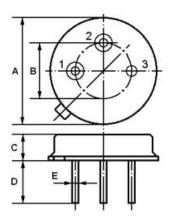
V.TORCH

SAW RESONATOR Part Number: VTR295M

The VTR295M is a true one-port, surface-acoustic-wave (SAW) resonator in a low-profile metal TO-39 case. It provides reliable, fundamental-mode, quartz frequency stabilization i.e. in transmitters or local oscillators operating at 295.000 MHz.

1. Package Dimension (TO-39)



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

Dimension	Data (unit: mm)		
Α	9.15±0.20		
В	5.08±0.20		
С	3.30±0.20		
D	3±0.20 / 5±0.20		
E	0.45±0.10		

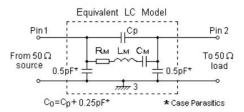
2. Marking

VTR 295M

Ink Marking

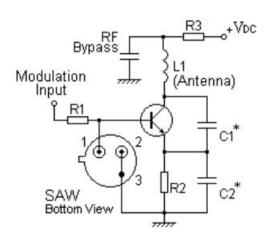
Color: Black or Blue

3. Equivalent LC Model and Test Circuit

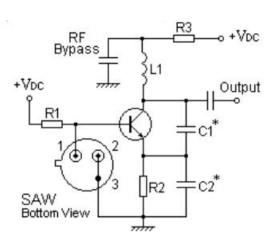


4. Typical Application Circuits

1) Low-Power Transmitter Application



2)Local Oscillator Application

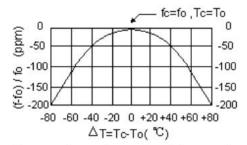


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5. Typical Frequency Response

D1: Transmission /M Log Mag 5. Ø dB/ Ref -1.5Ø dB D2: Off Meas1: Mkrl 295. ØØB MHz -1.129dB

6. Temperature Characteristics



The curve shown above accounts for resonator contribution only and does not include oscillator temperature characteristics.

7.Performance

7-1.Maximum Ratings

Rating		Value	Unit	
CW RF Power Dissipation	Р	0	dBm	
DC Voltage Between Any two Pins	V _{DC}	±30	٧	
Storage Temperature Range	$T_{ m stg}$	-40 to +85	°C	
Operating Temperature Range	T_{A}	-10 to +60	°C	

7-2. Electronic Characteristics

	Characteristic	Sym	Minimum	Typical	Maximum	Unit
Center Frequency (+25℃)	Absolute Frequency	fc	294.925		295.075	MHz
	Tolerance from 295.000 MHz	Δf_C		±75		kHz
Insertion Loss		IL		1.5	2.0	dB
Quality Factor	Unloaded Q	Qu		13,780		
	50 Ω Loaded Q	QL		2,200		
Temperature Stability	Turnover Temperature	T ₀	25		55	°C
	Turnover Frequency	fo		f _C		kHz
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C²
Frequency Aging	Absolute Value during the First Year	f _A		≤10		ppm/yr
DC Insulation Resis	tance Between Any Two Pins		1.0			ΜΩ
RF Equivalent RLC Model	Motional Resistance	R _M		19	26	Ω
	Motional Inductance	L _M		141.3149		μН
	Motional Capacitance	См		2.0618		fF
	Pin 1 to Pin 2 Static Capacitance	C ₀	2.3	2.6	2.9	pF

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

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- 1. The center frequency, f_c , is measured at the minimum IL point with the resonator in the 50Ω test system.
- 2. Unless noted otherwise, case temperature $Tc = +25^{\circ} C \pm 2^{\circ} C$.
- 3. Frequency aging is the change in fo 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.
- 4. Turnover temperature, To , is the temperature of maximum (or turnover) frequency, f 0 . The nominal frequency at any case temperature, Tc , may be calculated from: f = f 0 [1 FTC (To Tc) 2].
- 5. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance Co is the measured static (nonmotional) capacitance between Pin1 and Pin2. The measurement includes case parasitic capacitance.
- 6. Derived mathematically from one or more of the following directly measured parameters: fc , IL, 3 dB bandwidth, fc versus Tc . and Co .
- 7. The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
- 8. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
- 9. 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.
- 10. For questions on technology, prices and delivery, please contact our sales offices or e-mail info@vtorch.ca