

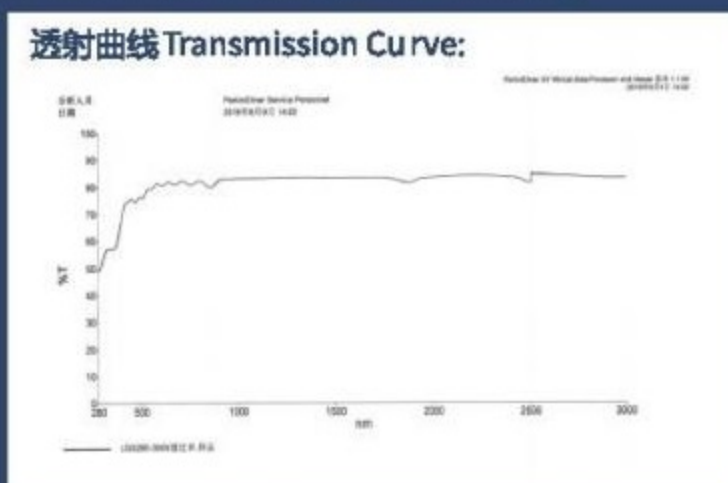
硅酸镓镧LGS

简介 Introduction:

Langasite晶体(La₃Ga₅SiO₁₄, LGS)属于空间群P321, 点群32, 已被报道是一种很有前途的用于制造声表面波 (SAW)和体表面波(BAW)器件的新型压电材料。以LGS晶体为材料的器件具有较高的热稳定性, 可在900°C的高温下使用。

Langasite crystal (La₃Ga₅SiO₁₄, LGS), belonging to the space group P321, point group 32, has been reported to be promising new piezoelectric materials for fabrication of surface acoustic wave (SAW) and bulk acoustic wave (BAW) devices. The devices made of langasite crystal could be used at a high temperature up to 900°C because of its high thermal stability.

透射曲线 Transmission Curve:



材料特性 Material Properties:

晶体结构 Crystal Structure	trigonal system, group 33 a=8.1783 c=5.1014
生长方法 Growth Method	Czochralski
硬度 Hardness	6.6 Moh's
密度 Density	5.754 g/cm ³
熔点 Melt Point	1470 °C (phase transition point: N/A)
热膨胀 Thermal expansion (x10 ⁻⁶ / °C)	α 11: 5.10 α 33: 3.61
声学速率 Acoustic velocity, SAW	2400 (m/sec)
频率常数 Frequency constant, BAW	1380 (kHz/mm)
压电耦合 Piezoelectric coupling	K2 (%) BAW: 2.21 SAW: 0.3
介电常数 Dielectric constant:	ε ₁₁ /ε ₀ =18.27 ε ₃₃ /ε ₀ =56.26
压电应变常数 Piezoelectric strain constant:	d ₁₁ =6.3 d ₁₄ =-5.4
夹杂 Inclusions	NO



主要优点:

- ◆ 高热稳定性高
- ◆ 低等效串联电阻率
- ◆ 机电耦合系数是石英的3-4倍。

Main Advantages:

- ◆ High thermal stability
- ◆ low equivalent series resistance ratio
- ◆ electro-mechanical coupling coefficient is 3-4 times that quartz