Murata SAW Thermo-Compensated Band 8 Filter In Low Band Front-End Module

Description:
In Front-End Filter Market, Murata all along with Broadcom Limited, Qorvo and Skyworks share the leadership in RF components. The company has forged its empire on ceramic passive electronic components and ceramic filter. Today, this old but effective technology is still used. The last acquisition of Peregrine Semiconductor specialized in RF CMOS, allows Murata to enter into the smartphone market. The last one to integrate the front-end module from Murata is Samsung in his last Flagship, the Galaxy S7 with the FAJ15. The module features Murata's thermo-compensated technology.

The Front end module is located on the main board of the smartphone. Samsung has proposed different configuration of its LTE front end part. The FAJ15 from Murata was only found in US version of the Galaxy S7. It shared the front end part with Qorvo, and Broadcom.

The FAJ15 is dedicated to LTE Low band. It is made with several filter dies, assembled on a ceramic substrate. The filters are either bare dies or packages molded into FEM molding. As piezoelectric for SAW technology, the substrate dies are either LN (Lithium Nobium oxide) or LT (Lithium Tantalum oxide). The FEM contains two SAW technology: STD-SAW (Standard SAW) and TC-SAW (Thermally Compensated SAW). The report only focused on the duplexer for Band 8 LTE integrated in the FEM. The specification of this band required very low thermal drift. Thus thermo-compensated layers are integrated to provide better performance towards thermal changes.

Complete chip fabrication processes and cost estimation of the Band 8 component are presented in the report and also a quick comparison on substrate packaging with Qorvo's and Broadcom's FEM.

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