

# SAW filters for AMR Application

The IDT family of SAW filters feature extremely low loss, high frequency selectivity and low cost, all critical to successful AMR equipment design.

## Description

Automated Meter Reading (AMR) is an emerging market worldwide. Using two way communications to signal and extract usage data from remote locations, AMR systems require the use of SAW filters to eliminate potential signal interference. Typical AMR applications are used to monitor usage of electricity, water and gas. IDT has developed low insertion loss SAW filters that are ideally suited for providing signal integrity and rejecting interference. Several popular frequencies are available including 915 MHz, 868 MHz and 433 MHz.

## SAW Features:

- High reliability
- Insensitive to shock and vibration
- Low insertion loss or high performance
- Frequency stable over temperature
- Flat passband
- Uniform group delay
- Small size
- Low cost
- Standard surface mount
- RoHS

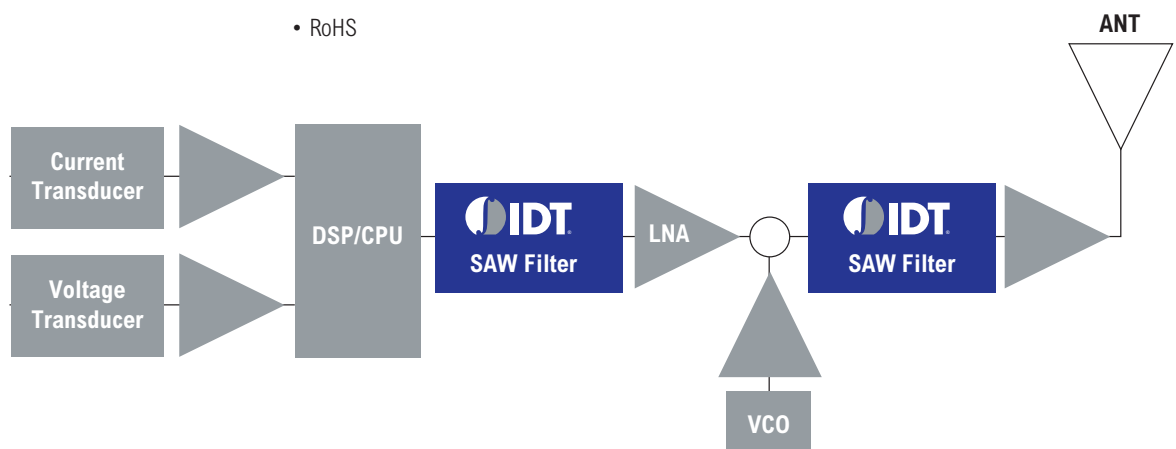
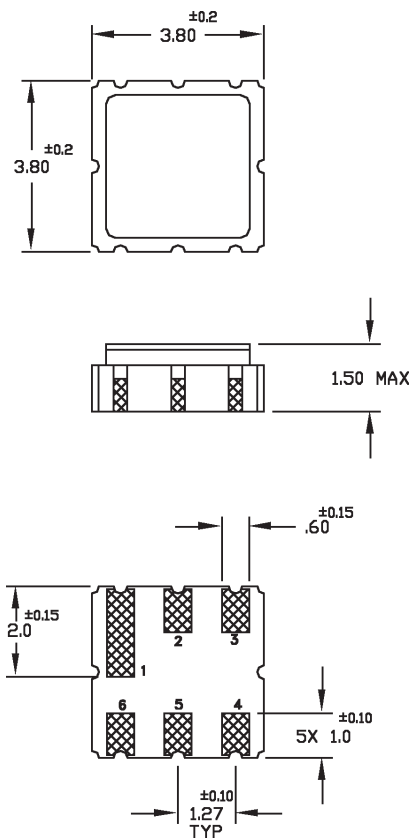


Figure 1. SAW AMR block diagram

Parameter	Min	Max	Units
Storage Temperature Range	-40	85	°C
Operating Temperature Range	-20	75	°C
Input Power Level	-	+15	dBm



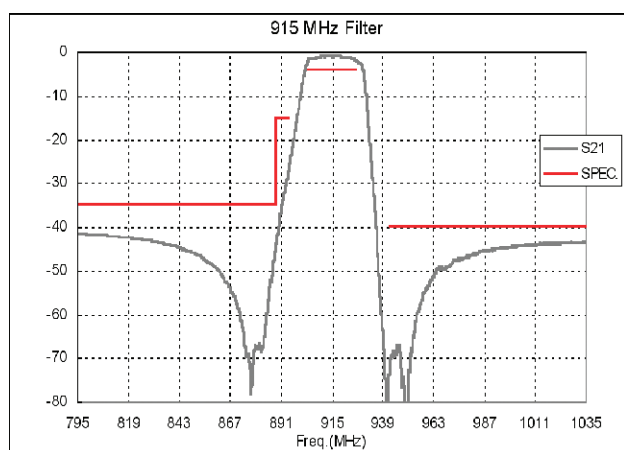
Parameter	Min	Typ	Max	Units
Center Frequency, $F_c^1$	-	915.3	-	MHz
Insertion Loss at $F_c$	-	1.3	2.5	dB
Lower 3 dB Band Edge <sup>2</sup>	-	-	904.4	MHz
Upper 3 dB Band Edge <sup>2</sup>	926.2	-	-	MHz
Group Delay Variation (904.4 to 926.2 MHz)	-	40	80	ns
Amplitude Variation (904.4 to 926.2 MHz)	-	1.8	3	dB p-p
Attenuation at 894 MHz	20	25	-	dB
Attenuation (200 to 888.3 MHz) <sup>2</sup>	35	-	-	dB
Attenuation (888.3 to 894 MHz) <sup>2</sup>	15	-	-	dB
Attenuation (942.3 to 1400 MHz) <sup>2</sup>	40	-	-	dB
Input/Output Return Loss At $F_c$	-	13	-	dB
Temperature Coefficient of Frequency	-	-36	-	ppm/°C
Source/Load Impedance	50	50	50	ohms
Ambient Temperature	-	25	-	°C

<sup>1</sup> Defined as the average of the lower and upper 3 dB frequencies at room ambient.  
<sup>2</sup> All dB levels are defined relative to the insertion loss.

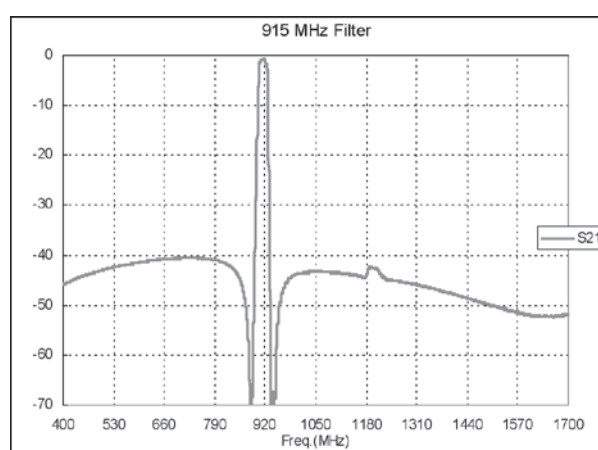
**Table 1.** Typical AMR SAW filter response

Typical part number	Frequency	Bandwidth	Dimensions
SF0433BA02629S	433 MHz	20 MHz BW	3.8x3.8 mm
SF0434BA02507S	434 MHz	4 MHz BW	3.8x3.8 mm
SF0434BA02587S	434 MHz	7 MHz BW	3.8x3.8 mm
SF0434BA02617S	434 MHz	2 MHz BW	3.0x3.0 mm
SF0869BA02503S	869 MHz	2 MHz BW	3.8x3.8 mm
SF0869BA02504S	869 MHz	3 MHz BW	3.0x3.0 mm
SF0869BA02588S	869 MHz	2 MHz BW	3.0x3.0 mm
SF0869BA02618S	869 MHz	20 MHz BW	3.0x3.0 mm
SF0915BA03171S	915 MHz	21.8 MHz BW	3.8x3.8 mm
SF0915BA02531S	915 MHz	26 MHz BW	2.5x2.0 mm
SF0915BA02620S	914.5 MHz	8 MHz BW	3.8x3.8 mm

**Table 2.** AMR system application part numbers



**Figure 2.** Typical AMR SAW filter response



**Figure 3.** Typical wideband response

[www.IDT.com/go/sawfilters](http://www.IDT.com/go/sawfilters)

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