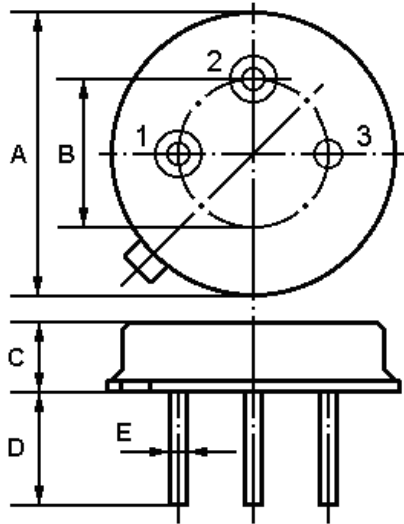


# SAW FILTER

Part Number: VTF315N

The **VTF315N** 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 **315.500 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

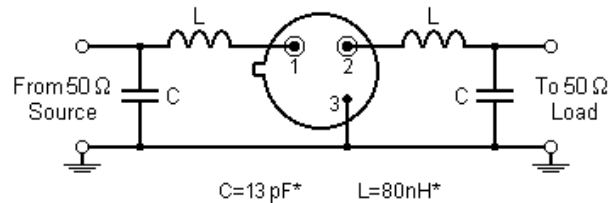
Dimension	Data (unit: mm)
A	9.15±0.20
B	5.08±0.20
C	3.30±0.20
D	3±0.20 / 5±0.20
E	0.45±0.10

## 2. Marking

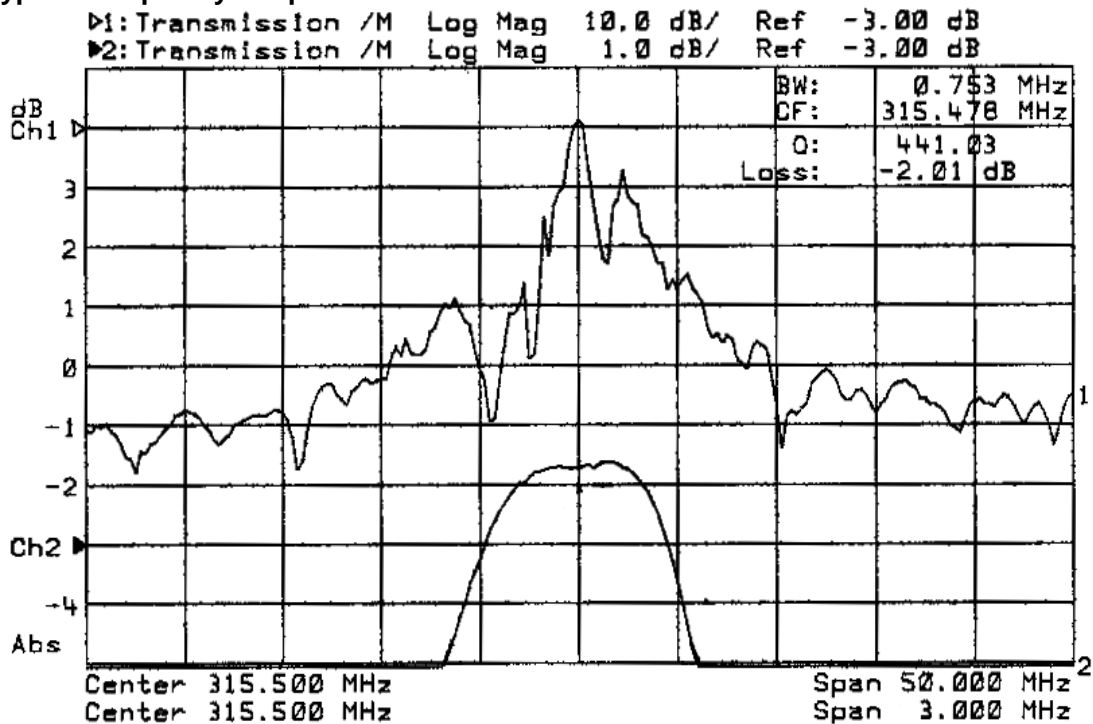
**VTF**  
**315N**

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	$V_{DC}$	±30	V
Storage Temperature Range	$T_{stg}$	-40 to +85	°C
Operating Temperature Range	$T_A$	-10 to +60	°C

### 5-2.Electronic Characteristics

Reference temperature:  $T_A = 25^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50\Omega$  and matching network  
 Terminating load impedance:  $Z_L = 50\Omega$  and matching network

Characteristic		Minimum	Typical	Maximum	Unit
Center Frequency (center frequency between 3dB points)	$f_c$		315.500		MHz
Insertion Loss	$IL$	--	3.0	4.5	dB
3dB Bandwidth	$BW_3$		600	800	kHz
Passband Ripple	$\Delta\alpha$			±1.0	dB
Rejection	at $f_c - 21.4\text{MHz}$ (Image)	40	50	--	dB
	at $f_c - 10.7\text{MHz}$ (LO)	20	30	--	
	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!

- 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 50Ω test system with  $VSWR \leq 1.2:1$ . 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 [info@v-torch.com](mailto:info@v-torch.com)