH): 60x60x37.5mm

• **M Series standard product specification:**

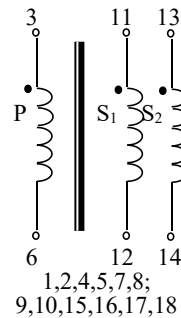
SN	Model	Output Power	Idle Current	Idle Loss	Voltage Regulation	Temperature Rise	Weight	L×W×H Tolerance±0.5(mm) <sup>3</sup>
1	M1.6	1.6VA	$\leq 1.0\text{mA}$	$\leq 0.08\text{W}$	$\leq 30\%$	$\leq 22^\circ\text{C}$	80g	39.6×39.6×18.5
2	MS1.6	1.6VA	$\leq 1.0\text{mA}$	$\leq 0.08\text{W}$	$\leq 30\%$	$\leq 22^\circ\text{C}$	80g	39.6×39.6×18.5
3	M3.2	3.2VA	$\leq 1.5\text{mA}$	$\leq 0.1\text{W}$	$\leq 28\%$	$\leq 23^\circ\text{C}$	120g	44.7×44.7×19.5
4	MS3.2	3.2VA	$\leq 1.5\text{mA}$	$\leq 0.1\text{W}$	$\leq 28\%$	$\leq 23^\circ\text{C}$	120g	44.7×44.7×19.5
5	M5	5VA	$\leq 2.0\text{mA}$	$\leq 0.15\text{W}$	$\leq 25\%$	$\leq 24^\circ\text{C}$	150g	49.7×49.7×19.5
6	MS5	5VA	$\leq 2.0\text{mA}$	$\leq 0.15\text{W}$	$\leq 25\%$	$\leq 24^\circ\text{C}$	150g	49.7×49.7×19.5
7	M7	7VA	$\leq 2.5\text{mA}$	$\leq 0.2\text{W}$	$\leq 20\%$	$\leq 25^\circ\text{C}$	180g	49.7×49.7×23.1
8	MS7	7VA	$\leq 2.5\text{mA}$	$\leq 0.2\text{W}$	$\leq 20\%$	$\leq 25^\circ\text{C}$	180g	49.7×49.7×23.1
9	M10	10VA	$\leq 3.5\text{mA}$	$\leq 0.3\text{W}$	$\leq 18\%$	$\leq 26^\circ\text{C}$	250g	55×55×26
10	MS10	10VA	$\leq 3.5\text{mA}$	$\leq 0.3\text{W}$	$\leq 18\%$	$\leq 26^\circ\text{C}$	250g	55×55×26
11	M15	15VA	$\leq 4\text{mA}$	$\leq 0.4\text{W}$	$\leq 18\%$	$\leq 28^\circ\text{C}$	300g	60×60×26.3
12	MS15	15VA	$\leq 4\text{mA}$	$\leq 0.4\text{W}$	$\leq 18\%$	$\leq 28^\circ\text{C}$	300g	60×60×26.3
13	M25	25VA	$\leq 6\text{mA}$	$\leq 0.6\text{W}$	$\leq 14\%$	$\leq 30^\circ\text{C}$	430g	60×60×37.5
14	MS25	25VA	$\leq 6\text{mA}$	$\leq 0.6\text{W}$	$\leq 14\%$	$\leq 30^\circ\text{C}$	430g	60×60×37.5
15	M35	35VA	$\leq 8\text{mA}$	$\leq 0.8\text{W}$	$\leq 12\%$	$\leq 33^\circ\text{C}$	500g	72×72×37.5
16	MS35	35VA	$\leq 8\text{mA}$	$\leq 0.8\text{W}$	$\leq 12\%$	$\leq 33^\circ\text{C}$	500g	72×72×37.5
17	M50	50VA	$\leq 10\text{mA}$	$\leq 1.0\text{W}$	$\leq 10\%$	$\leq 35^\circ\text{C}$	650g	82.4×82.4×37.5
18	MS50	50VA	$\leq 10\text{mA}$	$\leq 1.0\text{W}$	$\leq 10\%$	$\leq 35^\circ\text{C}$	650g	82.4×82.4×37.5
19	MS90	90VA	$\leq 5.5\text{mA}$	$\leq 1.0\text{W}$	$\leq 7\%$	$\leq 40^\circ\text{C}$	1.4kg	106×88.5×55
20	MS110	110VA	$\leq 7.5\text{mA}$	$\leq 1.5\text{W}$	$\leq 6\%$	$\leq 45^\circ\text{C}$	1.84kg	116×98.5×54.5
21	MS160	160VA	$\leq 9.5\text{mA}$	$\leq 2.0\text{W}$	$\leq 5\%$	$\leq 50^\circ\text{C}$	2.3kg	126×108.5×57.5

8. Outline drawing, installation dimension and winding

1. M1.6 2. MS1.6 (Tolerance  $\pm 0.5\text{mm}$ )



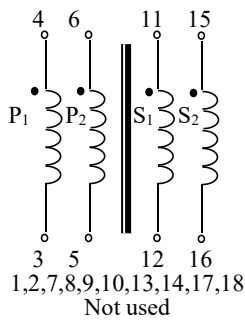
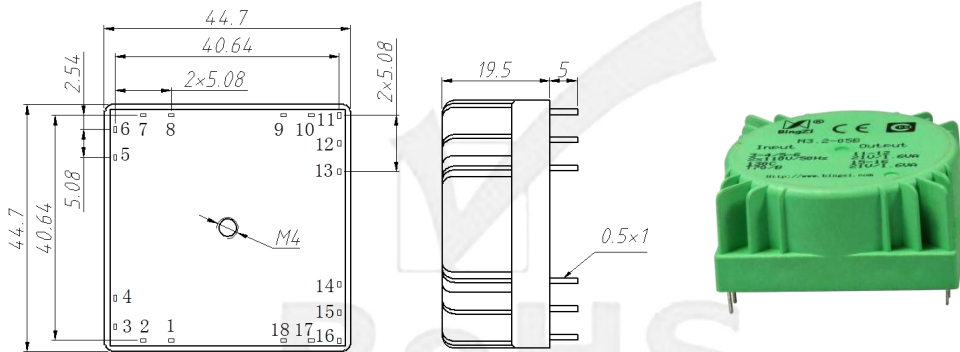
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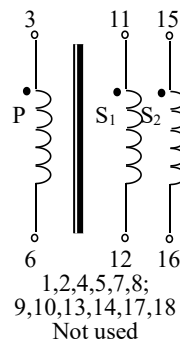
(apply to MS series)

Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M1.6-01	2×110V ±10% 50Hz/60Hz	≤1.0mA	≤15mA	2×8.1 V	2×6V	133mA	2×15.8 Ω
M1.6-01B				2× 10.1V	2×7.5V	106.7mA	2× 24.4 Ω
M1.6-02				2× 11.9V	2×9V	88.9mA	2× 32.6Ω
M1.6-03				2× 15.9V	2×12V	66.7mA	2× 58.5Ω
M1.6-04				2× 19.9V	2×15V	53.3mA	2× 91.9Ω
M1.6-05				2× 24.2V	2×18V	44.4mA	2× 139.6Ω
M1.6-05B				2× 28.1V	2×21V	38.1mA	2× 186.4Ω
M1.6-06				2× 31.9V	2×24V	33.3mA	2× 237.2Ω
M1.6-06B				2× 35.8V	2×27V	29.6mA	2× 297.3Ω
MS1.6-01				220V ±10% 50Hz/60Hz	≤1.0mA	≤15mA	2×8.1 V
MS1.6-01B	2× 10.1V	2×7.5V	106.7mA				2× 24.4 Ω
MS1.6-02	2× 11.9V	2×9V	88.9mA				2× 32.6Ω
MS1.6-03	2× 15.9V	2×12V	66.7mA				2× 58.5Ω
MS1.6-04	2× 19.9V	2×15V	53.3mA				2× 91.9Ω
MS1.6-05	2× 24.2V	2×18V	44.4mA				2× 139.6Ω
MS1.6-05B	2× 28.1V	2×21V	38.1mA				2× 186.4Ω
MS1.6-06	2× 31.9V	2×24V	33.3mA				2× 237.2Ω
MS1.6-06B	2× 35.8V	2×27V	29.6mA				2× 297.3Ω

3. M3.2 4. MS3.2 (Tolerance  $\pm 0.5\text{mm}$ )



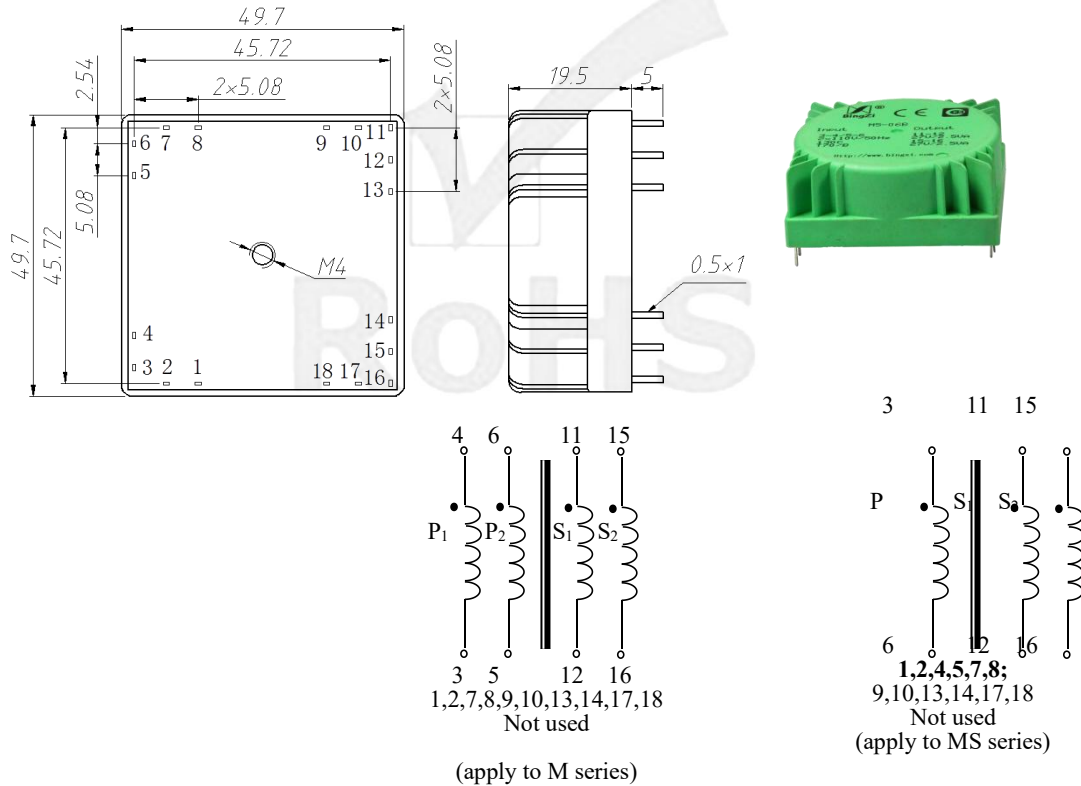
(apply to M series)



(apply to MS series)

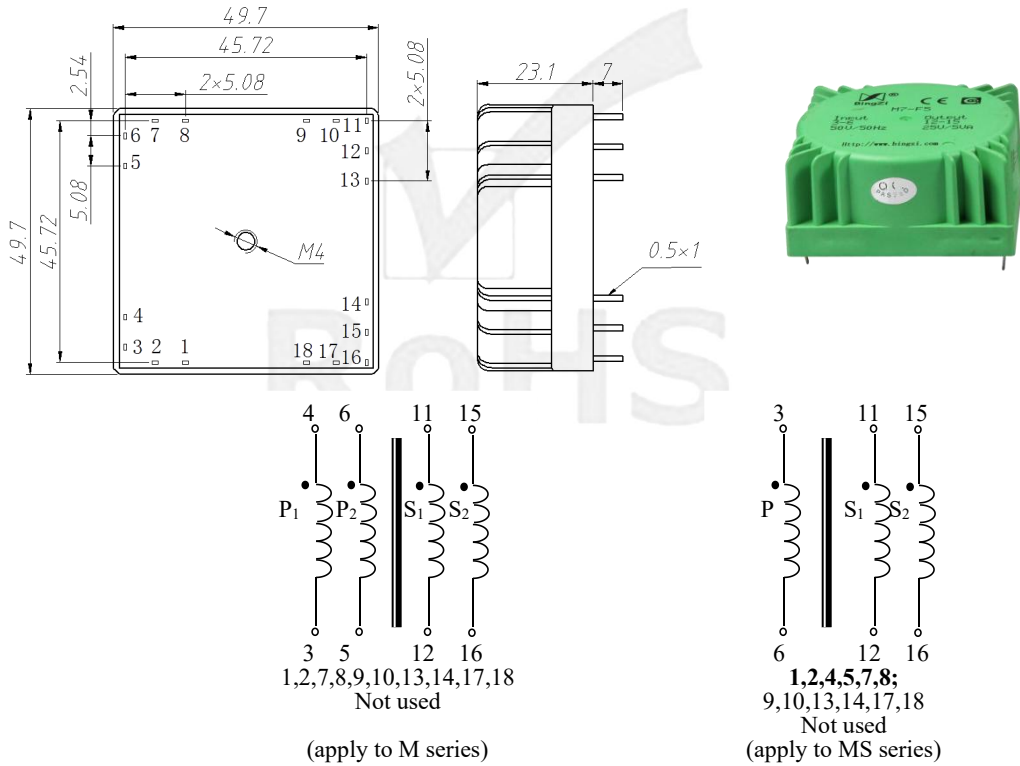
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M3.2-01	2×110V ±10% 50Hz/60Hz	≤1.5mA	≤23mA	2× 7.5V	2×6V	266.mA	2× 5.6Ω
M3.2-01B				2× 9.3V	2×7.5V	213.3mA	2× 8.4Ω
M3.2-02				2× 11.25V	2×9V	177.8mA	2× 12.7Ω
M3.2-03				2× 15V	2×12V	133.3mA	2× 22.5Ω
M3.2-04				2× 18.7V	2×15V	106.7mA	2× 34.7Ω
M3.2-05				2× 22.4V	2×18V	88.9mA	2× 49.5Ω
M3.2-05B				2× 26.2V	2×21V	76.2mA	2× 68.2Ω
M3.2-06				2× 29.9V	2×24V	66.7mA	2× 88.5Ω
M3.2-06B				2× 33.7V	2×27V	59.3mA	2× 113Ω
MS3.2-01	220V ±10% 50Hz/60Hz	≤1.5mA	≤23mA	2× 7.5V	2×6V	266.mA	2× 5.6Ω
MS3.2-01B				2× 9.3V	2×7.5V	213.3mA	2× 8.4Ω
MS3.2-02				2× 11.25V	2×9V	177.8mA	2× 12.7Ω
MS3.2-03				2× 15V	2×12V	133.3mA	2× 22.5Ω
MS3.2-04				2× 18.7V	2×15V	106.7mA	2× 34.7Ω
MS3.2-05				2× 22.4V	2×18V	88.9mA	2× 49.5Ω
MS3.2-05B				2× 26.2V	2×21V	76.2mA	2× 68.2Ω
MS3.2-06				2× 29.9V	2×24V	66.7mA	2× 88.5Ω
MS3.2-06B				2× 33.7V	2×27V	59.3mA	2× 113Ω

5. M5 6. MS5 (Tolerance ±0.5mm)



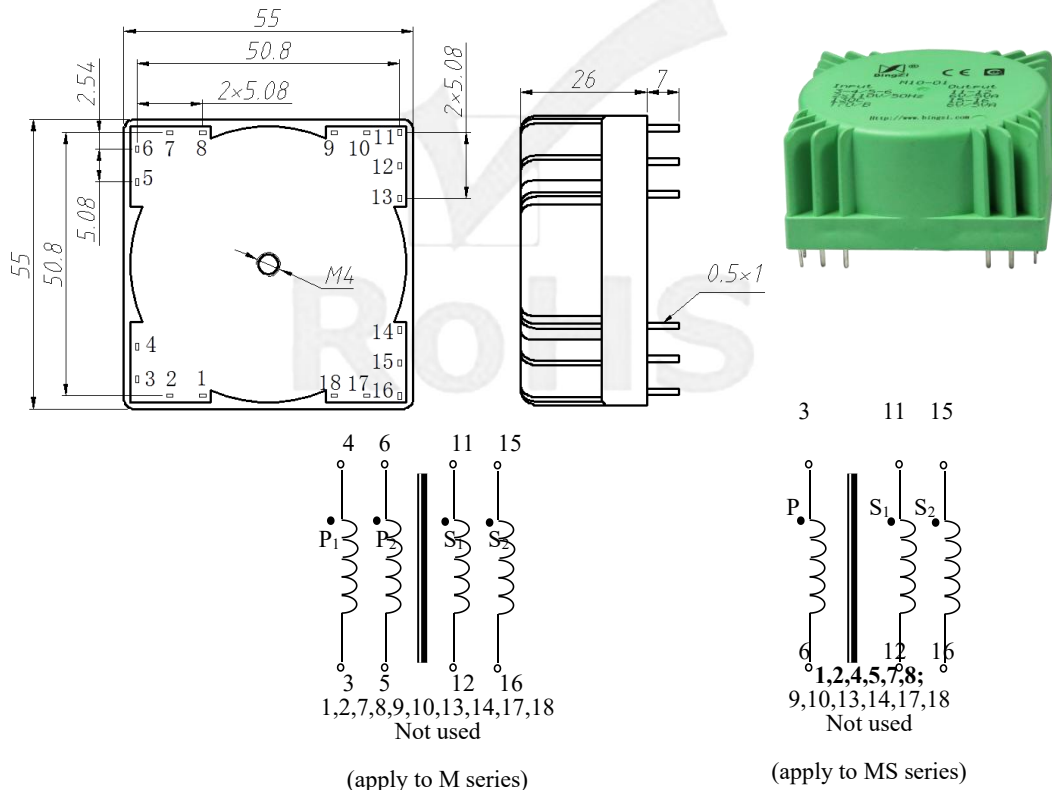
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M5-01	2×110V ±10% 50Hz/60Hz	≤2.0mA	≤32mA	2×7.5 V	2×6V	416.7mA	2× 3.6Ω
M5-01B				2× 9.3V	2×7.5V	333.3mA	2× 5.4Ω
M5-02				2× 11.2V	2×9V	277.8mA	2× 7.9Ω
M5-03				2× 15V	2×12V	208.3mA	2× 14.4Ω
M5-04				2× 18.7V	2×15V	166.7mA	2× 22.2Ω
M5-05				2× 22.5V	2×18V	138.9mA	2× 32.4Ω
M5-05B				2× 26.2V	2×21V	119mA	2× 43.7Ω
M5-06				2× 30V	2×24V	104.2mA	2× 57.6Ω
M5-06B				2× 33.7V	2×27V	92.3mA	2× 72.6Ω
MS5-01	220V ±10% 50Hz/60Hz	≤2.0mA	≤32mA	2×7.5 V	2×6V	416.7mA	2× 3.6Ω
MS5-01B				2× 9.3V	2×7.5V	333.3mA	2× 5.4Ω
MS5-02				2× 11.2V	2×9V	277.8mA	2× 7.9Ω
MS5-03				2× 15V	2×12V	208.3mA	2× 14.4Ω
MS5-04				2× 18.7V	2×15V	166.7mA	2× 22.2Ω
MS5-05				2× 22.5V	2×18V	138.9mA	2× 32.4Ω
MS5-05B				2× 26.2V	2×21V	119mA	2× 43.7Ω
MS5-06				2× 30V	2×24V	104.2mA	2× 57.6Ω
MS5-06B				2× 33.7V	2×27V	92.3mA	2× 72.6Ω

7. M7 8. MS7 (Tolerance  $\pm 0.5\text{mm}$ )



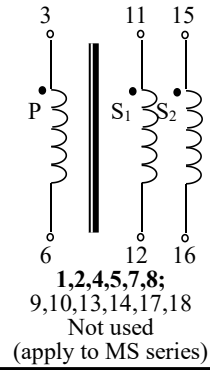
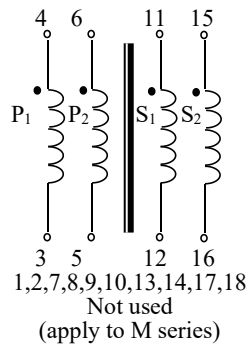
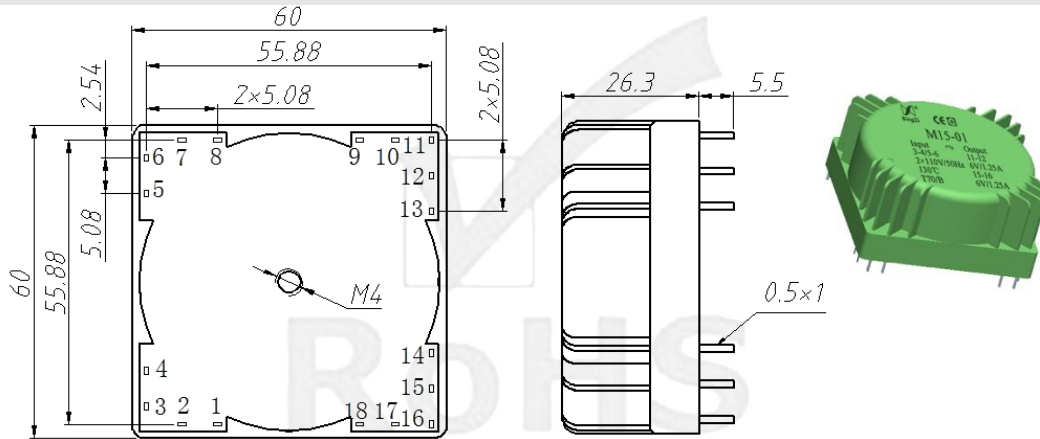
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M7-01	2×110V ±10% 50Hz/60Hz	≤2.5mA	≤45mA	2×7.4V	2×6V	583mA	2×2.4Ω
M7-01B				2×9.3V	2×7.5V	467mA	2×3.85Ω
M7-02				2×11.2V	2×9V	389mA	2×5.65Ω
M7-03				2×15V	2×12V	292mA	2×10.17Ω
M7-04				2×18.7V	2×15V	233mA	2×15.88Ω
M7-05				2×22.4V	2×18V	194mA	2×22.68Ω
M7-05B				2×26.3V	2×21V	167mA	2×31.73Ω
M7-06				2×30V	2×24V	146mA	2×41.10Ω
M7-06B				2×33.7V	2×27V	130mA	2×51.53Ω
MS7-01	220V ±10% 50Hz/60Hz	≤2.5mA	≤45mA	2×7.4V	2×6V	583mA	2×2.4Ω
MS7-01B				2×9.3V	2×7.5V	467mA	2×3.85Ω
MS7-02				2×11.2V	2×9V	389mA	2×5.65Ω
MS7-03				2×15V	2×12V	292mA	2×10.17Ω
MS7-04				2×18.7V	2×15V	233mA	2×15.88Ω
MS7-05				2×22.4V	2×18V	194mA	2×22.68Ω
MS7-05B				2×26.3V	2×21V	167mA	2×31.73Ω
MS7-06				2×30V	2×24V	146mA	2×41.10Ω
MS7-06B				2×33.7V	2×27V	130mA	2×51.53Ω

9. M10 10. MS10 (Tolerance ±0.5mm)



Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M10-01	2×110V ±10% 50Hz/60Hz	≤3.5mA	≤61mA	2×7.1V	2×6V	833mA	2×1.32Ω
M10-01B				2×9.1V	2×7.5V	667mA	2×2.40Ω
M10-02				2×10.7V	2×9V	556mA	2×3.05Ω
M10-03				2×14.3V	2×12V	417mA	2×5.51Ω
M10-04				2×17.9V	2×15V	333mA	2×8.70Ω
M10-05				2×21.4V	2×18V	278mA	2×12.23Ω
M10-05B				2×24.9V	2×21V	238mA	2×16.38Ω
M10-06				2×28.6V	2×24V	208mA	2×22.11Ω
M10-06B				2×32.3V	2×27V	185mA	2×28.64Ω
MS10-01				220V ±10% 50Hz/60Hz	≤3.5mA	≤61mA	2×7.1V
MS10-01B	2×9.1V	2×7.5V	667mA				2×2.40Ω
MS10-02	2×10.7V	2×9V	556mA				2×3.05Ω
MS10-03	2×14.3V	2×12V	417mA				2×5.51Ω
MS10-04	2×17.9V	2×15V	333mA				2×8.70Ω
MS10-05	2×21.4V	2×18V	278mA				2×12.23Ω
MS10-05B	2×24.9V	2×21V	238mA				2×16.38Ω
MS10-06	2×28.6V	2×24V	208mA				2×22.11Ω
MS10-06B	2×32.3V	2×27V	185mA				2×28.64Ω

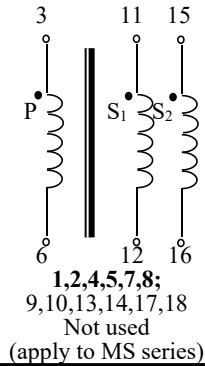
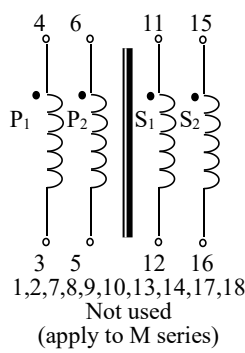
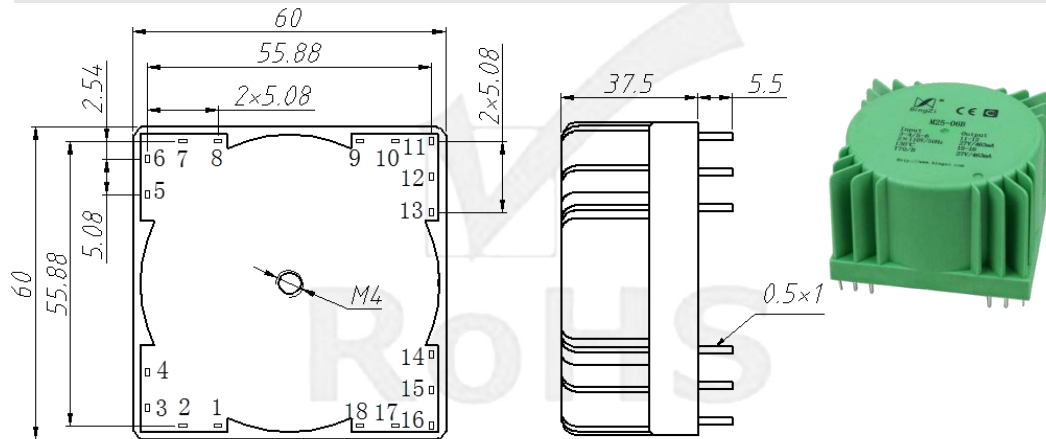
11. M15 12. MS15 (Tolerance ±0.5mm)



Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M15-01	2×110V ±10% 50Hz/60Hz	≤4mA	≤95mA	2×7.2V	2×6V	1250mA	2×0.96Ω
M15-01B				2×9.1V	2×7.5V	1000mA	2×1.6Ω
M15-02				2×10.9V	2×9V	833mA	2×2.28Ω
M15-03				2×14.6V	2×12V	625mA	2×4.16Ω
M15-04				2×18.2V	2×15V	500mA	2×6.4Ω
M15-05				2×21.9V	2×18V	417mA	2×9.35Ω
M15-05B				2×25.5V	2×21V	357mA	2×12.6Ω
M15-06				2×29.5V	2×24V	313mA	2×17.57Ω
M15-06B				2×32.9V	2×27V	278mA	2×21.2Ω
MS15-01	220V ±10% 50Hz/60Hz	≤4mA	≤95mA	2×7.2V	2×6V	1250mA	2×0.96Ω
MS15-01B				2×9.1V	2×7.5V	1000mA	2×1.6Ω
MS15-02				2×10.9V	2×9V	833mA	2×2.28Ω
MS15-03				2×14.6V	2×12V	625mA	2×4.16Ω
MS15-04				2×18.2V	2×15V	500mA	2×6.4Ω
MS15-05				2×21.9V	2×18V	417mA	2×9.35Ω
MS15-05B				2×25.5V	2×21V	357mA	2×12.6Ω
MS15-06				2×29.5V	2×24V	313mA	2×17.57Ω
MS15-06B				2×32.9V	2×27V	278mA	2×21.2Ω

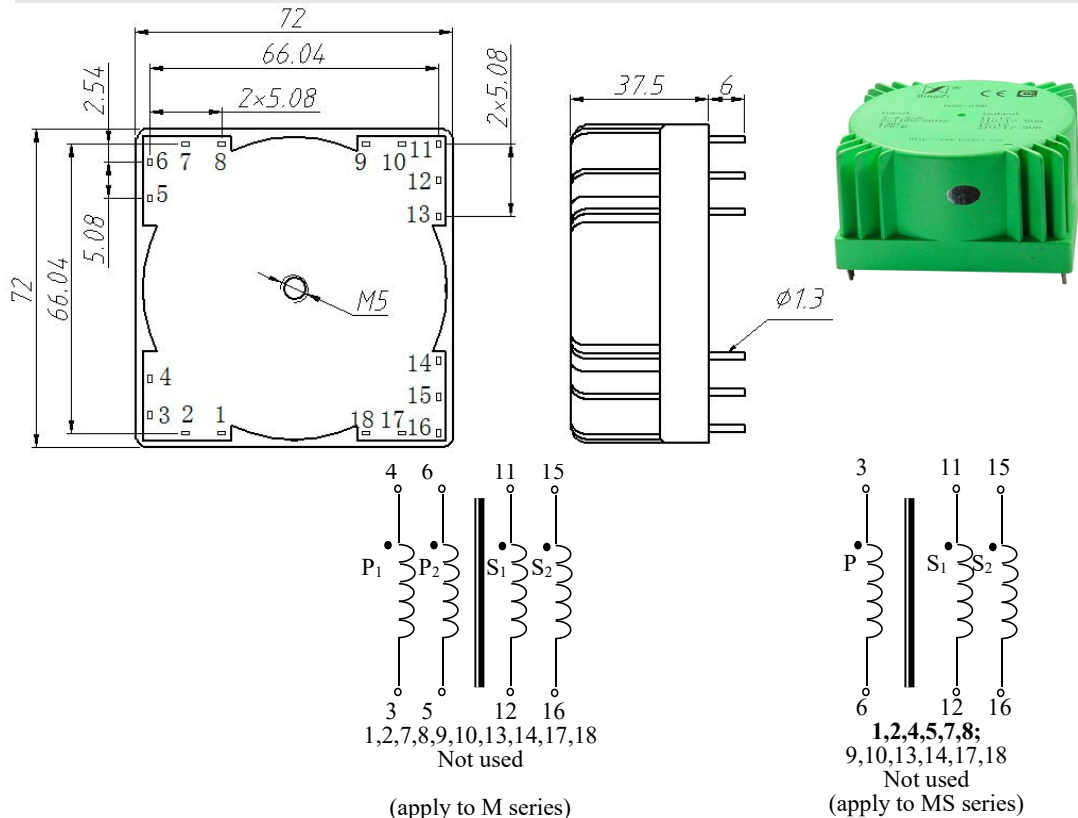


13. M25 14. MS25 (Tolerance ±0.5mm)



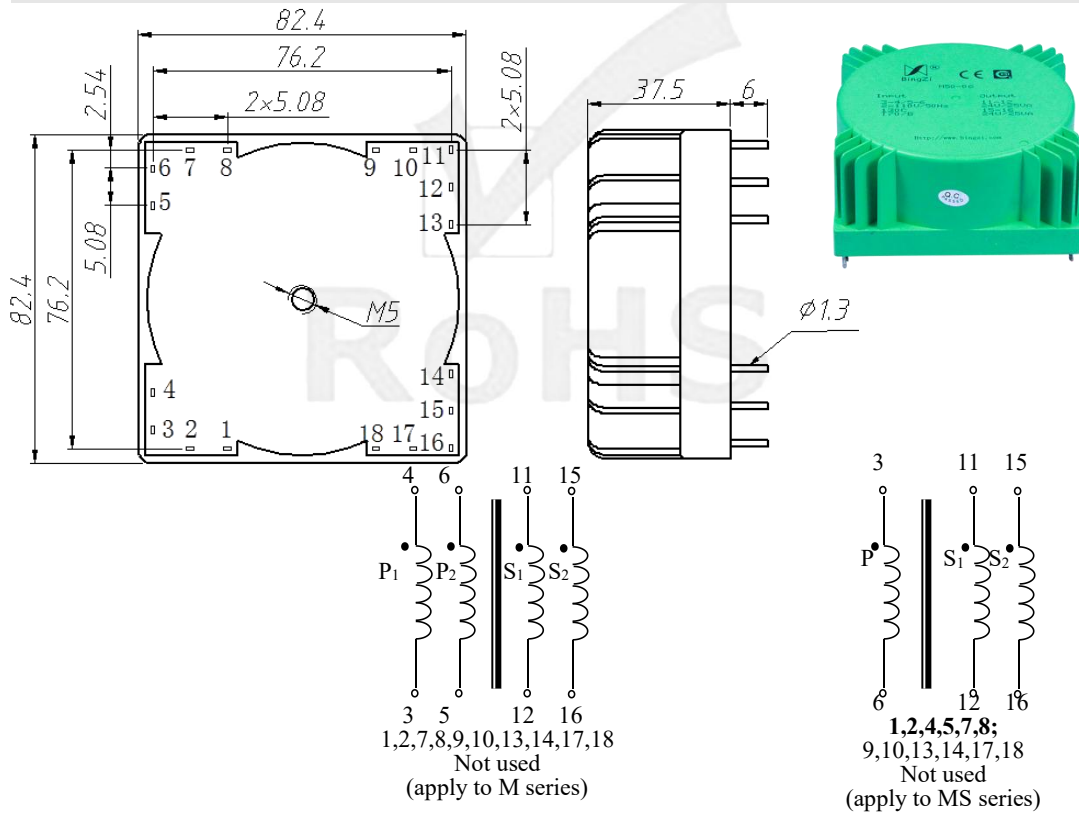
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M25-01	2×110V ±10% 50Hz/60Hz	≤6mA	≤150mA	2×7.0V	2×6V	2083mA	2×0.48Ω
M25-01B				2×8.6V	2×7.5V	1667mA	2×0.66Ω
M25-02				2×10.1V	2×9V	1389mA	2×0.79Ω
M25-03				2×13.8V	2×12V	1042mA	2×1.72Ω
M25-04				2×17.1V	2×15V	833mA	2×2.52Ω
M25-05				2×20.8V	2×18V	694mA	2×4.03Ω
M25-05B				2×24.3V	2×21V	595mA	2×5.55Ω
M25-06				2×27.4V	2×24V	521mA	2×6.53Ω
M25-06B				2×30.9V	2×27V	463mA	2×8.42Ω
MS25-01	220V ±10% 50Hz/60Hz	≤6mA	≤150mA	2×7.0V	2×6V	2083mA	2×0.48Ω
MS25-01B				2×8.6V	2×7.5V	1667mA	2×0.66Ω
MS25-02				2×10.1V	2×9V	1389mA	2×0.79Ω
MS25-03				2×13.8V	2×12V	1042mA	2×1.72Ω
MS25-04				2×17.1V	2×15V	833mA	2×2.52Ω
MS25-05				2×20.8V	2×18V	694mA	2×4.03Ω
MS25-05B				2×24.3V	2×21V	595mA	2×5.55Ω
MS25-06				2×27.4V	2×24V	521mA	2×6.53Ω
MS25-06B				2×30.9V	2×27V	463mA	2×8.42Ω

15. M35 16. MS35 (Tolerance  $\pm 0.5\text{mm}$ )



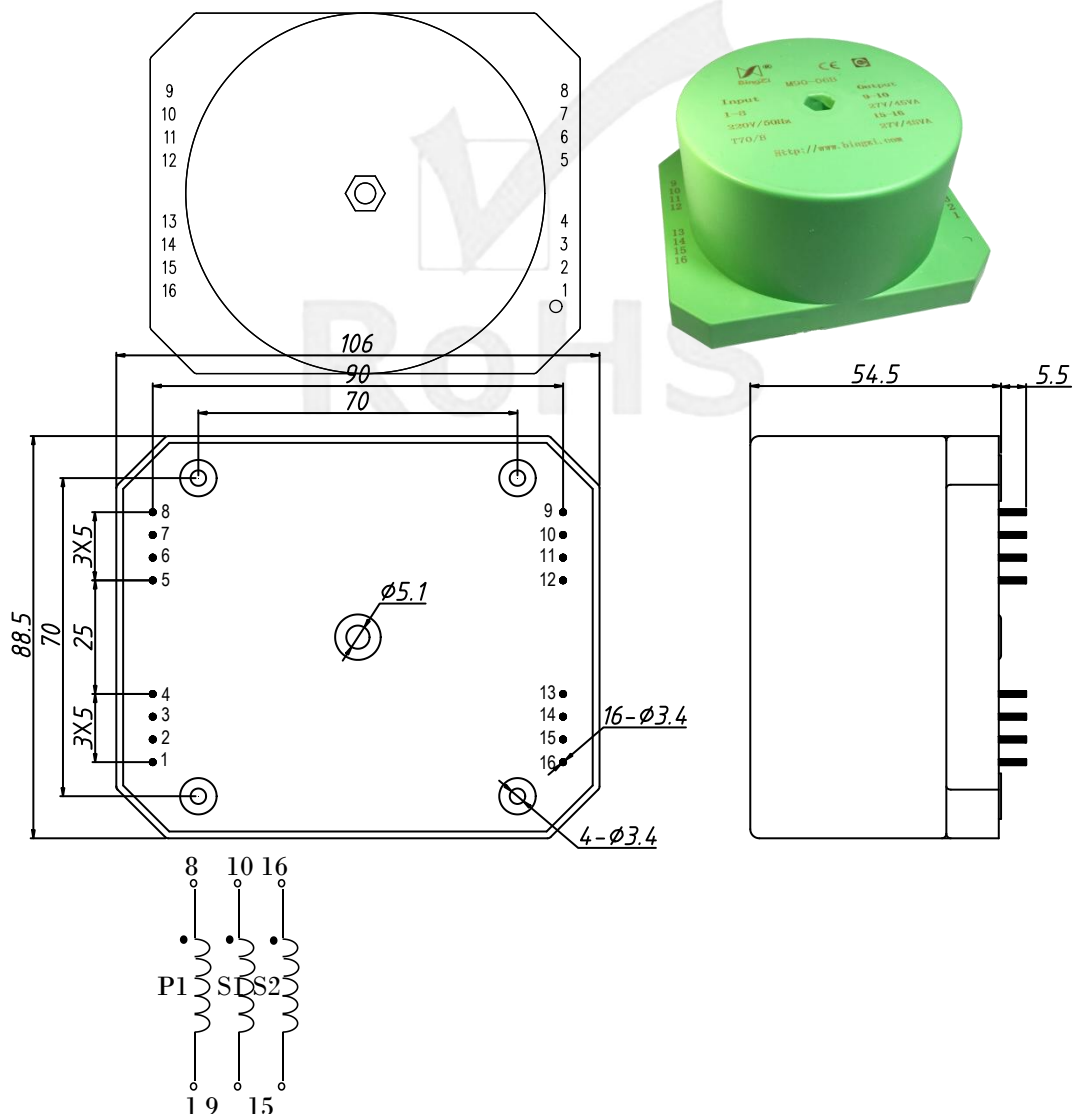
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M35-01	2×110V ±10% 50Hz/60Hz	≤8mA	≤200mA	2×6.7V	2×6V	2.92A	2×0.24Ω
M35-01B				2×8.5V	2×7.5V	2.33A	2×0.43Ω
M35-02				2×10.2V	2×9V	1.94A	2×0.62Ω
M35-03				2×13.6V	2×12V	1.458A	2×1.1Ω
M35-04				2×17.1V	2×15V	1.167A	2×1.8Ω
M35-05				2×20.3V	2×18V	0.972A	2×2.37Ω
M35-05B				2×23.7V	2×21V	0.833A	2×3.24Ω
M35-06				2×27.4V	2×24V	0.729A	2×4.66Ω
M35-06B				2×30.6V	2×27V	0.648A	2×5.56Ω
MS35-01				220V±10% 50Hz/60Hz	≤8mA	≤200mA	2×6.7V
MS35-01B	2×8.5V	2×7.5V	2.33A				2×0.43Ω
MS35-02	2×10.2V	2×9V	1.94A				2×0.62Ω
MS35-03	2×13.6V	2×12V	1.458A				2×1.1Ω
MS35-04	2×17.1V	2×15V	1.167A				2×1.8Ω
MS35-05	2×20.3V	2×18V	0.972A				2×2.37Ω
MS35-05B	2×23.7V	2×21V	0.833A				2×3.24Ω
MS35-06	2×27.4V	2×24V	0.729A				2×4.66Ω
MS35-06B	2×30.6V	2×27V	0.648A				2×5.56Ω

17. M50 18. MS50 (Tolerance ±0.5mm)



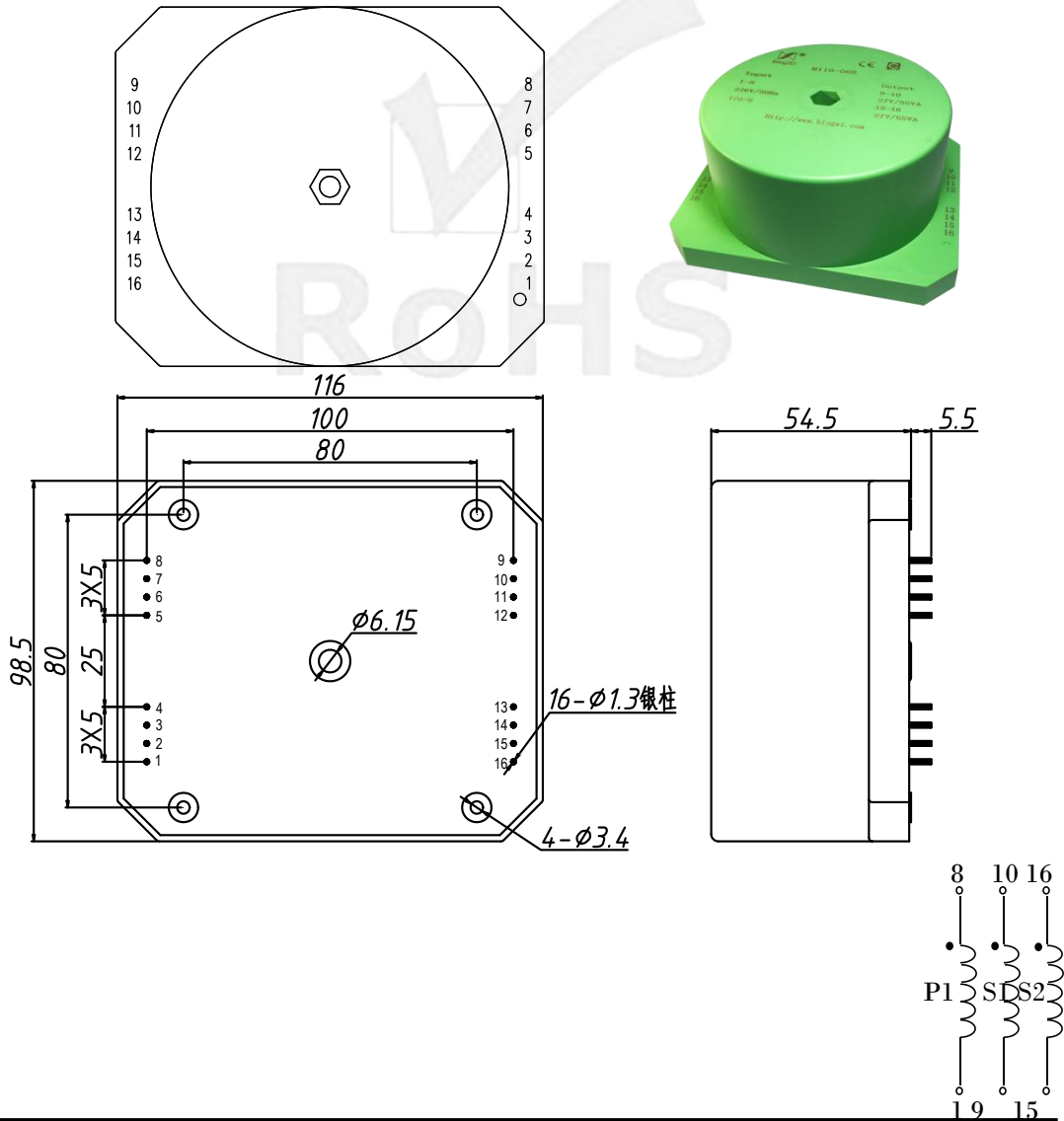
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
M50-01	2×110V ±10% 50Hz/60Hz	≤10mA	≤285mA	2×6.6V	2×6V	4.167A	2×0.14Ω
M50-01B				2×8.3V	2×7.5V	3.333A	2×0.24Ω
M50-02				2×10V	2×9V	2.778A	2×0.36Ω
M50-03				2×13.3V	2×12V	2.083A	2×0.62Ω
M50-04				2×16.7V	2×15V	1.667A	2×1.02Ω
M50-05				2×20V	2×18V	1.389A	2×1.44Ω
M50-05B				2×23.2V	2×21V	1.190A	2×1.85Ω
M50-06				2×26.7V	2×24V	1.042A	2×2.59Ω
M50-06B				2×30V	2×27V	0.926A	2×3.24Ω
MS50-01	220V±10% 50Hz/60Hz	≤10mA	≤285mA	2×6.6V	2×6V	4.167A	2×0.14Ω
MS50-01B				2×8.3V	2×7.5V	3.333A	2×0.24Ω
MS50-02				2×10V	2×9V	2.778A	2×0.36Ω
MS50-03				2×13.3V	2×12V	2.083A	2×0.62Ω
MS50-04				2×16.7V	2×15V	1.667A	2×1.02Ω
MS50-05				2×20V	2×18V	1.389A	2×1.44Ω
MS50-05B				2×23.2V	2×21V	1.190A	2×1.85Ω
MS50-06				2×26.7V	2×24V	1.042A	2×2.59Ω
MS50-06B				2×30V	2×27V	0.926A	2×3.24Ω

19. MS90 (Tolerance  $\pm 0.5\text{mm}$ )



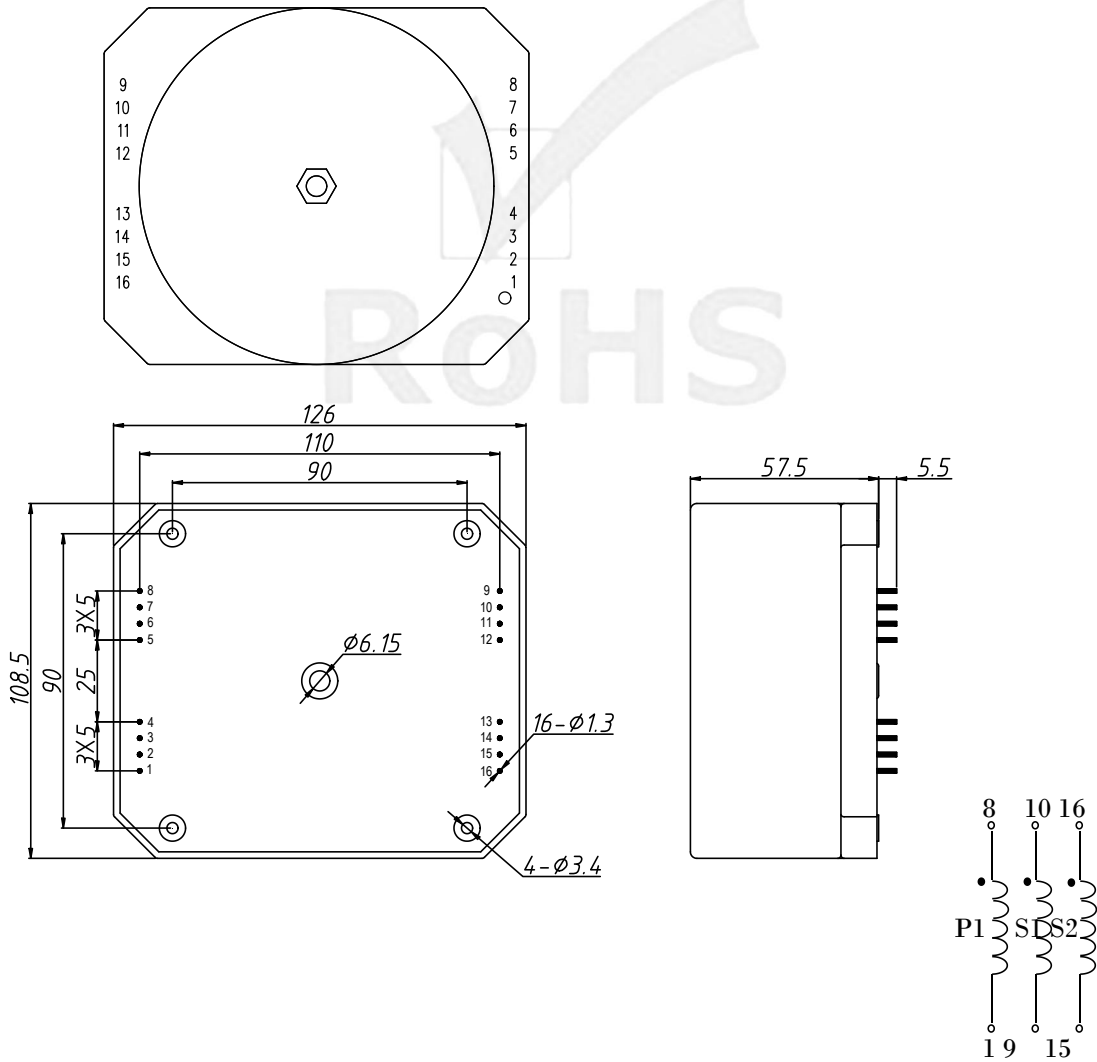
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance	
		Idle	Full Load	Idle Voltage	Full Load Voltage			
MS90-01	220V ±15% 50Hz/60Hz	≤5.5mA	≤490mA	2×6.39V	2×6V	7.5A	2×0.052Ω	
MS90-01B				2×8.1V	2×7.5V		6A	2×0.1Ω
MS90-02				2×9.58V	2×9V		5A	2×0.116Ω
MS90-03				2×12.78V	2×12V		3.75A	2×0.208Ω
MS90-04				2×15.93V	2×15V		3A	2×0.31Ω
MS90-05				2×19.17V	2×18V		2.5A	2×0.468Ω
MS90-05B				2×22.36V	2×21V		2.14A	2×0.635Ω
MS90-06				2×25.56V	2×24V		1.875A	2×0.832Ω
MS90-06B				2×29V	2×27V		1.667A	2×1.199Ω

20. MS110 (Tolerance  $\pm 0.5\text{mm}$ )



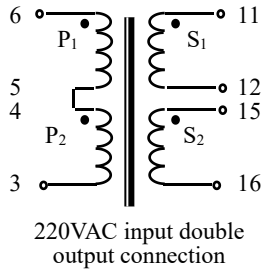
Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance		
		Idle	Full Load	Idle Voltage	Full Load Voltage				
MS110-01	220V ±15% 50Hz/60Hz	≤7.5mA	≤590mA	2×6.34V	2×6V	9.177A	2×0.037Ω		
MS110-01B				2×7.92V	2×7.5V			7.33A	2×0.057Ω
MS110-02				2×9.51V	2×9V			6.11A	2×0.083Ω
MS110-03				2×12.68V	2×12V			4.583A	2×0.148Ω
MS110-04				2×15.85V	2×15V			3.667A	2×0.232Ω
MS110-05				2×19.02V	2×18V			3.056A	2×0.334Ω
MS110-05B				2×22.19V	2×21V			2.619A	2×0.454Ω
MS110-06				2×25.36V	2×24V			2.291A	2×0.594Ω
MS110-06B	2×28.53V	2×27V	2.037A	2×0.751Ω					

**21. MS160 (Tolerance  $\pm 0.5\text{mm}$ )**

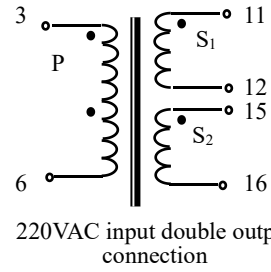
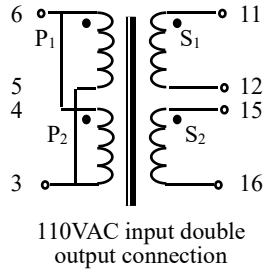


Model	Primary Voltage	Primary Operating Current		Secondary Voltage(V <sub>2</sub> )		Secondary Current (I <sub>2</sub> )	Equivalent Resistance
		Idle	Full Load	Idle Voltage	Full Load Voltage		
MS160-01	220V $\pm 15\%$ 50Hz/60Hz	$\leq 9.5\text{mA}$	$\leq 845\text{mA}$	2 $\times$ 6.4V	2 $\times$ 6V	13.33A	2 $\times$ 0.03 $\Omega$
MS160-01B				2 $\times$ 7.83V	2 $\times$ 7.5V	10.667A	2 $\times$ 0.309 $\Omega$
MS160-02				2 $\times$ 9.25V	2 $\times$ 9V	8.889A	2 $\times$ 0.028 $\Omega$
MS160-03				2 $\times$ 12.4V	2 $\times$ 12V	6.667A	2 $\times$ 0.06 $\Omega$
MS160-04				2 $\times$ 15.66V	2 $\times$ 15V	5.333A	2 $\times$ 0.123 $\Omega$
MS160-05				2 $\times$ 18.86V	2 $\times$ 18V	4.444A	2 $\times$ 0.193 $\Omega$
MS160-05B				2 $\times$ 22.07V	2 $\times$ 21V	3.809A	2 $\times$ 0.28 $\Omega$
MS160-06				2 $\times$ 24.91V	2 $\times$ 24V	3.333A	2 $\times$ 0.273 $\Omega$
MS160-06B				2 $\times$ 28.12V	2 $\times$ 27V	2.963A	2 $\times$ 0.381 $\Omega$

**M series standard product input and output winding connection:**



(apply to M series)



(apply to MS series)

**Note:**

Since this transformer product has many leadouts and the leadouts are relatively hard, in order to facilitate plug-in, it is suggested that when designing the PCB, leave some tolerance for the size of the transformer pin holes (if the leadout is 0.8mm, the pin hole size can be designed to 1.2mm; if the leadout is 1mm, the pin hole size can be designed to 1.5mm).