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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 27700.2-2025

Replacing GB/T 27700.2-2011

**Surface acoustic wave (SAW) filters of assessed quality - Part
2: Guidelines for the use**

有质量评定的声表面波滤波器 第2部分：使用指南

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 2 of GB/T 27700, "Surface Acoustic Wave Filters with Quality Assessment". GB/T 27700 has been published as...

Part 2.

---Part 1: General Specifications;

---Part 2: User Guide this document replaces GB/T 27700.2-2011 "Quality-Assessment Surface Acoustic Wave (SAW) Filters - Part 2: Usage Guidelines".

Compared with GB/T 27700.2-2011, the main technical changes in this document, apart from structural adjustments and editorial modifications, are as follows.

a) The maximum operating frequency of the surface acoustic wave (SAW) filter has been increased from 3 GHz to 3.5 GHz (see Chapter 1, GB/T 27700.2-2011).

Chapter 1);

b) The "Terms and Definitions" section has been deleted (see Chapter 3 of GB/T 27700.2-2011);

c) Added DART, DWSF, and EWC type structures [see 5.3.3.1b)];

d) Added a "fan-shaped IDT filter" (see 5.3.4) and a "resonant single-phase unidirectional transducer (RSPUDT) filter" (see 5.3.6);

e) Added content on "balanced connections" (see 6.3.5);

f) Added 41°Y-XLiNbO₃ (41° rotated Y-axis propagating lithium niobate in the X direction) and 50°Y-25°XLa₃Ga₅SiO₁₄ (50° rotated X-axis propagating lithium niobate in the X direction).

Descriptions of two substrate materials (lanthanum gallium silicate propagating at 25° X-direction with Y-section) are shown in Table 1.

g) Added content on surface acoustic wave filter packaging (see 7.5).

This document is equivalent to IEC 60862-2:2012 "Surface acoustic wave filters with quality assessment - Part 2: Guidance on use".

This document includes a new chapter on "Terms and Definitions".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document is under the jurisdiction of the National Technical Committee on Standardization of Piezoelectric Devices for Frequency Control and Selection (SAC/TC182).

Introduction

GB/T 27700, "Surface Acoustic Wave Filters with Quality Assessment," aims to specify the procedures for assessing the quality of surface acoustic wave filters.

The quality requirements and test methods are proposed to consist of three parts.

---Part 1: General Specifications. The purpose is to specify the use of capability approval procedures and qualification approval procedures to assess the quality of surface acoustic wave (SAW) filters.

Quantitative test methods and general requirements.

---Part 2: User Guide. This section aims to provide users with a guide for using surface acoustic wave (SAW) filters.

---Part 3: Standard Shape and Terminal Connections. The purpose is to specify the standard dimensions and terminal connections of surface acoustic wave (SAW) filters.

connect.

Surface acoustic wave filters with quality assessment Part 2: User Guide

1 Scope

This document provides practical guidance on the use of surface acoustic wave (SAW) filters in telecommunications, measurement equipment, radar systems, and consumer products. Generally...

Information, standard values and test conditions are provided in IEC 60862-1.

Surface acoustic wave (SAW) filters are currently widely used in television, satellite communications, fiber optics, and mobile communications. Because these SAW filters...

Waveformers have various performance indicators, so they can be divided into some basic categories.

This document includes surface acoustic wave (SAW) filters of various structures, with an operating frequency range of approximately 10MHz to 3.5GHz and a relative bandwidth of [missing information].

0.02%~50%.

This document is not intended to explain the principles, nor does it attempt to cover all possible problems in real-world situations. This document aims to address the use of...

This paper outlines some fundamental issues that users should consider before ordering a new type of surface acoustic wave filter, so that users can obtain performance that meets their requirements.

The product in question.

The specifications provided by IEC 60862 (all parts) and the detailed specifications issued by manufacturers specify the nominal frequency, passband bandwidth, and passband...

Specifications include parameters such as fluctuation, rectangularity coefficient, and termination impedance. These specifications list a large number of surface acoustic wave (SAW) filters with typical performance characteristics.

It should not be overemphasized that users should always choose surface acoustic wave (SAW) filters from these specifications. When conditions permit, users can, however, make slightly different choices.

The circuitry was modified to allow the use of standard surface acoustic wave filters, particularly the selection of the nominal frequency.

2 Normative references

This document has no normative references.

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 Technical Considerations

Users are primarily concerned with ensuring that the characteristics of surface acoustic wave (SAW) filters meet specific specifications. This includes meeting the requirements for the tuning network and SAW specified in the specifications.

The selection of filters should be an agreement reached between the user and the manufacturer.

The characteristics of a filter are typically described by its frequency response to insertion loss and group delay, as shown in Figure 1.(GB/T 27700.1-2023) Sections 8.5.2 and 8.5.4 specify standard methods for measuring insertion loss and group delay. In some applications, other characteristics such as phase distortion are also important.

important.

The nominal frequency, minimum or maximum insertion loss, passband ripple, and