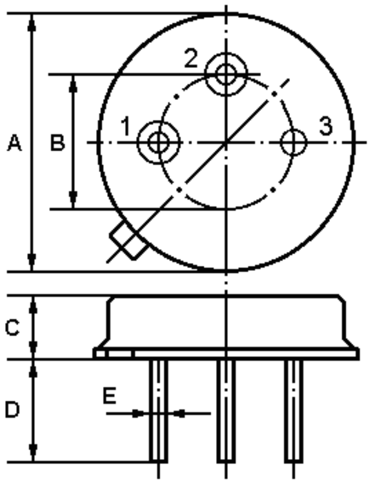
V.TORCH
Electronics Limited

SAW RESONATOR

Part Number：VTR265M

The **VTR265M** 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 **265.000** MHz.

1. Package Dimension (TO-39)



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

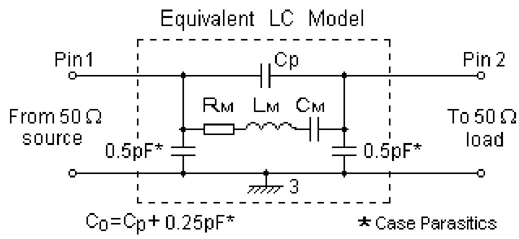
Dimension	Data (unit: mm)
A	9.15±0.20
B	5.08±0.20
C	3.30±0.20
D	3±0.20 ⁄ 5±0.20
E	0.45±0.10

2. Marking

VTR
265M

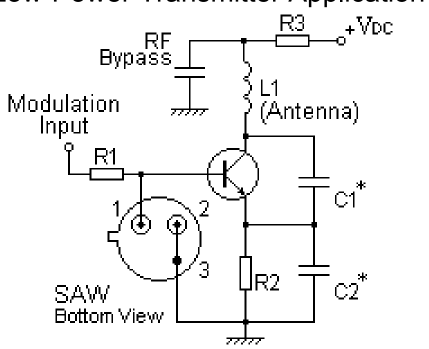
Ink Marking
Color: Black or Blue

3. Equivalent LC Model and Test Circuit

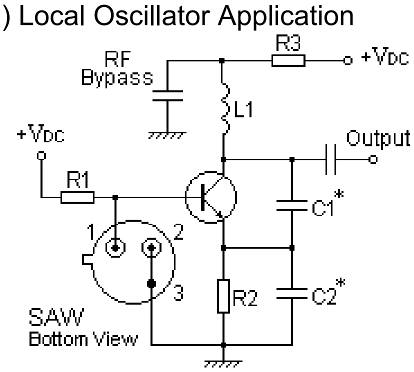


4. Typical Application Circuits

1) Low-Power Transmitter Application

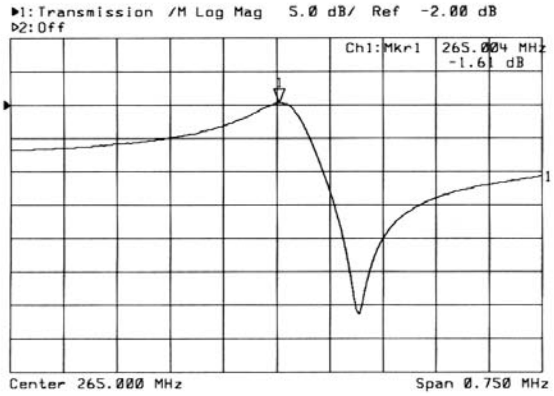


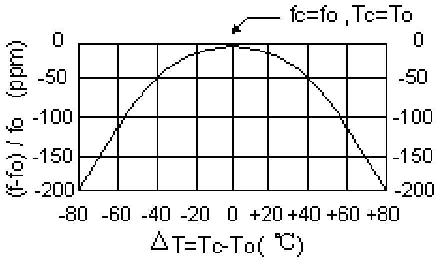
2) Local Oscillator Application



5. Typical Frequency Response

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	P	0	dBm
DC Voltage Between Any two Pins	V_{DC}	±30	V
Storage Temperature Range	T_{stg}	-40 to +85	℃
Operating Temperature Range	T_A	-10 to +60	℃

7-2.Electronic Characteristics

Characteristic		Sym	Minimum	Typical	Maximum	Unit
Center Frequency (+25℃)	Absolute Frequency	f_C	264.925		265.075	MHz
	Tolerance from 265.000 MHz	Δf_C		±75		kHz
Insertion Loss		IL		1.8	2.4	dB
Quality Factor	Unloaded Q	Q_U		18,200		
	50 Ω Loaded Q	Q_L		3,400		
Temperature Stability	Turnover Temperature	T_0	25		55	℃
	Turnover Frequency	f_0		f_C		kHz
	Frequency Temperature Coefficient	FTC		0.032		ppm/℃^{2}
Frequency Aging	Absolute Value during the First Year	$\|f_A\|$		≤10		ppm/yr
DC Insulation Resistance Between Any Two Pins			1.0			MΩ
RF Equivalent RLC Model	Motional Resistance	R_M		23	32	Ω
	Motional Inductance	L_M		251.2919		µH
	Motional Capacitance	C_M		1.4368		fF
	Pin 1 to Pin 2 Static Capacitance	C_0	1.65	1.95	2.25	pF

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

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 T_C = +25°C±2°C.
3. 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.
4. Turnover temperature, T_0, is the temperature of maximum (or turnover) frequency, f_0. The nominal frequency at

any case temperature, T_C, may be calculated from: $f = f_0 [1 - FTC (T_0 - T_C)^2]$.

5. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance C_0 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: f_C, IL, 3 dB bandwidth, f_C versus T_C, and C_0.
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@v-torch.com