SMD 天线规格书

CrossAir™ SMD 天线系列
符合 RoHS 规范

PN: CA-C03

2.4 GHz ISM 频段天线

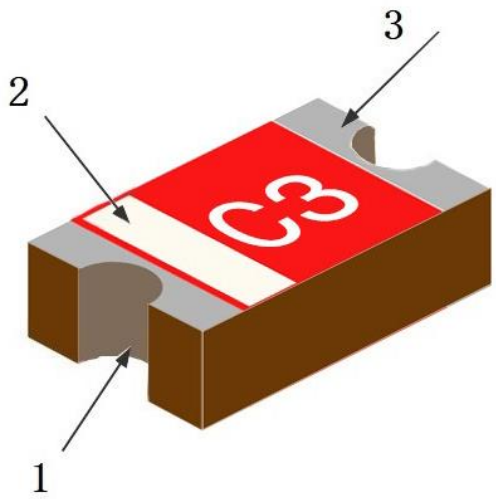
特点Peculiarity

1. 尺寸仅 5.5 X 2.0 X 1.0 mm^3 的小尺寸 SMD 贴片天线.
Small size SMD patch antenna measuring only 5.5X 2.0X 1.0mm3.
2. 低能量损耗，高天线效率。Low energy loss, high antenna efficiency.
3. 在温湿度变化的情况下具有高稳定性。High stability in the case of temperature and humidity changes.

应用Apply

1. 2.4GHz ISM 频段天线应用。2.4GHz ISM band antenna applications.
2. 蓝牙、ZigBee、无线应用、智能家居应用等。Bluetooth, ZigBee, wireless applications, smart home applications, etc.
3. WIFI（仅 2.4G）。WIFI (2.4G only)..

结构Structure

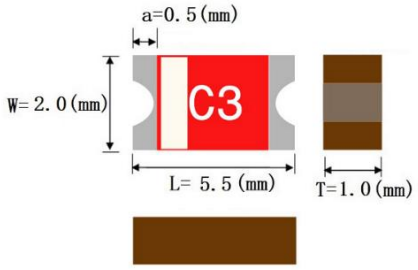


1、天线馈电端

2、馈电识别标志

3、天线焊接固定端

尺寸Dimension

三视图Three views	符号Symbol	尺寸Dimension(mm)
	**L**	**5.5**±0.2
	w	**2.0**±0.1
	T	**1.0**±0.1
	a	**0.5**±0.1

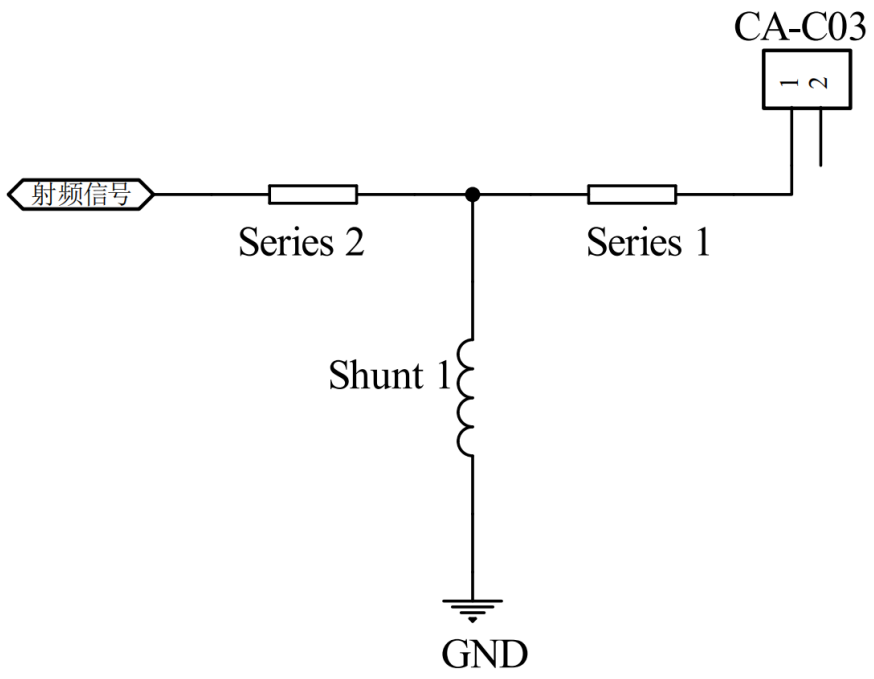
电气特性

CA-C03	Specification
工作频率范围 Working Frequency	2450±50MHz
带宽 Band Width	>100MHz
阻抗 Impedance	50Ω
增益 Gain(dBi)	4.3（peak）
驻波比 VSWR	<2
工作温度 Operation Temperature	-40℃~+95℃
可承受功率 Power Capacity	3W

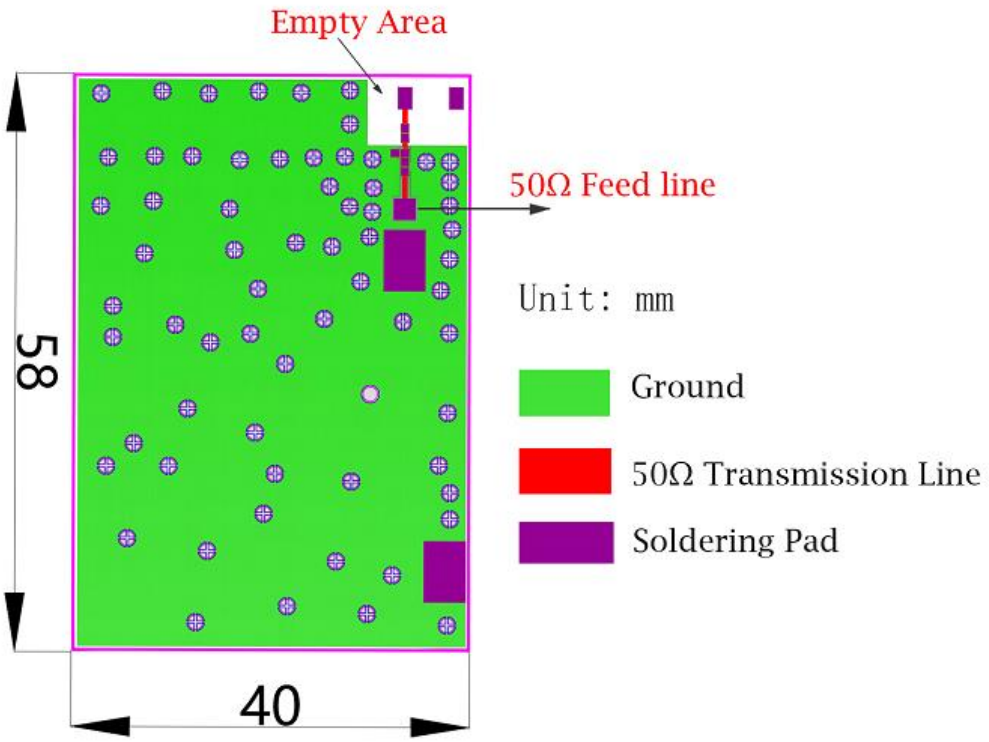
天线 2.4G 工作频率需要通过阻抗匹配器件调试来实现.

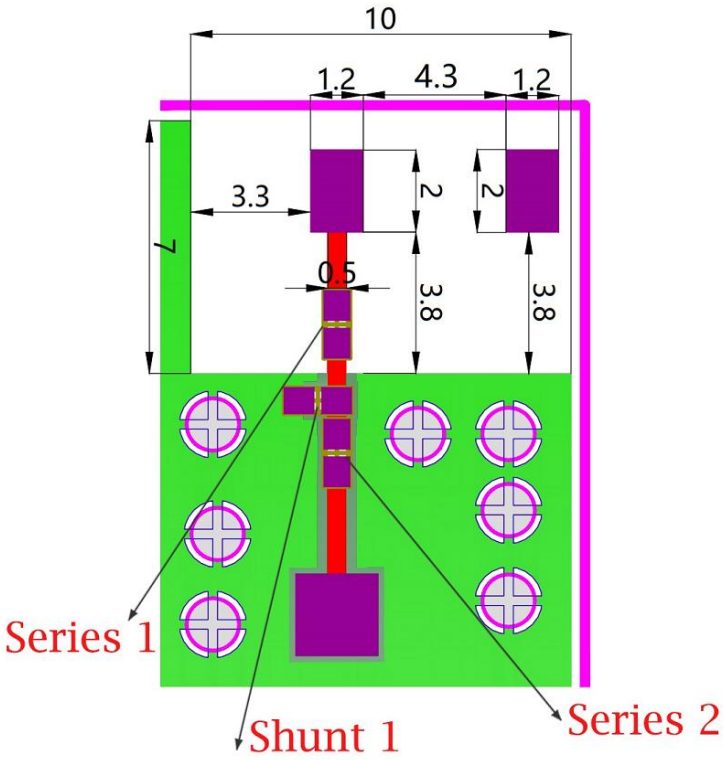
天线焊盘和走线设计

PCB 原理图



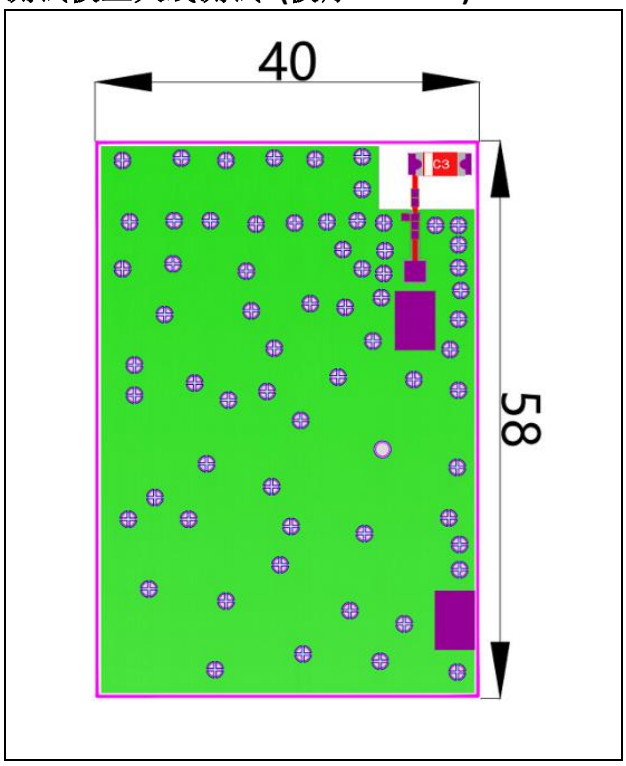
设计尺寸图



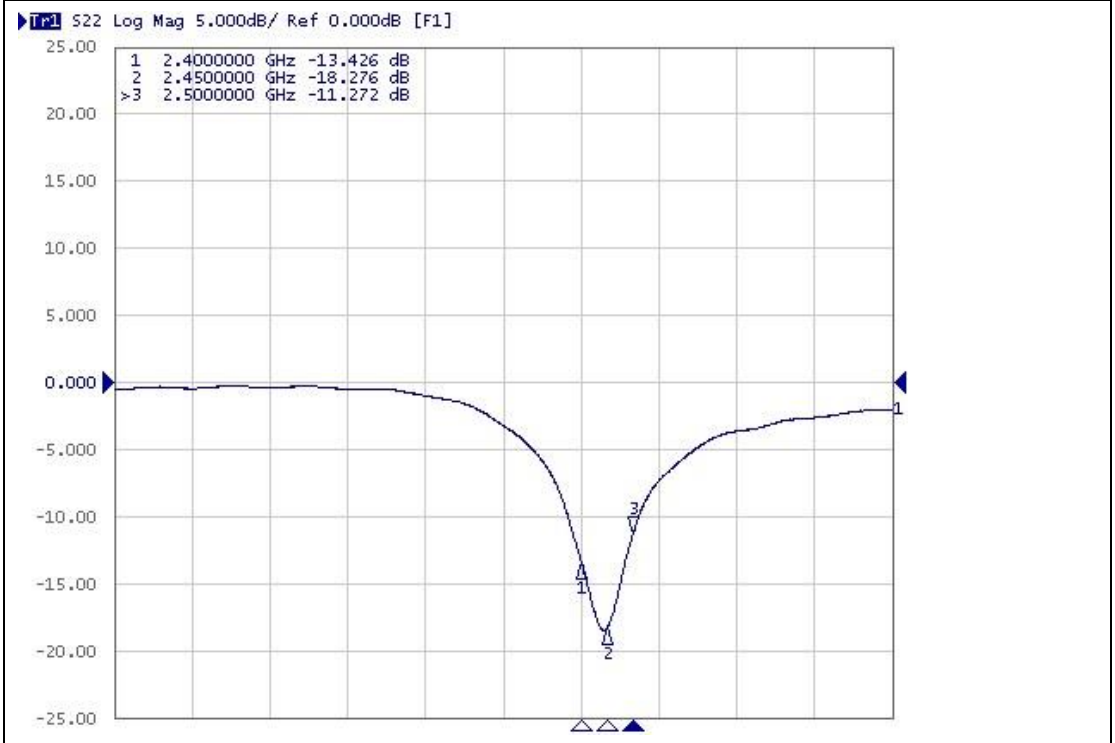


匹配器件值	串联器件 **Series 1**	电阻 0Ω
	并联器件 **Shunt 1**	高频电感 3nh
	串联器件 **Series 2**	电阻 0Ω

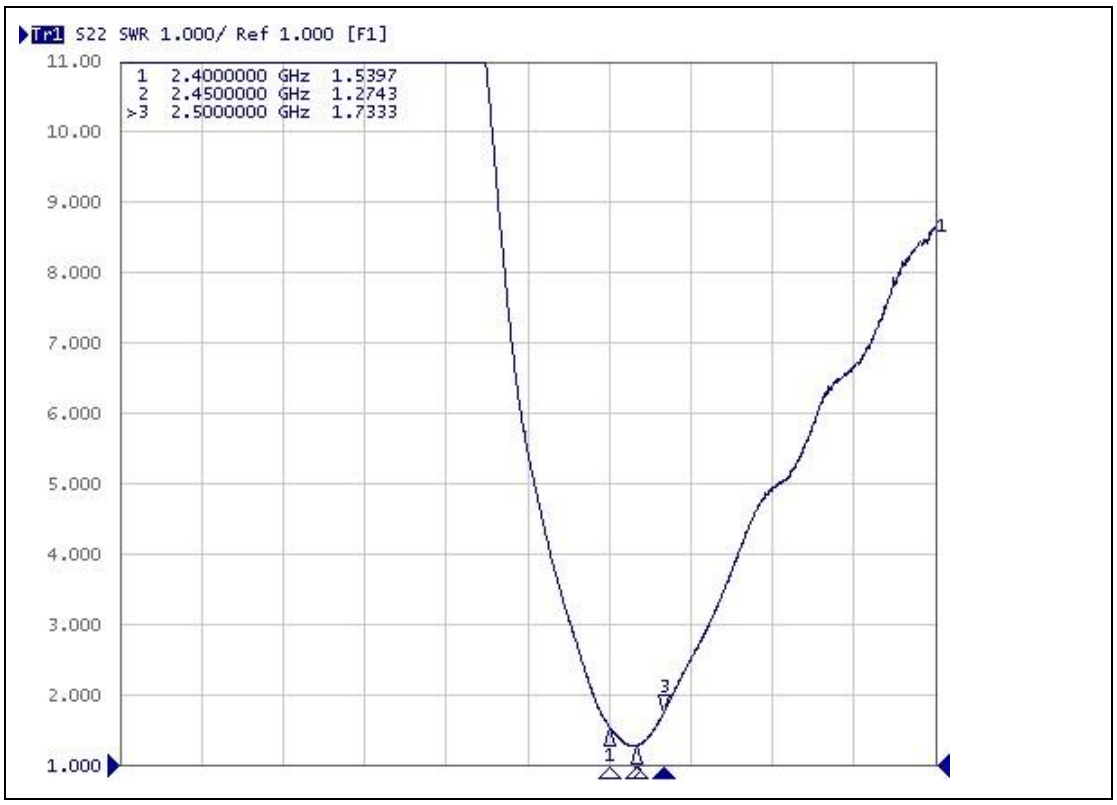
测试板上天线测试 (板厚 1.0mm)



天线 S11 特性

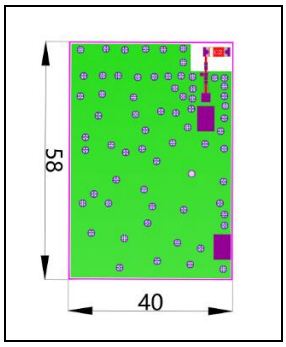


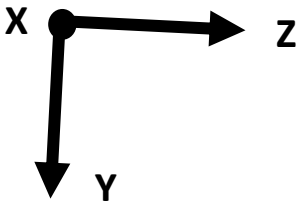
天线 VSWR 特性



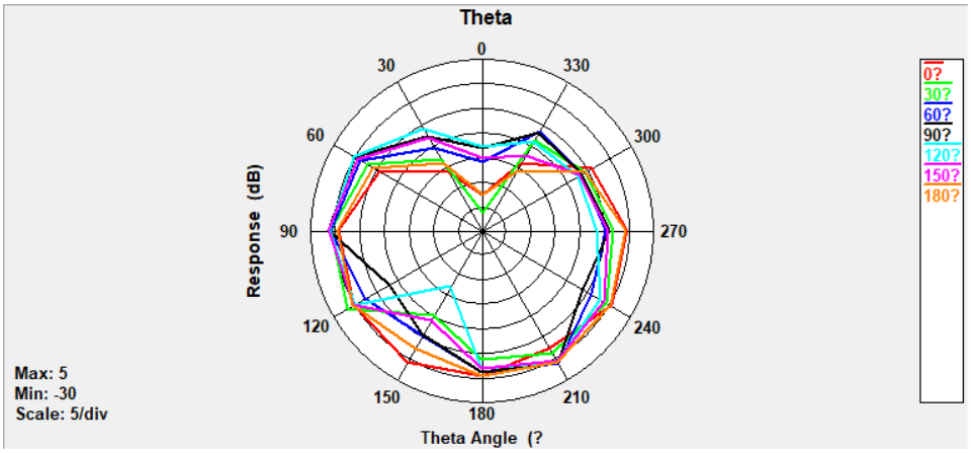
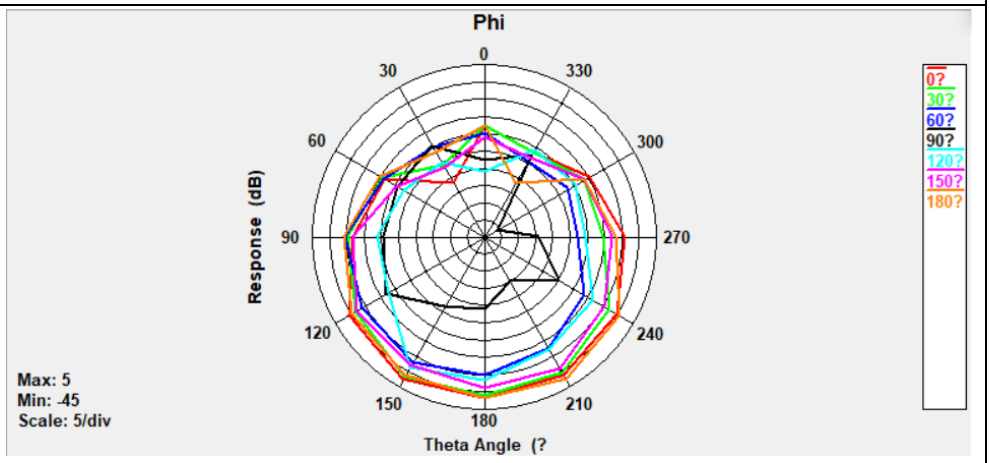
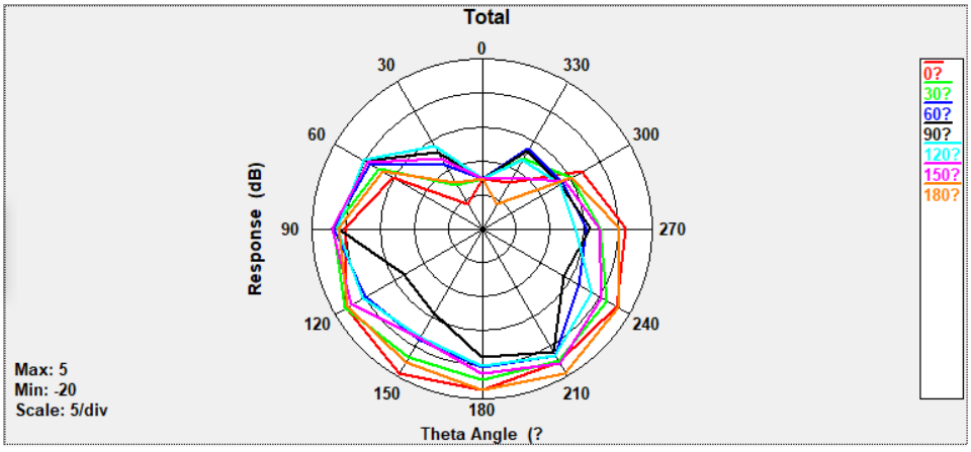
效率和辐射图

效率、辐射图、增益等性能是基于测试板设计得到的。 CA-C03 天线的规格特性测试数据是基于测试 PCB 板尺寸以及下图所示的测试方向所得到的。以下数据是在 ETS 3D 微波暗室测试完成的.



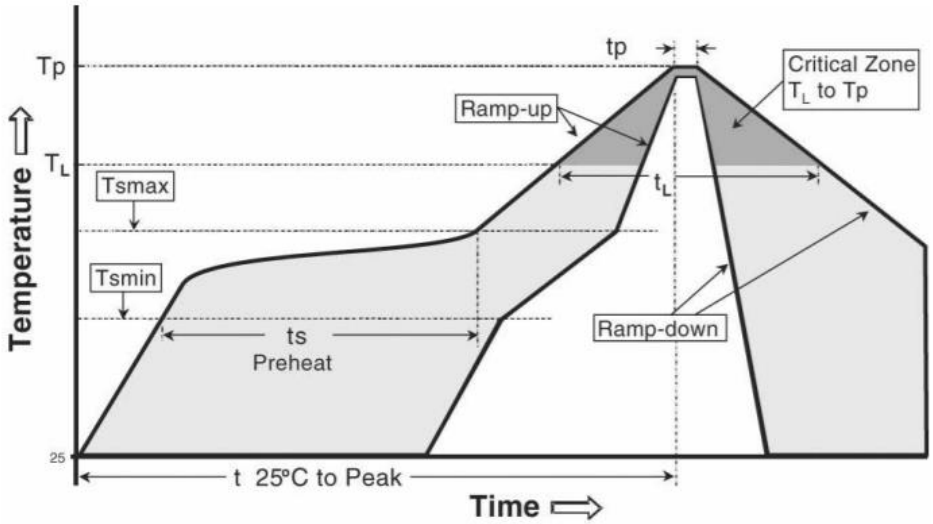


增益和效率	带宽 2.4G-2.5GHz
峰值增益 Peak Gain	4.3dBi
带内平均增益 Average Gain across the band	4.1dBi
带内增益范围 Gain Range across the band	3.9dBi~4.3dBi
峰值效率 Peak Efficiency	81.7%
带内平均效率 Average Efficiency across the band	80.2%
带内效率范围 Efficiency Range across the band	78.6%~81.7%

Theta @2.45 GHz	
Phi @2.45 GHz	
Total @2.45 GHz	

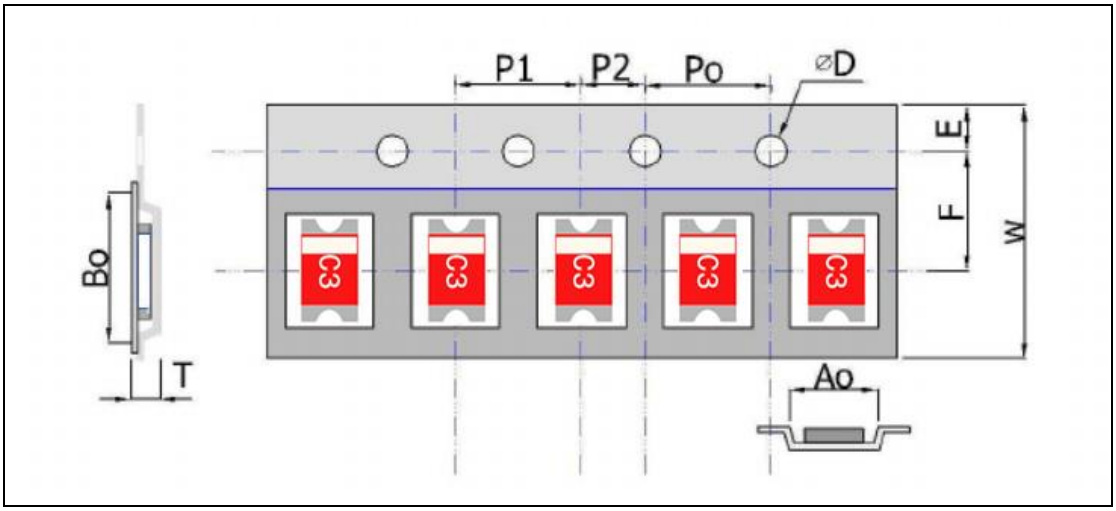
焊接条件

可靠无损的典型焊接规范如下图所示：



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmax to Tp)	3 °C / second (max.)
PREHEAT	- Temperature Min (Tsmin) - Temperature Max (Tsmax) - Time (tsmin to tsmax)	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature (TL) - Total Time above TL (tL)	217 °C 60-150 seconds
PEAK	- Temperature (Tp) - Time (tp)	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

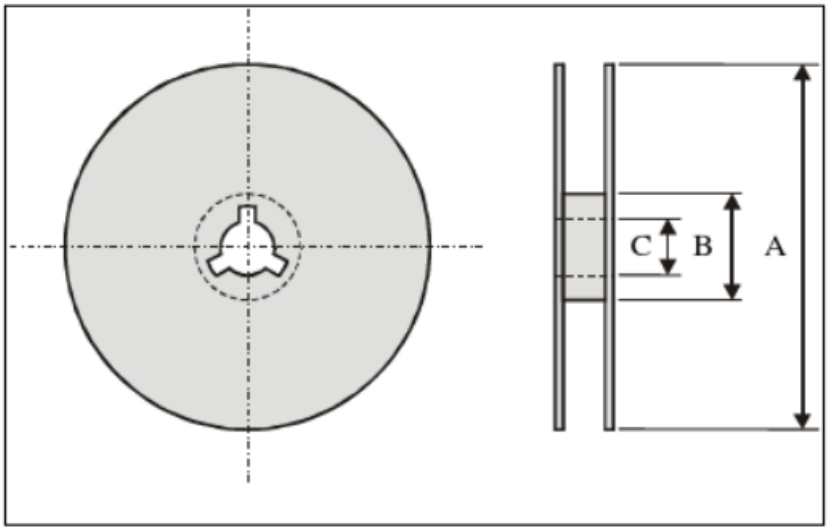
包装



塑胶载带规格（单位:mm)

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	3.0±0.1	6.0±0.1	1.55±0.05	1.6±0.1	16±0.2
Index	E	F	Po	P1	P2
Dimension (mm)	1.75±0.1	7.0±0.1	4.0±0.1	4.0±0.1	2.0±0.1

卷盘尺寸



Index	A	B	C
Dimension(mm)	330	100	13.5

标准数量： 3000 PCS/盘.

存储环境

产品存储时应满足下列条件：

温度 ： -10℃~+40℃

湿度 ： 30% 至 70% 相对湿度

产品放置的位置不要接触腐蚀性气体，如硫磺等。氯气或酸可能导致产品电极氧化造成可焊接性变差。

产品应放置在工具箱里且避免受潮、灰尘的影响。

产品应存放在仓库中且避免热、振动、阳光直射。

产品应在密闭条件下储存。