

# Discontinued

RFM products are now  
Murata products.

- **Ideal for 345.0 MHz Transmitters**
- **Very Low Series Resistance**
- **Quartz Stability**
- **Rugged, Hermetic, TO39-3 Package**

The RO3075 is a true one-port, surface-acoustic-wave (SAW) resonator in TO39-3 case. It provides reliable, fundamental-mode, quartz frequency stabilization of fixed-frequency transmitters operating at 345.0 MHz.

## Absolute Maximum Ratings

Rating	Value	Units
CW RF Power Dissipation	+5	dBm
DC Voltage Between Any Two Pins (Observe ESD Precautions)	±30	VDC
Case Temperature	-40 to +85	°C
Soldering Temperature (10 seconds / 5 cycles max.)	260	°C

## RO3075

### 345.0 MHz SAW Resonator



TO39-3 Case

## Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Center Frequency at +25 °C	Absolute Frequency	$f_C$	2, 3, 4, 5	344.930		345.070	MHz
	Tolerance from 345.0 MHz	$\Delta f_C$			±70	±100	kHz
Insertion Loss	IL	2, 5, 6			0.9	1.8	dB
Quality Factor	Unloaded Q	$Q_U$	5, 6, 7	7900			
	50 Ω Loaded Q	$Q_L$		750			
Temperature Stability	Turnover Temperature	$T_O$	6, 7, 8	10	25	40	°C
	Turnover Frequency	$f_O$			$f_C \cdot 5$		kHz
	Frequency Temperature Coefficient	FTC		0.037			ppm/°C <sup>2</sup>
Frequency Aging	Absolute Value during the First Year	fA	1		≤10		ppm/yr
DC Insulation Resistance between Any Two Terminals			5	1.0			MΩ
RF Equivalent RLC Model	Motional Resistance	$R_M$	5, 7, 9		10.5		Ω
	Motional Inductance	$L_M$		38			μH
	Motional Capacitance	$C_M$		5.6			fF
	Pin 1 to Pin 2 Static Capacitance	$C_O$		5, 6, 9	4.2		pF
Test Fixture Shunt Inductance	Transducer Static Capacitance	$C_P$	5, 6, 7, 9		4.0		pF
Lid Symbolization		$L_{TEST}$	2, 7		50.7		nH
				RFM / 3075			



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

## NOTES:

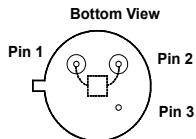
1. Lifetime (10 year) frequency aging.
2. The center frequency,  $f_C$ , is measured at the minimum insertion loss point,  $IL_{MIN}$ , with the resonator in the 50 Ω test system ( $VSWR \leq 1.2:1$ ). The shunt inductance,  $L_{TEST}$ , is tuned for parallel resonance with  $C_O$  at  $f_C$ .
3. One or more of the following United States patents apply: 4,454,488 and 4,616,197.
4. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
5. Unless noted otherwise, case temperature  $T_C = +25^\circ\text{C} \pm 2^\circ\text{C}$ .
6. The design, manufacturing process, and specifications of this device are subject to change without notice.
7. Derived mathematically from one or more of the following directly measured parameters:  $f_C$ , IL, 3 dB bandwidth,  $f_C$  versus  $T_C$ , and  $C_O$ .
8. 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:  $f = f_O [1 - FTC (T_O - T_C)]^2$ .
9. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance  $C_O$  is the static (nonmotional) capacitance between the two terminals measured at low frequency (10 MHz) with a capacitance meter. The measurement includes parasitic capacitance with a floating case. Case parasitic capacitance is approximately 0.25pF. Transducer parallel capacitance can be calculated as:  $C_P \approx C_O - 0.25pF$ .

# Discontinued

## Electrical Connections

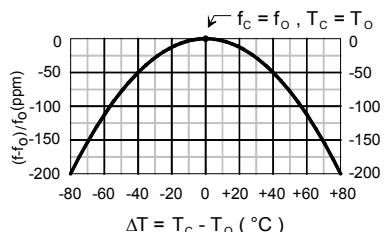
This one-port, two-terminal SAW resonator is bidirectional. The terminals are interchangeable with the exception of circuit board layout.

Pin	Connection
1	Terminal 1
2	Terminal 2
3	Case Ground



## Temperature Characteristics

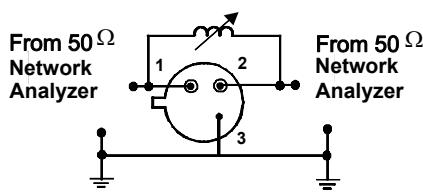
The curve shown on the right accounts for resonator contribution only and does not include oscillator temperature characteristics.



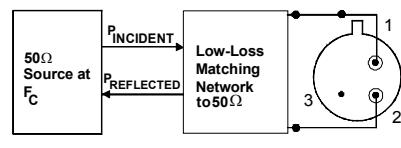
## Typical Test Circuit

The test circuit inductor, L<sub>TEST</sub>, is tuned to resonate with the static capacitance, C<sub>O</sub> at F<sub>C</sub>.

### Electrical Test:



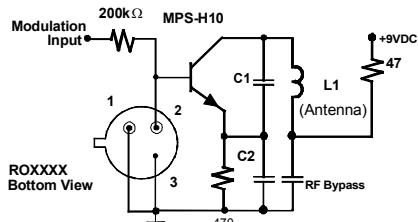
### Power Test:



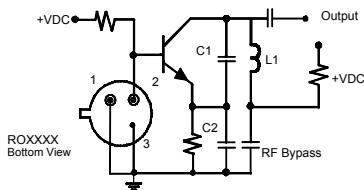
$$\text{CW RF Power Dissipation} = P_{\text{INCIDENT}} - P_{\text{REFLECTED}}$$

## Typical Application Circuits

### Typical Low-Power Transmitter Application:

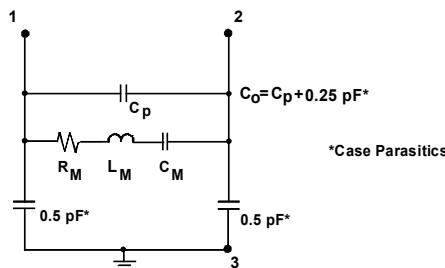


### Typical Local Oscillator Application:

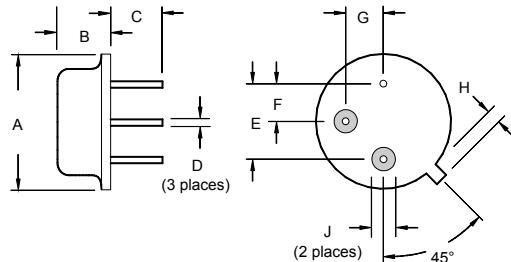


## Equivalent LC Model

The following equivalent LC model is valid near resonance:



## Case Design



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A		9.30		0.366
B		3.18		0.125
C	2.50	3.50	0.098	0.138
D	0.46 Nominal		0.018 Nominal	
E	5.08 Nominal		0.200 Nominal	
F	2.54 Nominal		0.100 Nominal	
G	2.54 Nominal		0.100 Nominal	
H		1.02		0.040
J	1.40		0.055	

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<http://moschip.ru/get-element>

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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ Р В 0015-002 и ЭС РД 009

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