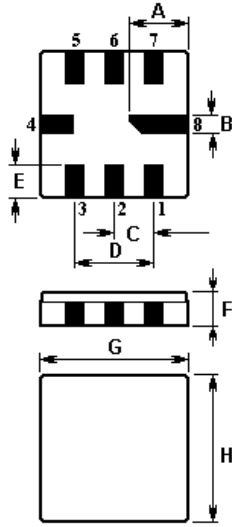


# SAW FILTER

Part Number: VTF40165

The **VTF40165** is a low-loss, compact, and economical surface-acoustic-wave (**SAW**) filter in a surface-mount ceramic **QCC8C** case designed to provide front-end selectivity in **401.650 MHz** receivers. Receiver designs using this filter include superhet with 10.7 MHz or 500 kHz IF, direct conversion and superregen.

## 1. Package Dimension (QCC8C)



Pin	Connection
2	Input
6	Output
1, 3, 5, 7	to be Grounded
4, 8	Case Ground

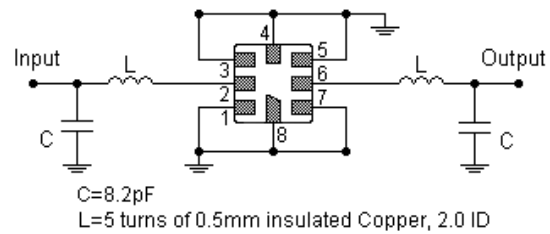
Sign	Data (unit: mm)	Sign	Data (unit: mm)
A	2.08	E	1.20
B	0.60	F	1.35
C	1.27	G	5.00
D	2.54	H	5.00

## 2. Marking

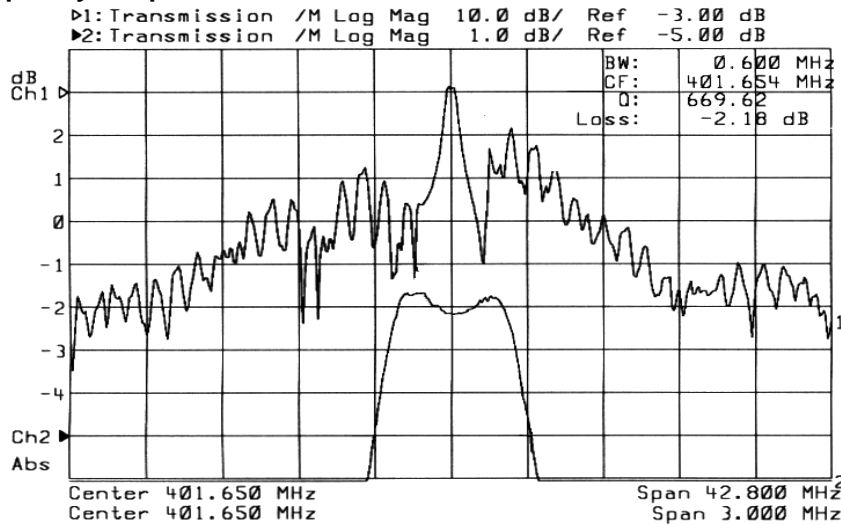
**VTF**  
**40165**

Laser Marking

## 3. Test Circuit



## 4. Typical Frequency Response



## 5. Performance

### 5-1. Maximum Ratings

Rating		Value	Unit
Input Power Level	$P_{in}$	10	dBm
DC Voltage	$V_{DC}$	12	V
Storage Temperature Range	$T_{stg}$	-40 to +85	°C
Operable Temperature Range	$T_A$	-10 to +60	°C

### 5-2. Electronic Characteristics

Characteristic		Minimum	Typical	Maximum	Unit
Center Frequency (center frequency between 3dB points)	$f_c$		401.650		MHz
Insertion Loss	$IL$	--	3.0	5.0	dB
3dB Pass band	$BW_3$		600		kHz
Rejection	at $f_c - 21.4$ MHz (Image)	40	50	--	dB
	at $f_c - 10.7$ MHz (LO)	15	25	--	
	Ultimate	--	60	--	
Temperature	Turnover Temperature	$T_O$	25	55	°C
	Turnover Frequency	$f_o$	$f_c$		MHz
	Frequency Temperature Coefficient	$FTC$		0.032	ppm/°C <sup>2</sup>
Frequency Aging	Absolute Value during the First Year	$ fA $		10	ppm/yr

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

1. The frequency  $f_c$  is defined as the midpoint between the 3dB frequencies.
2. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture that is connected to a 50Ω 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.
3. Unless noted otherwise, specifications apply over the entire specified operating temperature range.
4. 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.
5. 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:  $f = f_o [1 - FTC (T_o - T_c)^2]$ .
6. The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
7. All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.
8. 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.
9. For questions on technology, prices and delivery, please contact our sales offices or e-mail [info@v-torch.com](mailto:info@v-torch.com)