客户 CUSTOMER: 日期 DATE:

规格书
SPECIFICATION

产 品 名 称 PRODUCT NAME: Triplexer
贵 司 料 号 YOUR PART NO.:
敝 司 料 号 OUR PART NO.: MTPX22M091433P69-T13L
版 本 号 VERSION.: V2.1

接受 RECEPTION THE SPECIFICATION HAS BEEN ACCEPTED. 该规格书已被我司接受 日期: DATE： 公司： COMPANY：		
批准 CFMD	审核 CHKD	接收 RCVD

本规格书共 11 页

MANUFACTURING NAME

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梁启新	付迎华	曾艳峰

规格书改定履历 MODIFY HISTORY OF SPECIFICATION

Ver.	DATE	CONTENT	APPROVED
1.0	2021.11.23	初稿 Constitute	付迎华
2.0	2022.01.14	更新电性参数 Modify the Electrical Characteristics	付迎华
2.1	2024.02.20	增加插损规格@3800~5000MHz Add IL@3800~5000MHz	付迎华

目录 CATALOG

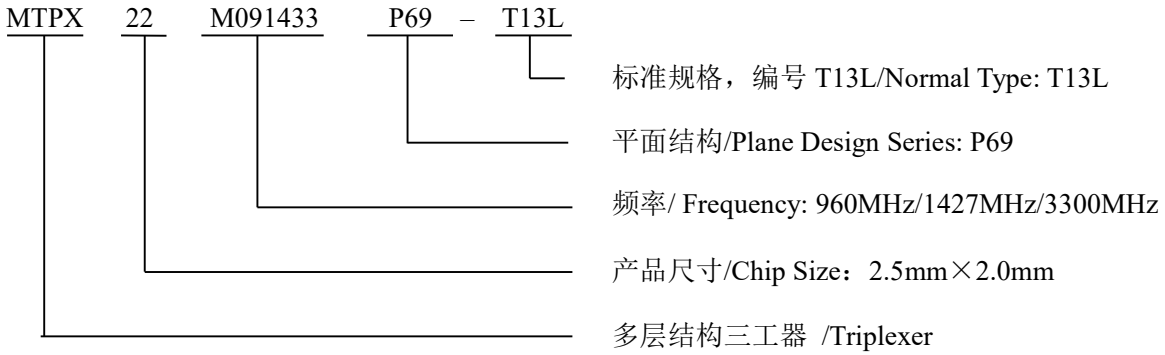
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1 适用范围 Scope

麦捷 Triplexer（MTPX 系列）产品设计用于 5G、LTE、WiFi、Bluetooth、PDA 和无绳电话机中，具有低的插入损耗、高的衰减和小体积 SMD 片式设计，能减少复杂的调校工作，可以简化电路设计。

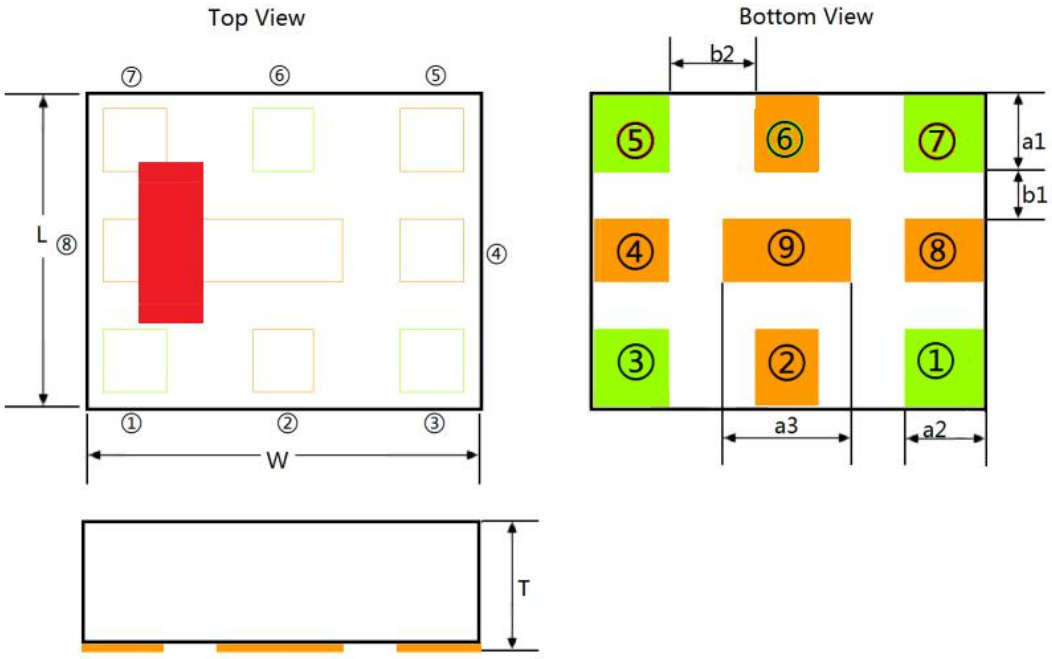
"Microgate" Microwave Triplexer series are designed to be used in 5G、LTE、WiFi、, Bluetooth、PDA & Cordless phones with low insertion loss and high attenuation as well as small size SMD chip design, which can simplify your complex tuning and circuit design.

2 品名构成 Product Identification



3 形状、尺寸和材料 Appearance, Dimensions and Material

Unit：mm



Pin Configuration

①	②	③	④	⑤	⑥	⑦	⑧	⑨
High Band	GND	Middle Band	GND	Low Band	GND	Common	GND	GND

Dimension

W	L	T	a1	a2	a3	b1	b2
2.50±0.20	2.00±0.20	0.65 Max	0.475±0.10	0.475±0.10	0.90±0.15	0.30±0.10	0.55±0.15

Part Name 名称	Structure and Material 结构及材料
Resonator 谐振体	Dielectric Material LTCC 介质材料
In/Output Terminals 输入/输出	Ag 银
Ground Base 接地面	Ag 银

4 测试条件 Testing Conditions

除非另有规定，否则在以下条件下测试 <Unless otherwise specified>

温度 Temperature : Ordinary Temperature (-40 to +85℃)

湿度 Humidity : Ordinary Humidity (25 to 85% RH)

大气压强 Atmospheric Pressure : 86 to 106 kPa

5 电气性能 Electrical Characteristics

操作温度范围 Operating Temperature Range : -40 to +85℃

保存温度范围 Storage Temperature Range : -40 to +85℃

LB:Low Band Port MB: Middle Band Port HB: High Band Port ANT: Common Port

Low Band Port

No.	Item		Specifications		
			Min.	Typ.	Max.
1	Insertion Loss(dB) @+25℃	450~960 MHz		0.65	0.80
2	Insertion Loss(dB) @-40 to +85℃	450~960 MHz			0.90
3	Attenuation (dB)	1427~2690 MHz	20	21.7	
4		3300~5950 MHz	20	35.1	
5	VSWR (ANT&LB)	450~ 960 MHz		1.45	2.0
6	Input Power	450~960 MHz	2.0 W max.		

Middle Band Port

No.	Item		Specifications		
			Min.	Typ.	Max.
1	Insertion Loss(dB) @+25℃	1427~1661 MHz		0.75	0.90
2		1710~2200 MHz		0.63	0.80
3		2300~2690 MHz		0.91	1.10
4	Insertion Loss(dB) @-40 to +85℃	1427~1661 MHz			1.10
5		1710~2200 MHz			1.00
6		2300~2690 MHz			1.30

7	Attenuation (dB)	450 ~960 MHz	18	21.3	
8		3300~5950 MHz	20	23.3	
9	VSWR (ANT&MB)	1427~2690MHz		1.49	2.0
10	Input Power	1427~2690MHz	2.0 W max.		

High Band Port

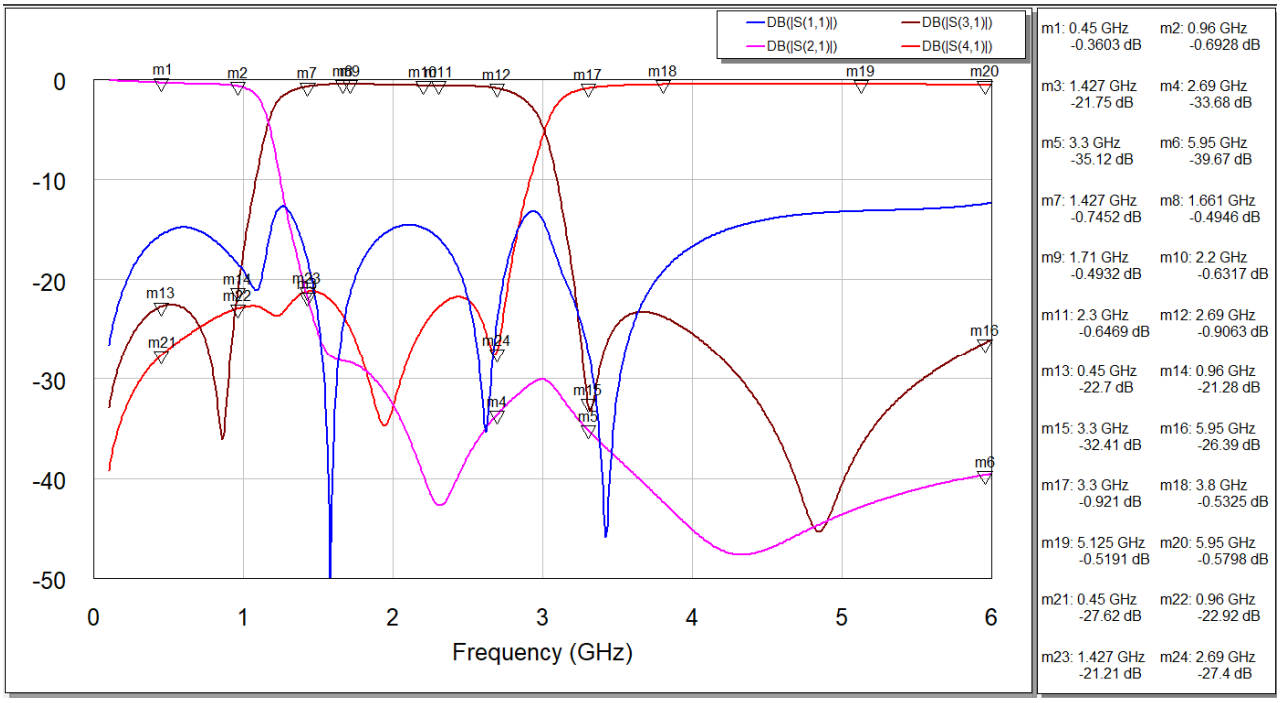
No.	Item		Specifications		
			Min.	Typ.	Max.
1	Insertion Loss(dB) @+25℃	3300~3800 MHz		0.92	1.10
		3800~5000 MHz		0.53	0.80
6		5125~5950 MHz		0.58	0.80
7	Insertion Loss(dB) @-40 to +85℃	3300~3800 MHz			1.30
		3800~5000 MHz			1.00
12		5125~5950 MHz			1.00
13	Attenuation (dB)	450~ 960 MHz	20	22.8	
14		1427~2690MHz	18	21.3	
16	VSWR ANT&(HB)	3300~5925 MHz		1.6	2.0
18	Input Power	3300~5950 MHz	2.0 W max.		

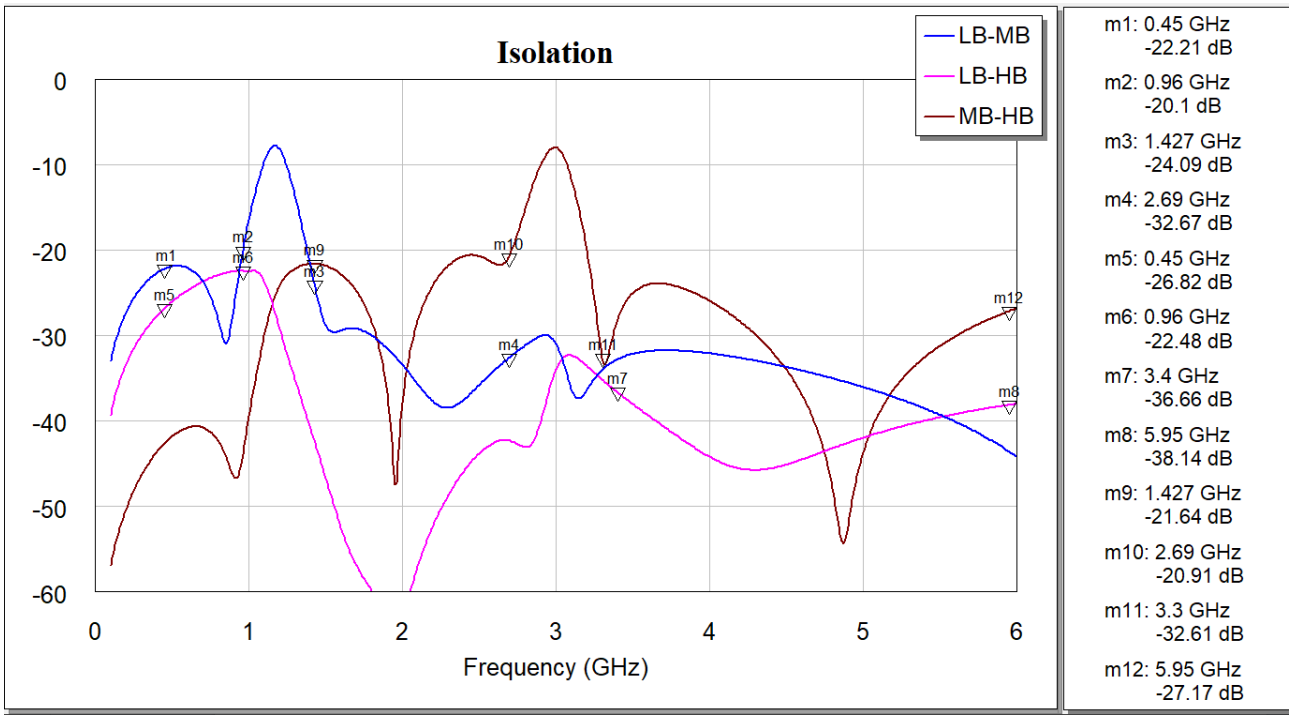
Isolation

No.	Item			Specifications		
				Min.	Typ.	Max.
1	Isolation (dB)	LB-MB	450~ 960 MHz	17	20.1	
2			1427~2690MHz	14	24.1	
4		LB-HB	450~ 960 MHz	20	22.5	
6			3400~5950 MHz	30	36.7	
7		MB-HB	1427~2690MHz	14	20.6	
9			3300~5950MHz	11	23.9	

6 特性曲线 Characteristic Curve

1、ANT 2、LB：Low Band 3、MB： Middle Band 4、HB：High Band





7 焊接条件 Recommended Soldering Conditions

1、焊剂 Flux, Solder

① 使用松香助焊剂，禁止使用卤化物含量起过 0.2wt%的强酸性助焊剂。

Use rosin-based flux. Don't use highly acidic flux with halide content exceeding 0.2wt% (chlorine conversion value).

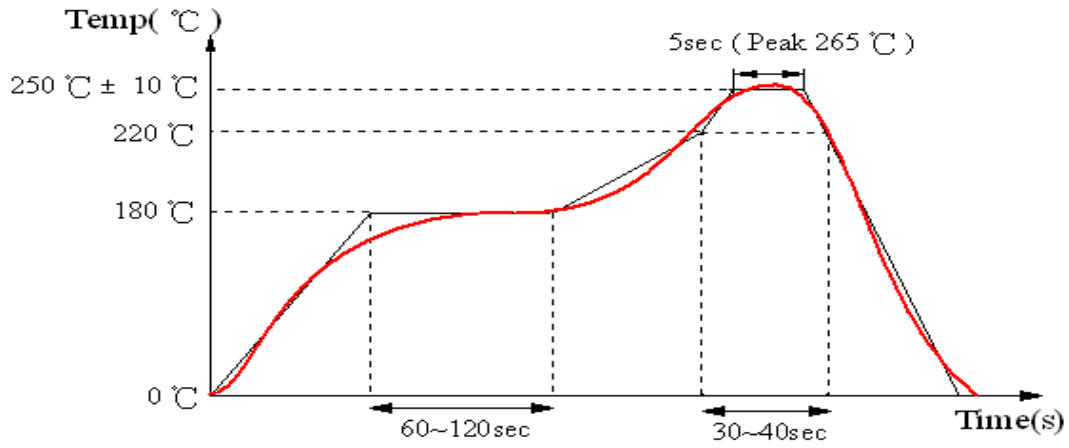
② 使用纯锡焊料 Use Sn solder.

2、回流焊条件 Reflow soldering conditions

●预热时，产品表温与焊料温度的温差最大不允许超出 150℃，焊接完后冷却时，产品表温与溶剂温度之间的温差最大不允许超出 100℃。预热不足有可能引发产品表面裂纹，导致产品品质下降。

Pre-heating should be in such a way that the temperature difference between solder and product surface is limited to 150℃ max. Cooling into solvent after soldering also should be in such a way that temperature difference is limited to 100℃ max. Unwrought pre-heating may cause cracks on the product, resulting in the deterioration of products quality.

●标准回流焊曲线 Standard soldering profile.



3、手工返工 Reworking with soldering iron

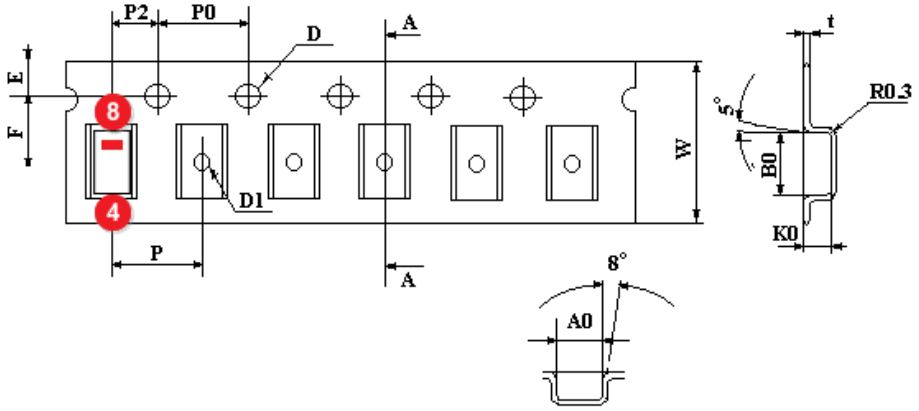
当使用电烙铁进行手工焊接时，以下条件必须严格遵守 The following conditions must be strictly followed when using a soldering iron.

预热 Pre-heating	150℃, 1 minute
尖端温度 Tip temperature	350℃ max
输出功率 Soldering iron output	80w max
电烙铁头尖端尺寸 End of soldering iron	φ3mm max
焊接时间 Soldering time	3 seconds max

8 包装 Packaging

①编带尺寸 Dimensions of Tape:

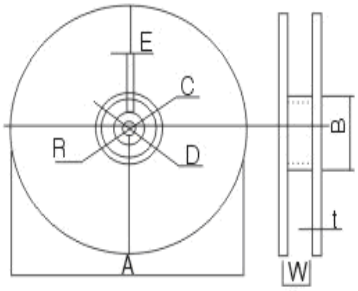
Unit: mm



Type	W	P	E	F	P_2	D	D_1
	8.00+0.30/-0.10	4.00±0.10	1.75±0.10	3.5±0.05	2.00±0.05	1.50+0.10/-0.00	1.00+0.25/-0.10
2520	P_0	$10P_0$	A_0	B_0	K_0	t	
	4.00±0.10	40.00±0.20	2.30±0.10	2.85±0.10	0.75±0.10	0.23±0.05	

② 带轮尺寸 Dimensions of Reel

Unit: mm



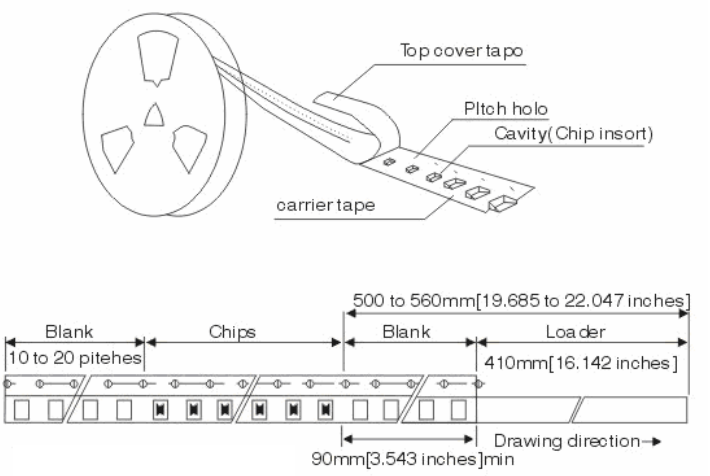
Reel material: PS (Polystyrene)

A	178±2
B	60±2
C	13.0±0.5
D	21.0±0.8
E	2.0±0.5
W	8.5±1.0
t	1.2±0.2
R	1.0±0.25

③编带抗拉强度 Pulling strength of tapes:

载带 Carrier tape	10N or more (1kgf or more)
上盖带 Cover tape	5N or more (1kgf or more)

④编带简图及拉伸方向 Taping figure and drawing direction:



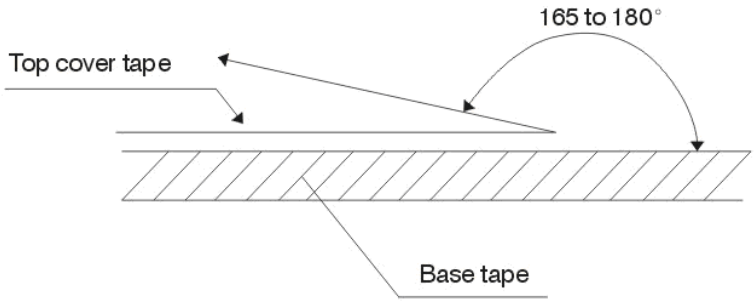
编带材料 Tape material:

基带 Base tape: 塑带 plastic carrier tape

盖带 Cover tape: 聚乙烯 polyethylene

⑤盖带的剥离强度 Peeling strength of cover tape:

盖带 Cover tape	0.2~0.6N (20gf~60gf)



测试条件 Test condition:

1) 剥离角度 peel angle: 165°~180° vs. carrier tape.
2) 剥离速度 peel speed: 300mm/min±10%.

⑥ 包装数量 Packaging quantities: 3000 PCS / Reel

9 保管 Storage

①. 保管期限 Storage period

距麦捷出厂检验时间六个月内，产品可以使用；检验时间可以通过包装外侧标记的检验号确认；若时间超出六个月，应检查焊接性能后方可使用。Products which inspected in MICROGATE over 6 months ago should be examined and used, which can be confirmed with inspection No. marked on the container. Solder ability should be checked if this period is exceeded.

②. 保存条件 Storage conditions

●存放货物的库房应满足以下条件 Products should be storage in the warehouse on the following conditions

温度 Temperature: 10~40℃

湿度 Humidity : 30~70% relative humidity

不允许温、湿度有极剧变化。No rapid change on temperature and humidity

●禁止将产品保管在腐蚀性物质中，例如硫磺、氯气或者酸，否则将引起端头氧化，导致降低焊接性。Don’t keep products in corrosive gases such as sulfur, chlorine gas or acid, or it may cause oxidization of electrode, resulting in poor solder ability.

●为了避免受潮气、灰尘等物质的影响，产品应保管于货架上。Products should be storage on the palette for the prevention of the influence from humidity, dust and so on.

●产品保管在库房中时，应避免热冲击，振动以及直接光照等等。Products should be storage in the warehouse without heat shock, vibration, and direct sunlight and so on.

●产品应密封包装 Products should be storage under the airtight packaged condition.