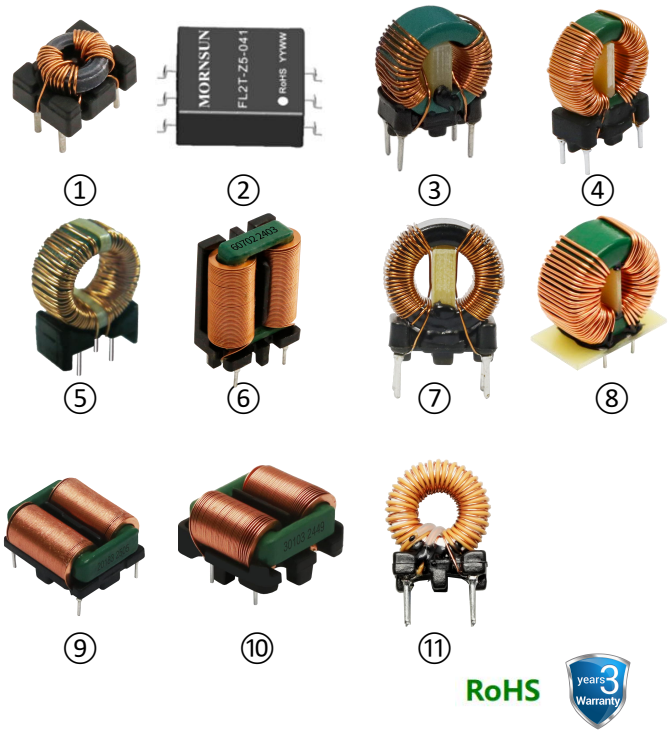
EMC Filter Inductor

FL2D/FL2T-xx-xxx(0A-4A)

MORNSUN®

Common Mode Filter



RoHS

3 years Warranty

FEATURES

- Good temperature characteristic
- Small size
- Effective anti-interference
- High reliability
- Various inductance values

The filter is suitable for applications that are sensitive to noise, such as analog circuits , and the EMC level can be significantly improved by adding FL2D/FL2T-xx-xxx to the input end of the power module.

Selection Guide

Model	*Inductance (uH)	Current (A)(max)	DCR(mΩ) (max)	Weight (g) (typ)	Size(mm) (L x W x H)	Product Chart
FL2D-Z5-140	14*2	0.5	100*2	0.6	10.00 x 8.00 x 7.00 See Figure1	Reference Diagram①
FL2T-Z5-041	32*2	0.5	40*2	0.7	12.50 x 8.70 x 5.90 See Figure2	Reference Diagram②
FL2D-Z5-101	100*2	0.5	230*2	1.4	13.00 x 8.50 x 16.00 See Figure14	Reference Diagram⑪
FL2D-Z5-181	180*2	0.5	300*2	1.6	13.00 x 8.50 x 16.00 See Figure14	Reference Diagram⑪
FL2D-Z5-103	10000*2	0.5	500*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-Z5-153	15000*2	0.5	600*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-Z5-223	22000*2	0.5	650*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2T-10-400	39.7*2	1.0	242*2	0.8	12.50 x 8.60 x 6.00 See Figure4	Reference Diagram②
FL2T-10-182	1860*2	1.0	242*2	0.8	12.50 x 8.60 x 6.00 See Figure4	Reference Diagram②
FL2D-10-102	1000*2	1.0	70*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-10-222	2200*2	1.0	90*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-10-332	3300*2	1.0	100*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-10-472	4700*2	1.0	140*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-10-502	5000*2	1.0	220*2	3.4	15.00 x 7.80 x 18.00 See Figure5	Reference Diagram④
FL2D-10-682	6800*2	1.0	160*2	6.5	19.00 x 11.00 x 23.50 See Figure6	Reference Diagram⑤
FL2D-10-822	8200*2	1.0	180*2	6.5	19.00 x 11.00 x 23.50 See Figure6	Reference Diagram⑤
FL2D-10-203	20000*2	1.0	240*2	5.6	18.00 x 10.00 x 17.50 See Figure7	Reference Diagram⑥
FL2D-13-471R3	470*2	1.3	250*2	4.0	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram⑦
FL2D-20-562	5600*2	2.0	60*2	10	21.00 x 11.00 x 20.50 See Figure8	Reference Diagram⑧
FL2D-20-103	10000*2	2.0	70*2	16.5	23.00 x 14.00 x 23.00 See Figure9	Reference Diagram⑧

FL2D-20-183	18000*2	2.0	150*2	19.0	25.50 x 23.00 x 14.00 See Figure10	Reference Diagram⑨
FL2D-30-351	350*2	3.0	30*2	3.9	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-30-102	1000*2	3.0	40*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-30-222	2200*2	3.0	50*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-30-472	4700*2	3.0	70*2	4.5	17.00 x 9.60 x 18.00 See Figure3	Reference Diagram③
FL2D-30-103	10000*2	3.0	145*2	13.8	24.50 x 22.50 x 15.50 See Figure11	Reference Diagram⑩
FL2D-40-562	5600*2	4.0	35*2	25.0	26.00 x18.00 x 24.50 See Figure12	Reference Diagram⑧
FL2D-40-123	12000*2	4.0	150*2	20.0	26.50 x 25.50 x 16.00 See Figure13	Reference Diagram⑩

Note:*1.The inductance values are tested under the conditions of T=25℃,The inductance values of FL2D-30-103、FL2D-40-123、FL2D-Z5-140/101/181、FL2D-20-183 are the minimum values, while the inductance values of other models are typical values.

General Specifications

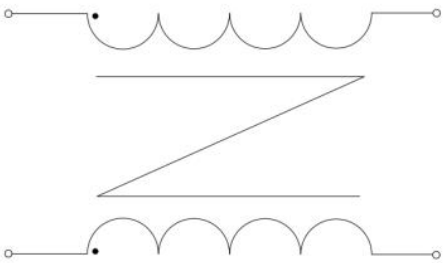
Item	Test Conditions	Applicable Model	Min.	Typ.	Max.	Unit
Operating Temperature *		FL2D-10-502 FL2T-10-400 FL2T-10-182 FL2D-13-471R3	-40	--	+125	℃
		FL2D-Z5-140 FL2D-40-123	-40	--	+115	
		Others	-40	--	+105	
Storage Temperature		FL2D-10-502 FL2T-10-400 FL2T-10-182 FL2D-13-471R3	-40	--	+125	
		FL2T-Z5-041	-55	--	+125	
		Others	-40	--	+105	
Welding Temperature**	Wave soldering, maximum 10 seconds		+255	+260	+265	
	Manual soldering, with the solder joint 1.5mm away from the shell, for 10 seconds.		--	--	+300	
	Reflow Soldering Temperature	FL2T-10-400 FL2T-Z5-041 FL2T-10-182	Peak temperature Tc is no more than 245 ℃, and the maximum duration when it exceeds 217℃ is 60 seconds.			
Storage Humidity	Non-condensing		5	--	95	%RH
Inductance Error Range	fo=1kHz, Uo=0.3V	FL2D-30-351	-50	--	--	%
		Others	-35	--	--	
	fo=10KHz, Uo=0.1V	FL2T-10-400 FL2T-10-182 FL2D-10-502	--	30	--	
	fo=100KHz, Uo=0.1V	FL2D-13-471R3	-50	--	--	
		FL2T-Z5-041	--	35	--	
	fo=10KHz, Uo=0.1V,T=25℃	FL2D-20-562 FL2D-20-103 FL2D-40-562 FL2D-40-123	--	35	--	
	fo=1KHz, Uo=0.25V	FL2D-20-183 FL2D-40-123 FL2D-30-103	The inductance values are all defined as the minimum values			
	fo=10KHz, Uo=0.1V,T=25℃	FL2D-Z5-140/101/181				

Isolation Voltage(COIL-COIL)	Electric strength test for 1 minute with a leakage current of 1mA max	Others	--	--	2000	VDC
	Electric strength test for 1 minute with a leakage current of 1mA max	FL2D-20-562 FL2D-20-103 FL2D-40-562	--	--	3000	
	Electric strength test for 1 minute with a leakage current of 5mA max	FL2D-20-183 FL2D-30-103 FL2D-10-502 FL2D-Z5-101/181	--	--	1500	VAC
		FL2D-Z5-140 FL2D-40-123	--	--	1000	
		FL2T-10-182	--	--	1500	
		FL2T-10-400	--	--	2000	VDC
Vibration	FL2D-30-103		IEC60077, IEC 61373 - Category 1, Grade B			
	FL2D-Z5-140/101/181、FL2D-20-562、FL2D-20-103、FL2D-40-562、FL2D-20-183、FL2D-40-123		10~55Hz, 10g, X,Y,Z direction ,2mm			
Warranty	Ambient temperature: <40℃		3 years			

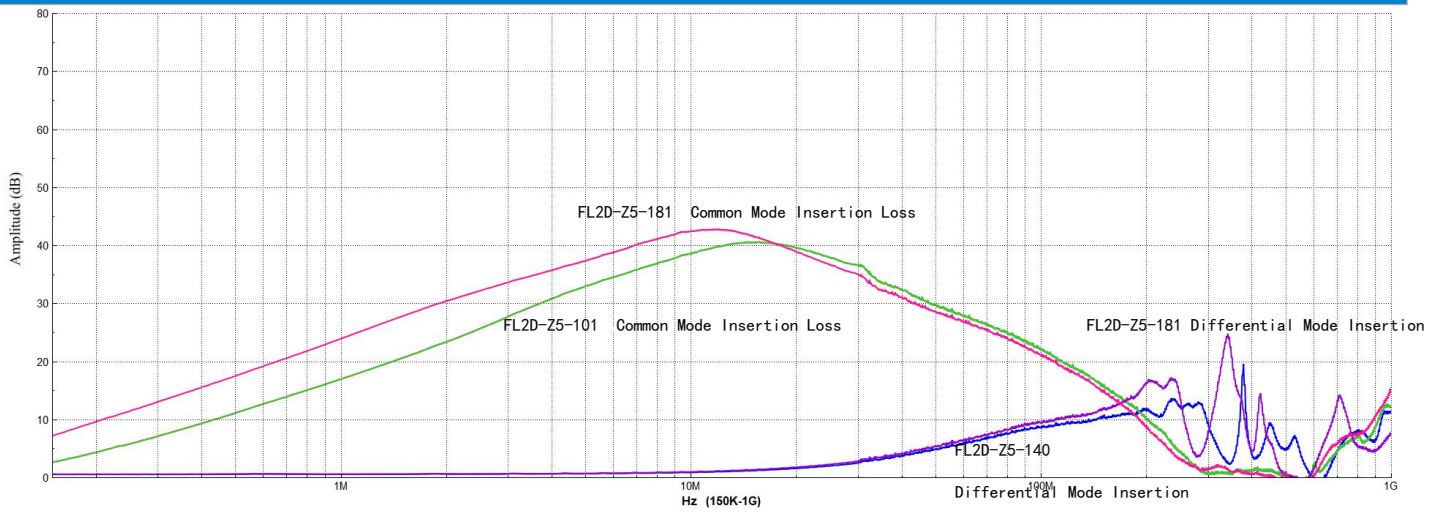
Note: *1.Operating Temperature range includes inductor self heating.

**2.The soldering temperature resistance of the pins is not the actual set temperature of the soldering iron, but the temperature required for a good solder joint. The actual set temperature by the customer needs to be comprehensively set based on the thickness of the PCB, the size of the copper cladding, the power of the soldering iron, and the selection of the soldering iron tip.

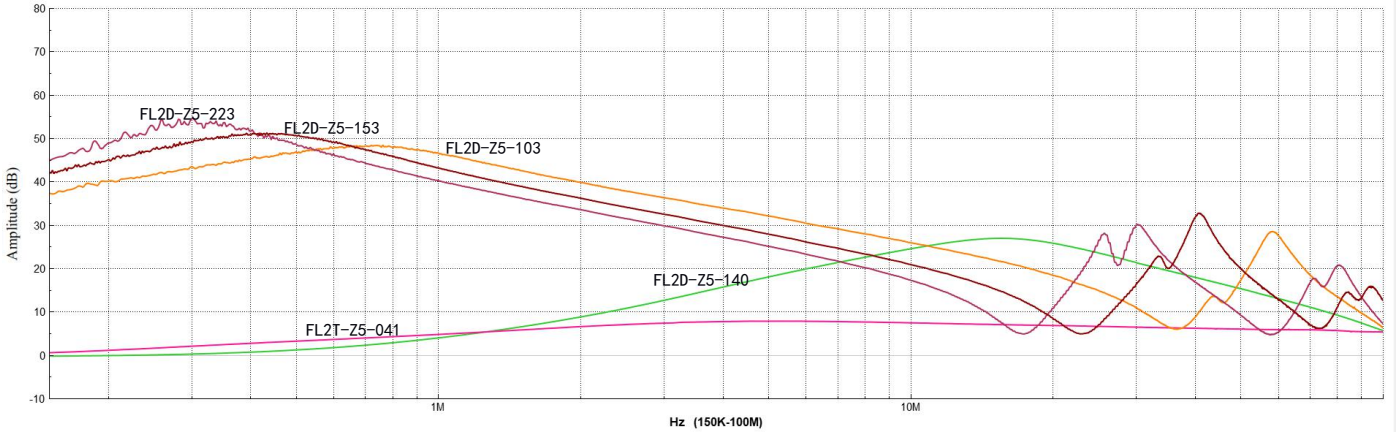
Schematic Diagram



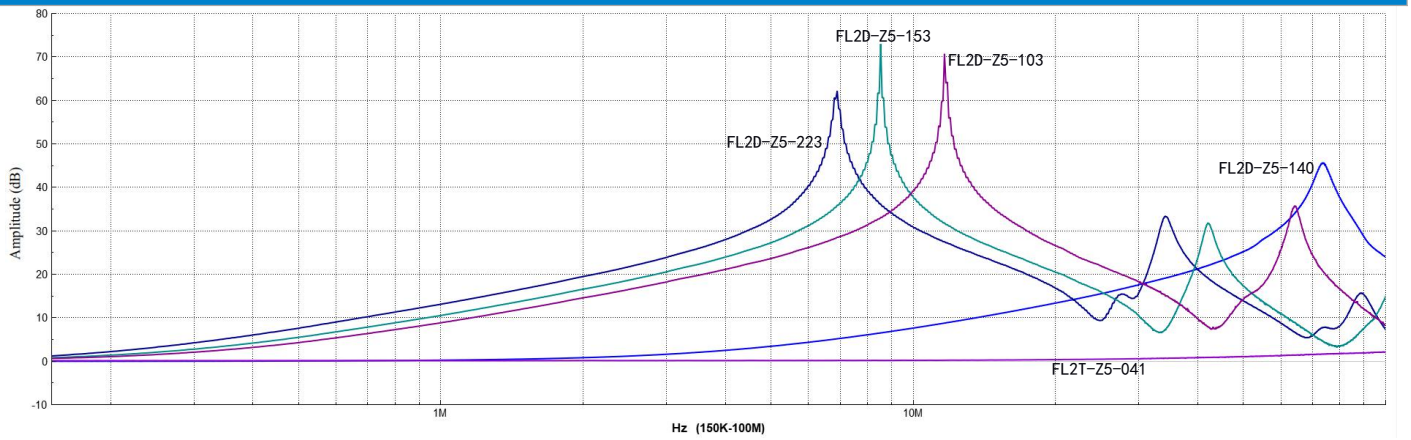
FL2D-Z5-101/181 Common Mode Insertion Loss Curve (Reference Value)



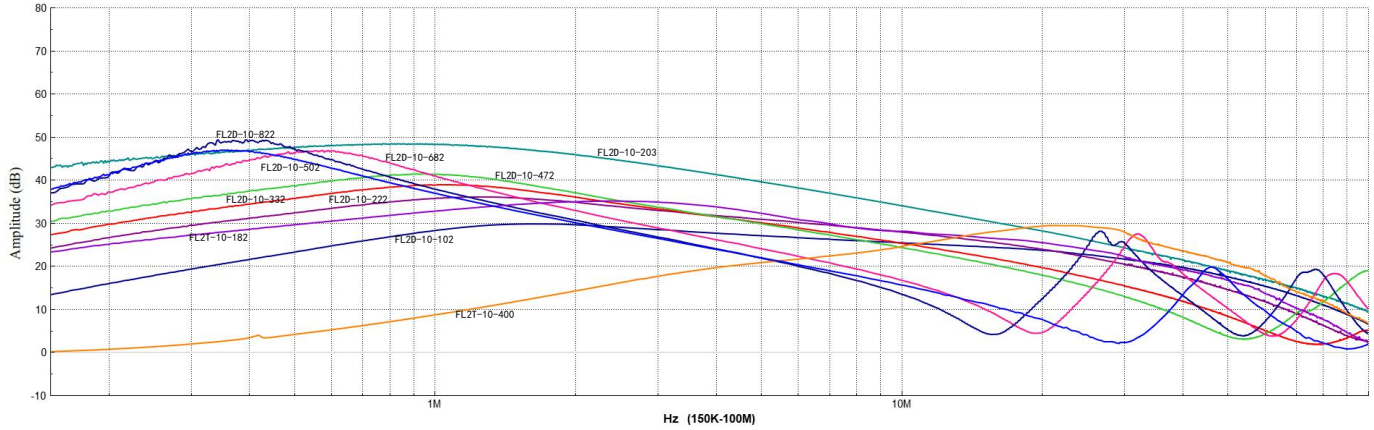
FL2D/FL2T-Z5-XXX Common Mode Insertion Loss Curve (Reference Value)



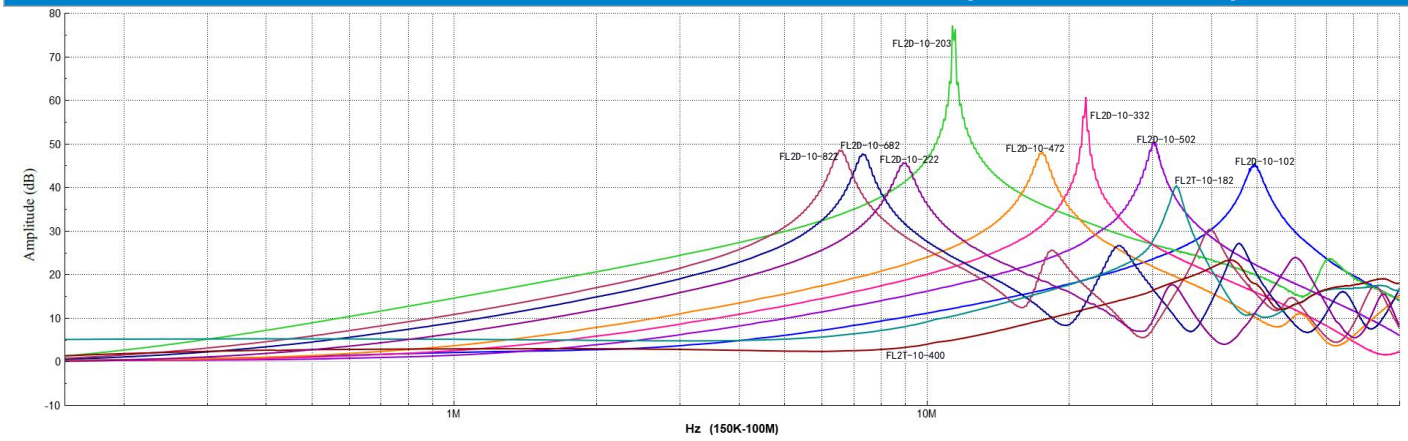
FL2D/FL2T-Z5-XXX Differential Mode Insertion Loss Curve (Reference Value)



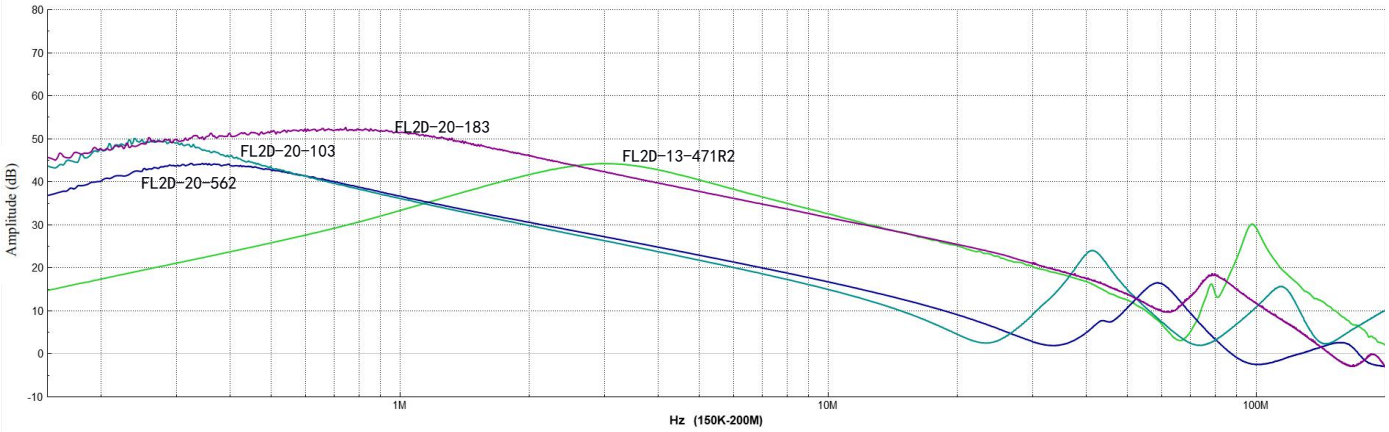
FL2D/FL2T-10-XXX Common Mode Insertion Loss Curve (Reference Value)



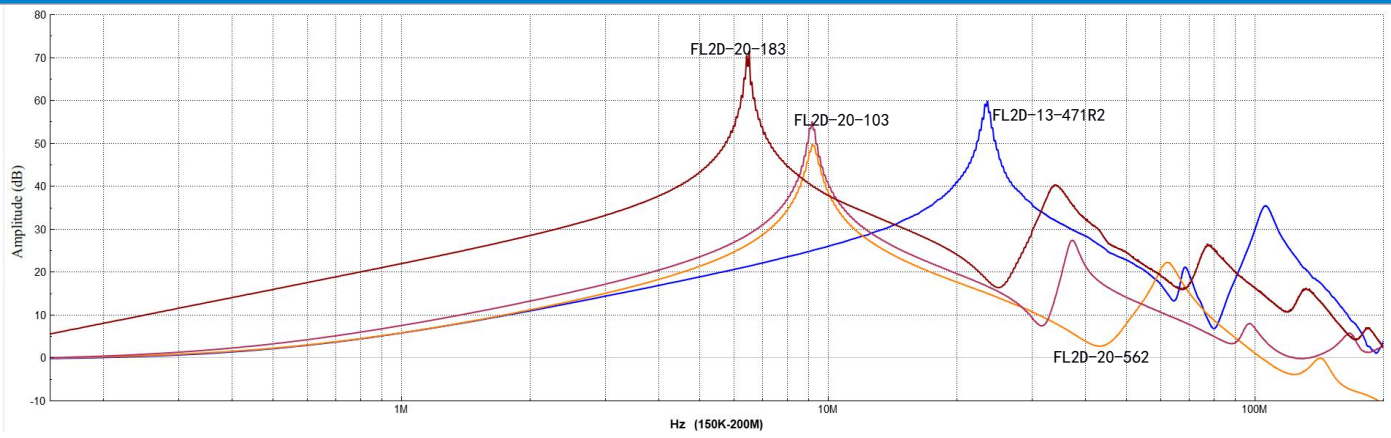
FL2D/FL2T-10-XXX Differential Mode Insertion Loss Curve (Reference Value)



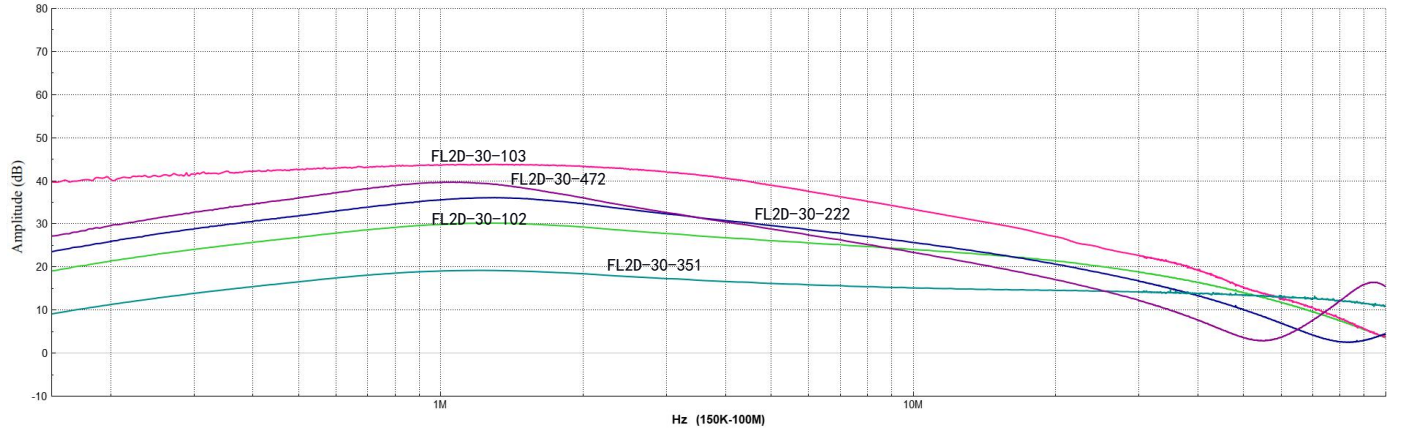
FL2D-13/20-XXX Common Mode Insertion Loss Curve (Reference Value)



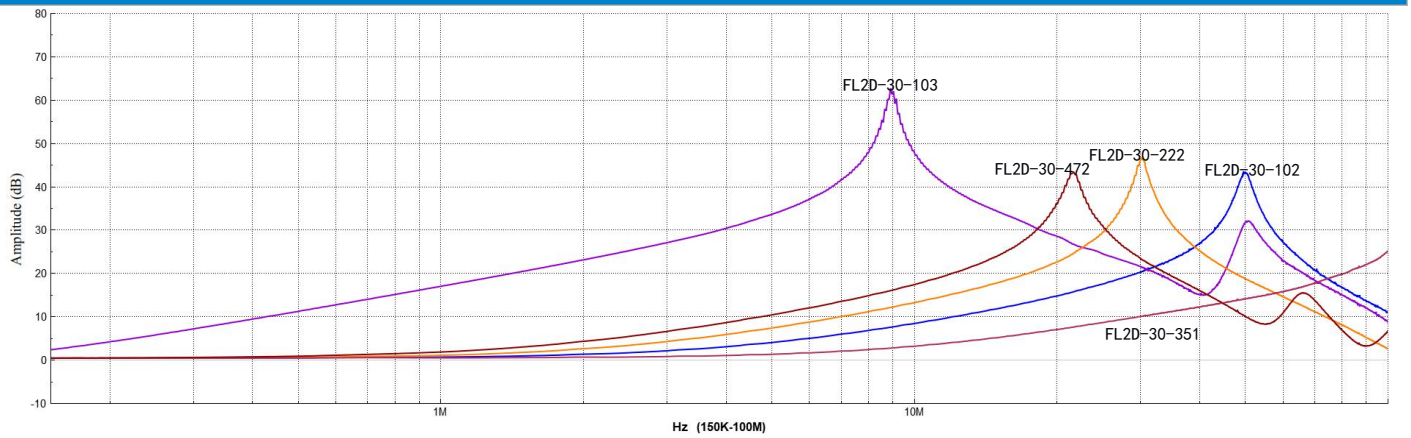
FL2D-13/20-XXX Differential Mode Insertion Loss Curve (Reference Value)



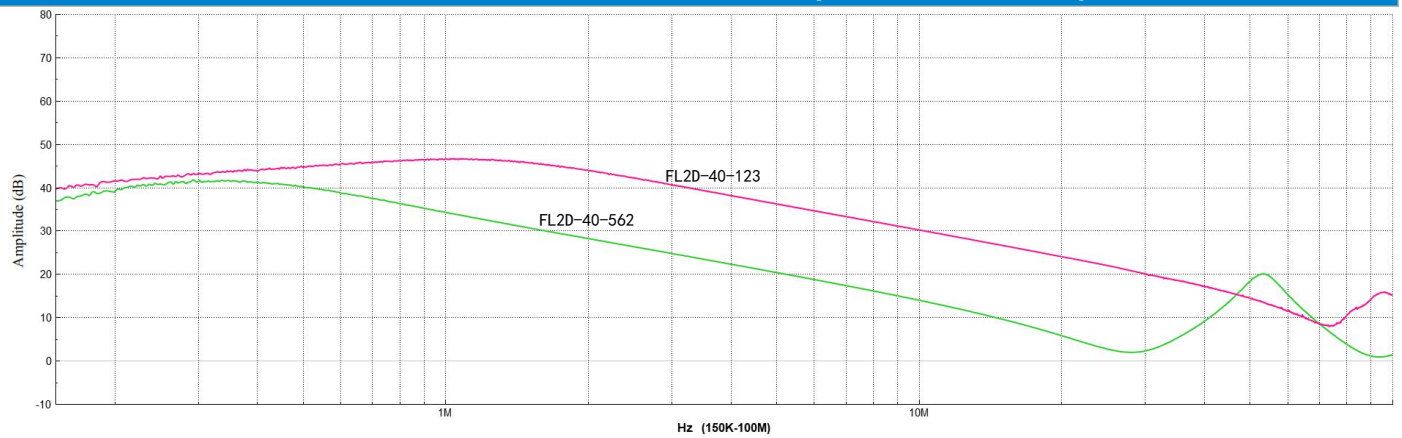
FL2D-30-XXX Common Mode Insertion Loss Curve (Reference Value)



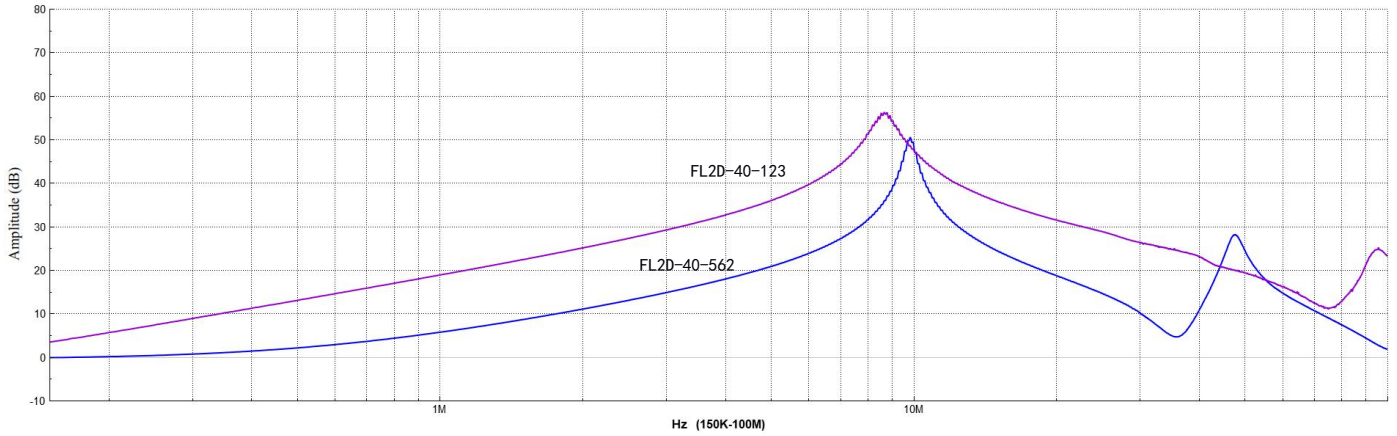
FL2D-30-XXX Differential Mode Insertion Loss Curve (Reference Value)



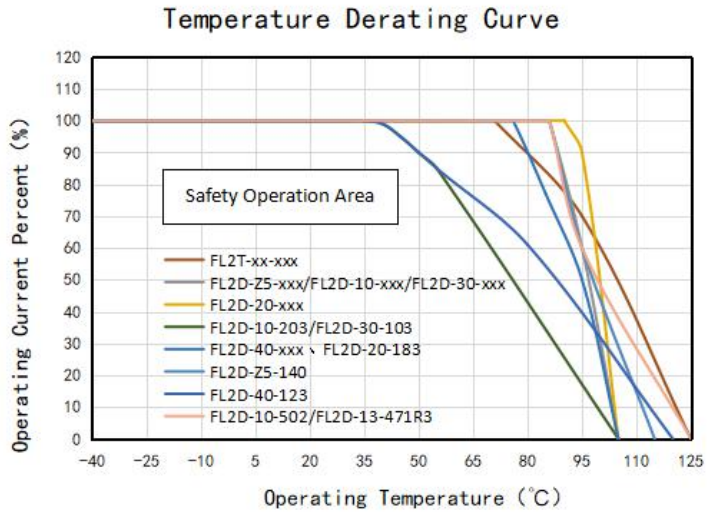
FL2D-40-XXX Common Mode Insertion Loss Curve (Reference Value)



FL2D-40-XXX Differential Mode Insertion Loss Curve (Reference Value)



Temperature Derating Curve (Reference Value)



Note: This product is suitable for use in safe working areas, such as in non-safe working areas, it is recommended to use forced air cooling and other heat dissipation measures.

FL2D-Z5-140 Schematic Diagram Of Pin Mark

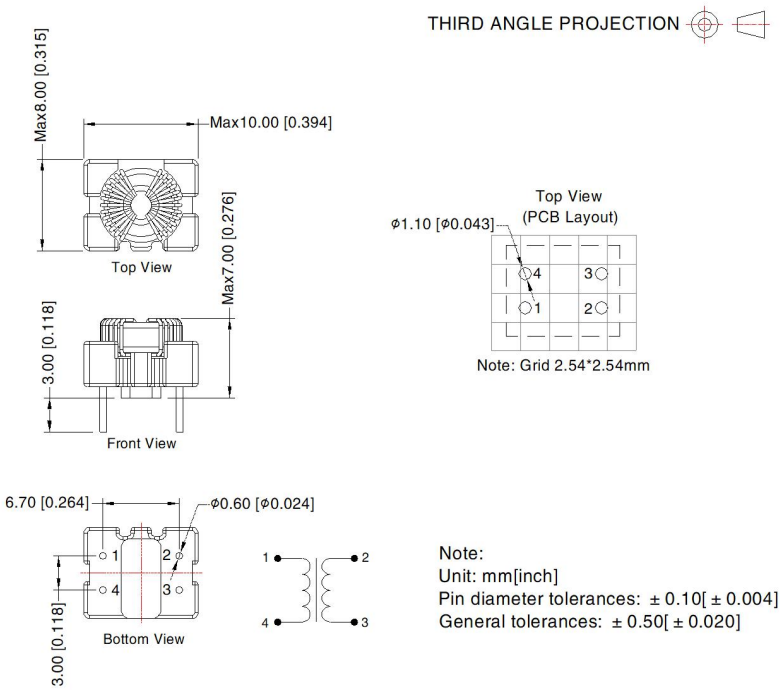
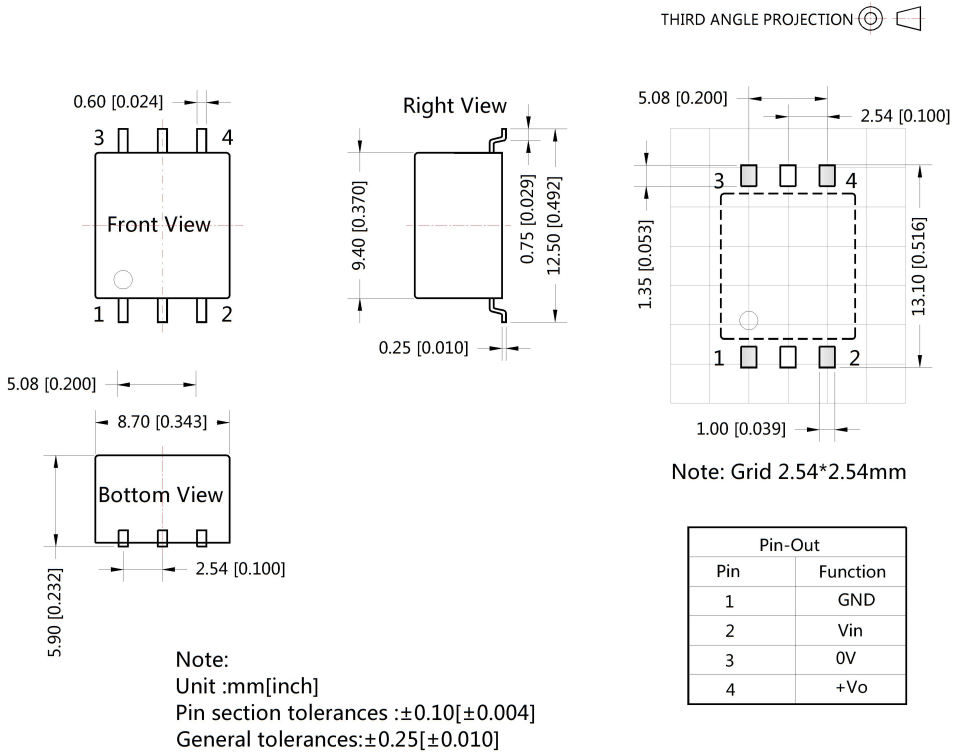


Fig.1

FL2T-Z5-041 Schematic Diagram Of Pin Mark



Pin-Out	
Pin	Function
1	GND
2	Vin
3	0V
4	+Vo

Fig.2

FL2D-Z5-103/153/223 、 FL2D-10-102/222/332/472 、 FL2D-30-351/102/222/472 、 FL2D-13-471R3 Schematic Diagram Of Pin Mark

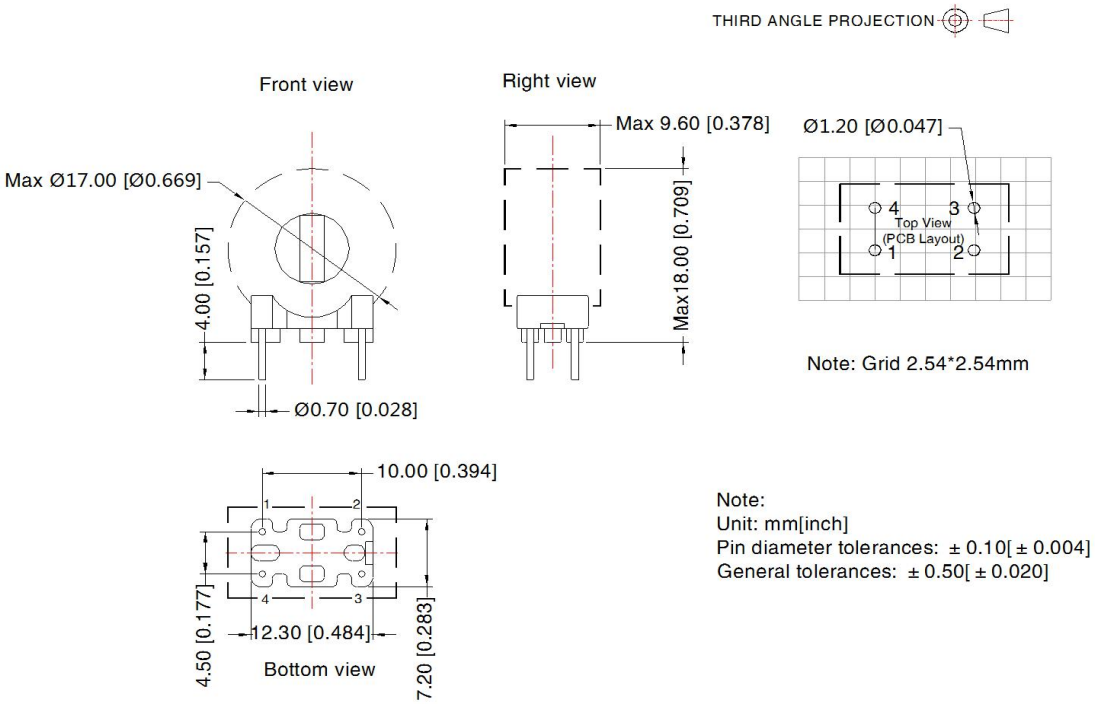


Fig.3

FL2T-10-400/182 Schematic Diagram Of Pin Mark

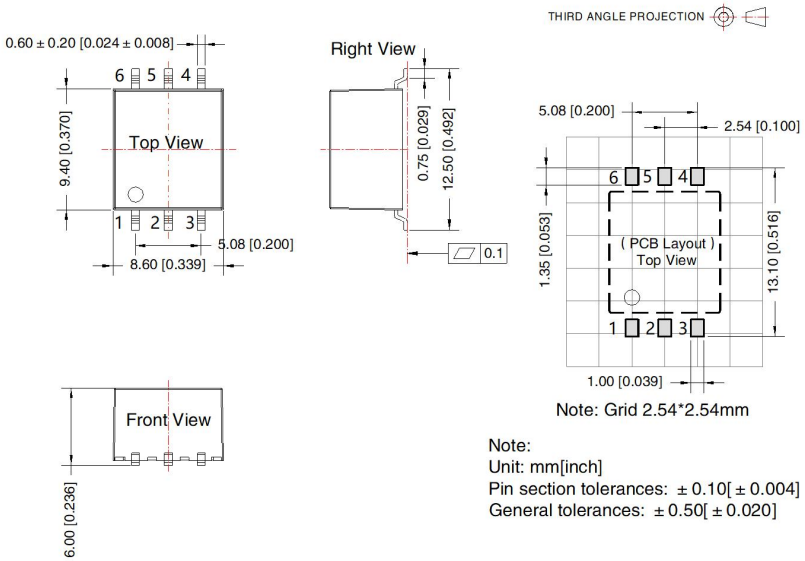


Fig.4

FL2D-10-502 Schematic Diagram Of Pin Mark

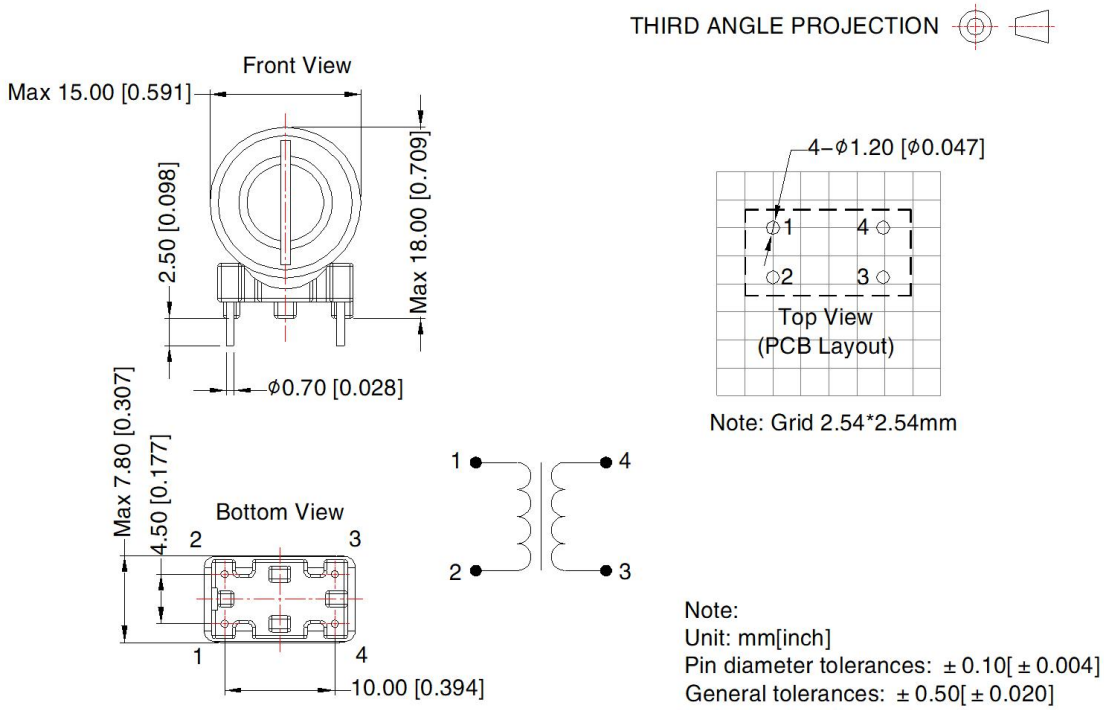


Fig.5

FL2D-10-682/822 Schematic Diagram Of Pin Mark

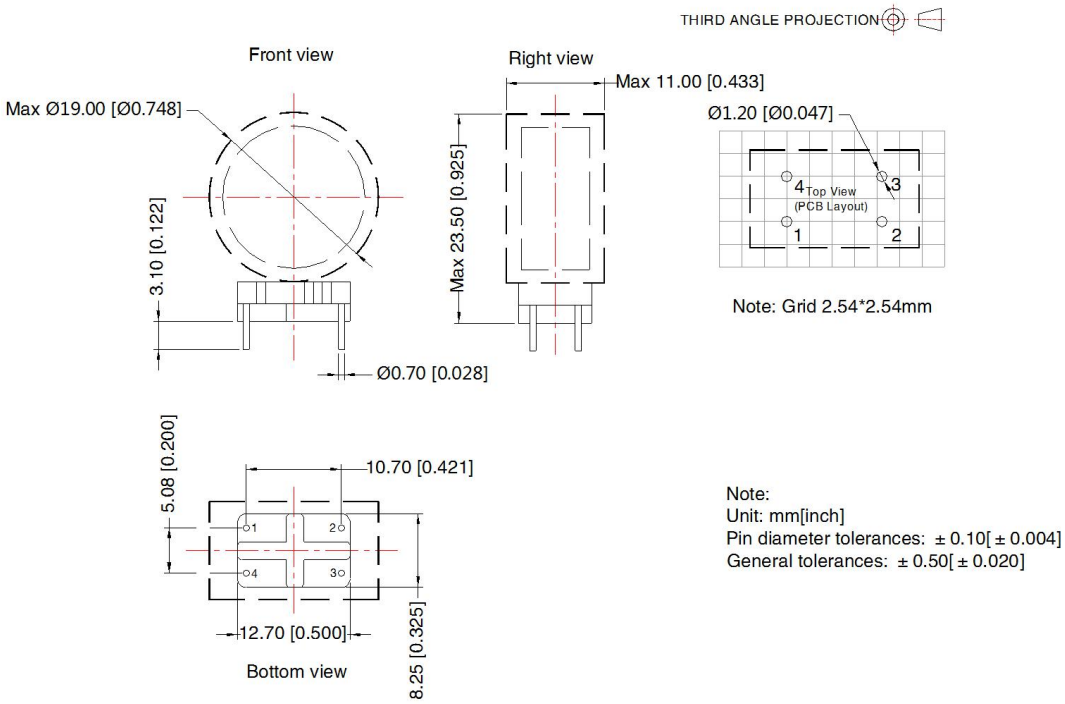


Fig.6

FL2D-10-203 Schematic Diagram Of Pin Mark

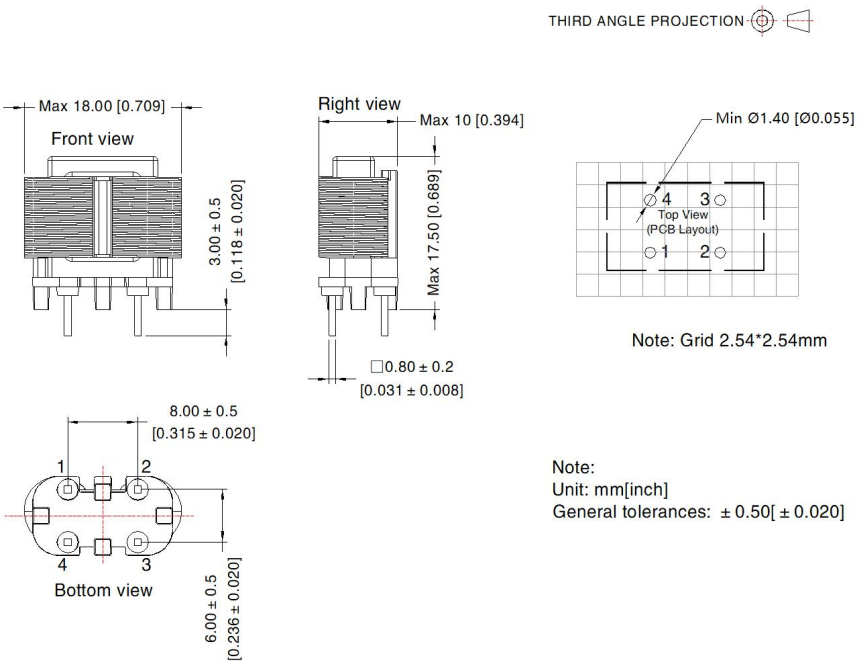


Fig.7

FL2D-20-562 Schematic Diagram Of Pin Mark

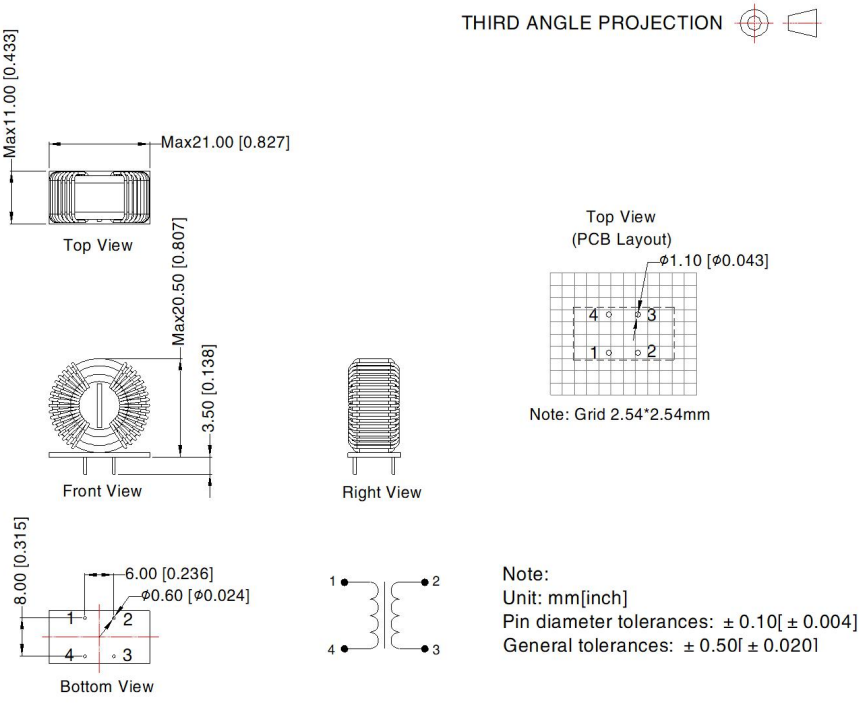


Fig.8

FL2D-20-103 Schematic Diagram Of Pin Mark

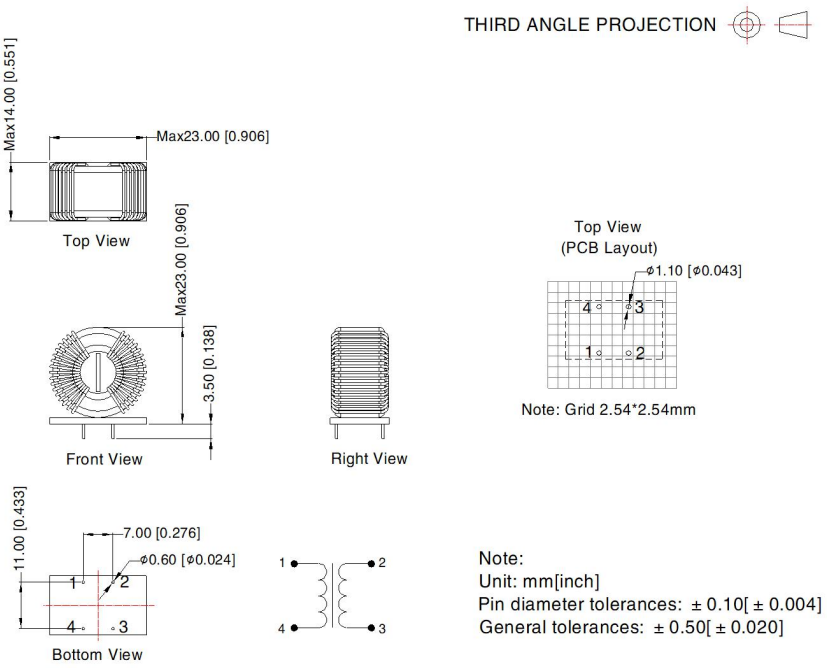


Fig.9

FL2D-20-183 Schematic Diagram Of Pin Mark

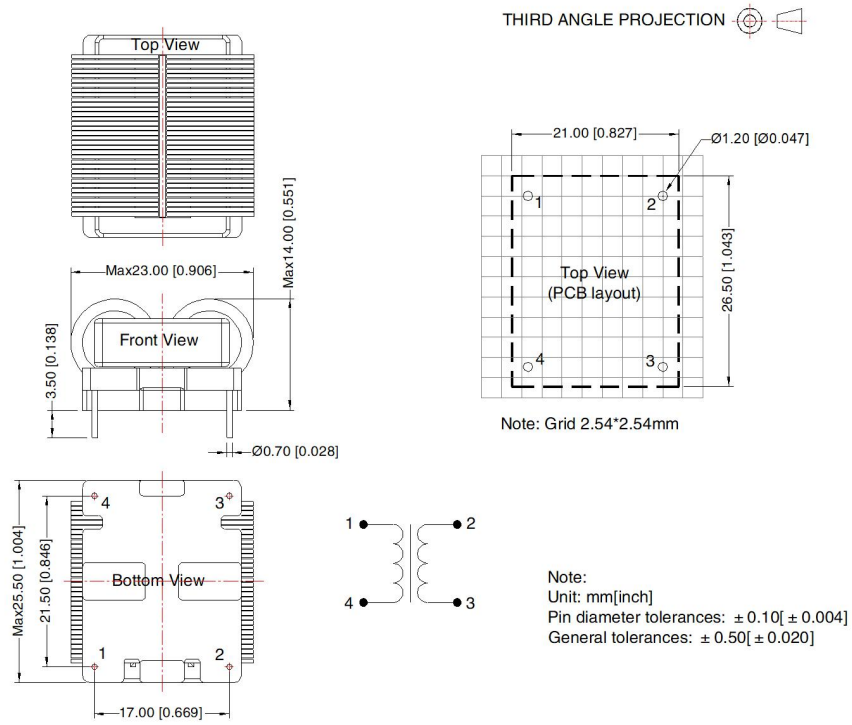


Fig.10

FL2D-30-103 Schematic Diagram Of Pin Mark

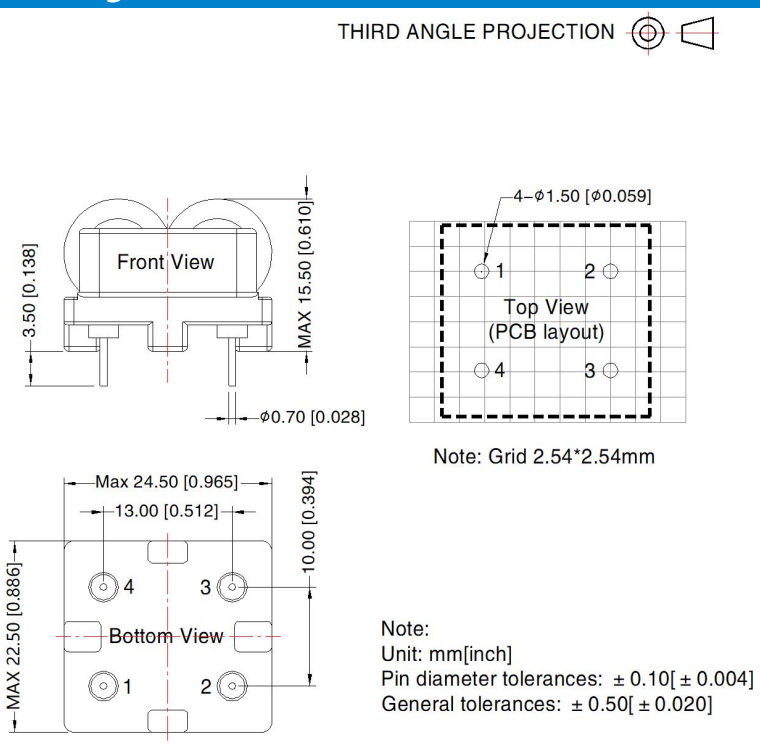


Fig.11

FL2D-40-562 Schematic Diagram Of Pin Mark

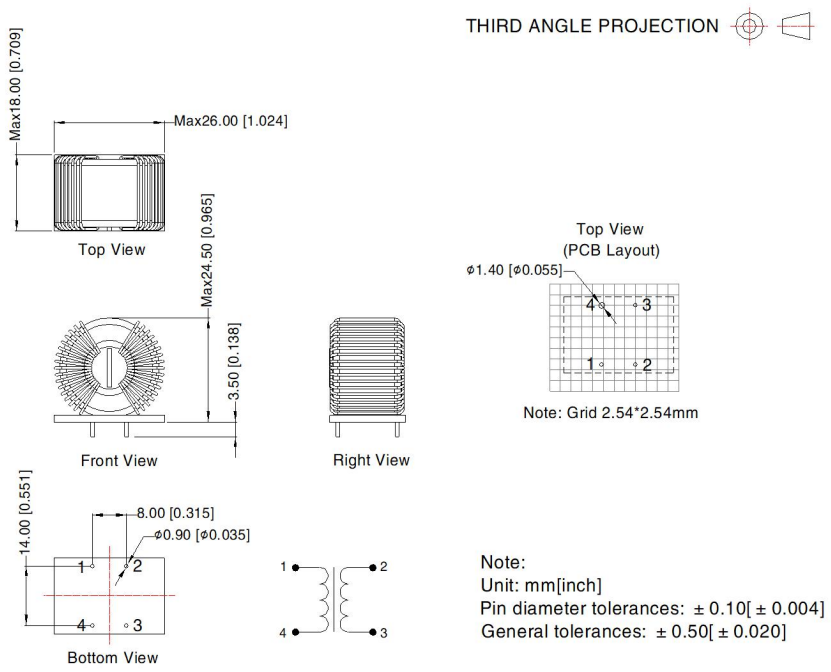


Fig.12

FL2D-40-123 Schematic Diagram Of Pin Mark

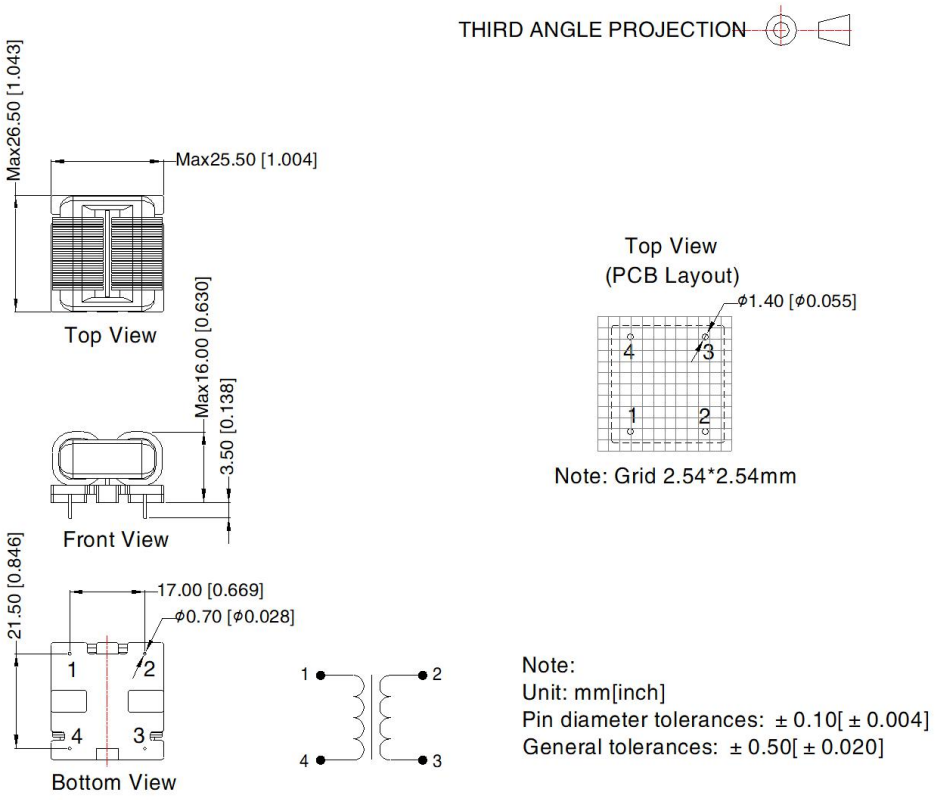


Fig.13

FL2D-Z5-101/181 Schematic Diagram Of Pin Mark

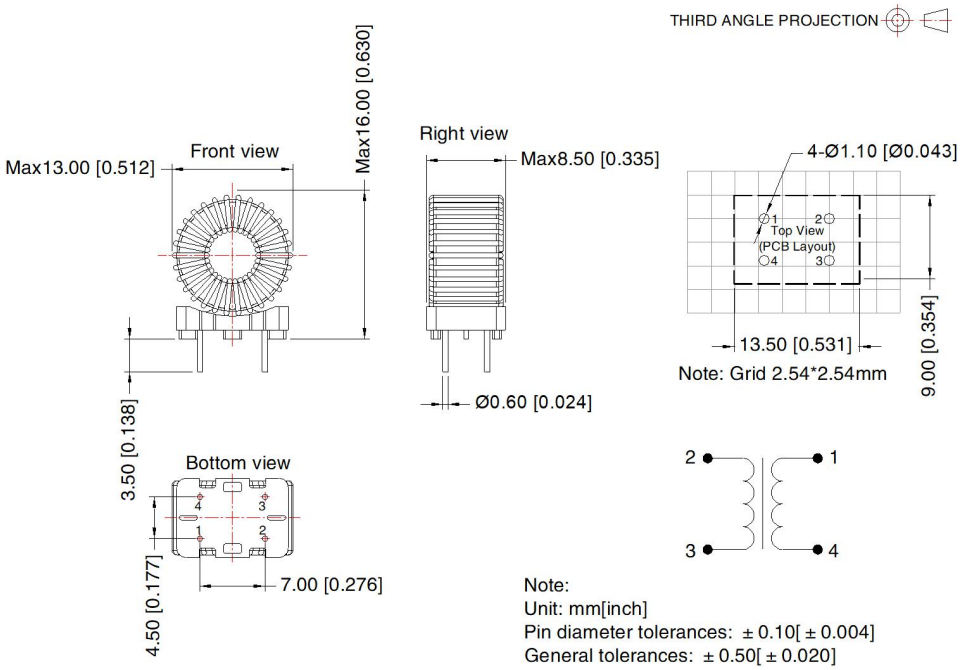


Fig.14

Note：

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number:58200055(FL2D-10-682、FL2D-10-822、FL2D-30-103)、58220123(FL2D-10-203)、58210400(FL2D-Z5-140)、58200091(FL2T-Z5-041)、58200091(FL2T-10-182、FL2T-10-400)、58220123(FL2D-13-471R3)、58220605(FL2D-20-562、FL2D-20-103)、58210379(FL2D-40-562)、58210146(FL2D-20-183)、58210180(FL2D-40-123)、58210473(FL2D-Z5-101、FL2D-Z5-181)、58220018(Others)；
2. Unless otherwise specified, data in this data sheet should be tested under the conditions of Ta=25℃, humidity<75%RH;
3. All index testing methods in this datasheet are based on company corporate standards;
4. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technicians for specific information;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" ;
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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www.mornsun-power.com