



Approved by:
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# SPECIFICATION

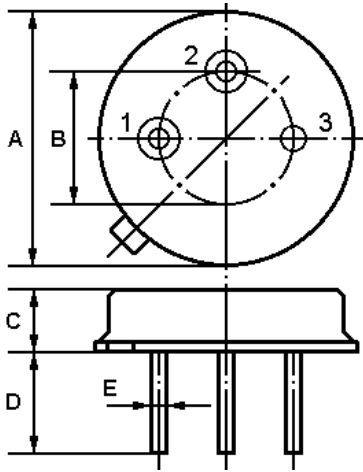
PRODUCT: SAW FILTER

MODEL: HF418 TO-39

**HOPE MICROELECTRONICS CO.,LIMITED**

The **HF418** is a low-loss, compact, and economical surface-acoustic-wave (SAW) filter in a low-profile metal **TO-39** case designed to provide front-end selectivity in **418.000 MHz** receivers. Receiver designs using this filter include superhet with 10.7 MHz or 500 kHz IF, direct conversion and superregen.

1.Package Dimension (TO-39)



Pin	Configuration
1	Input / Output
2	Output / Input
3	Case Ground

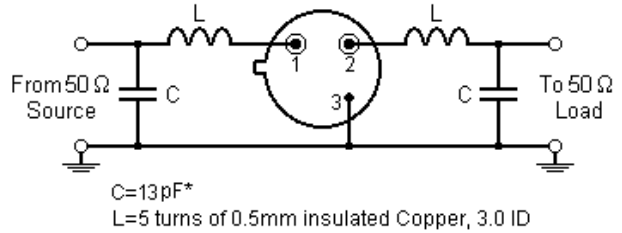
Dimension	Data (unit: mm)
A	9.30±0.20
B	5.08±0.10
C	3.40±0.20
D	3±0.20 / 5±0.20
E	0.45±0.20

2.Marking

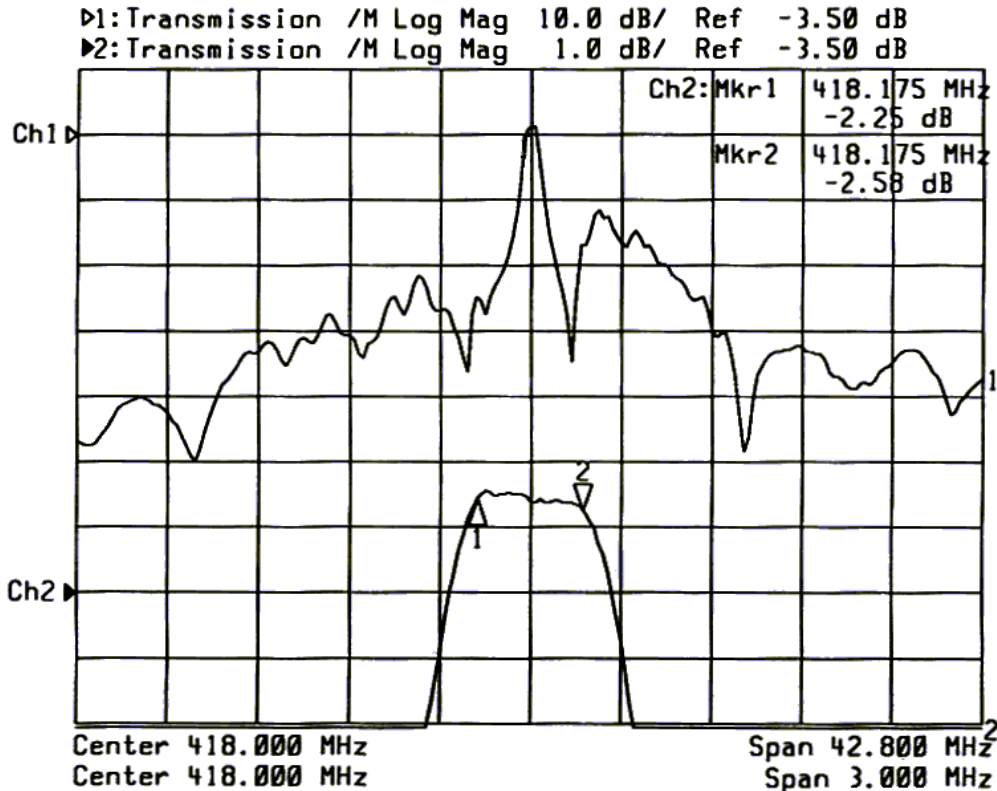
**HF418**

Color: Black or Blue

3.Test Circuit



4.Typical Frequency Response



## 5.Performance

### 5-1.Maximum Rating

Rating		Value	Unit
CW RF Power Dissipation	$P$	+10	dBm
DC Voltage Between Any Two Pins	$V_{DC}$	$\pm 30$	V
Storage Temperature Range	$T_{stg}$	-40 to +85	
Operating Temperature Range	$T_A$	-10 to +60	

### 5-2.Electronic Characteristics

Reference temperature:  $T_A = 25$   
 Terminating source impedance:  $Z_S = 50$  and matching network  
 Terminating load impedance:  $Z_L = 50$  and matching network

Characteristic		Minimum	Typical	Maximum	Unit
Center Frequency (center frequency between 3dB points)	$f_C$		418.000		MHz
Insertion Loss	$IL$	--	3.5	5.0	dB
3dB Bandwidth	$BW_3$		600	800	kHz
Passband Ripple	$\Delta \alpha$			$\pm 1.0$	dB
Rejection	at $f_C - 21.4$ MHz (Image)	40	50	--	dB
	at $f_C - 10.7$ MHz (LO)	20	30	--	
	Ultimate	--	60	--	
Temperature	Turnover Temperature	$T_O$	25	55	
	Turnover Frequency	$f_O$		$f_C$	MHz
	Frequency Temperature Coefficient	$FTC$		0.032	ppm/ <sup>2</sup>
Frequency Aging	Absolute Value during the First Year	$ fA $		10	ppm/yr

**ⓘ CAUTION: Electrostatic Sensitive Device. Observe precautions for handling!**

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- The frequency  $f_C$  is defined as the midpoint between the 3dB frequencies.
- Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture that is connected to a 50 test system with VSWR 1.2:1. The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency,  $f_C$ . Note that insertion loss, bandwidth, and passband shape are dependent on the impedance matching component values and quality.
- Unless noted otherwise, specifications apply over the entire specified operating temperature range.
- Frequency aging is the change in  $f_C$  with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C. Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
- Turnover temperature,  $T_O$ , is the temperature of maximum (or turnover) frequency,  $f_O$ . The nominal frequency at any case temperature,  $T_C$ , may be calculated from:  $f = f_O [1 - FTC (T_O - T_C)^2]$ .
- The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
- All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.
- Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
- For questions on technology, prices and delivery, please contact our sales offices or e-mail [sales@hoperf.com](mailto:sales@hoperf.com).