

RQRA-0600-0660

## ELECTRICAL SPECIFICATIONS

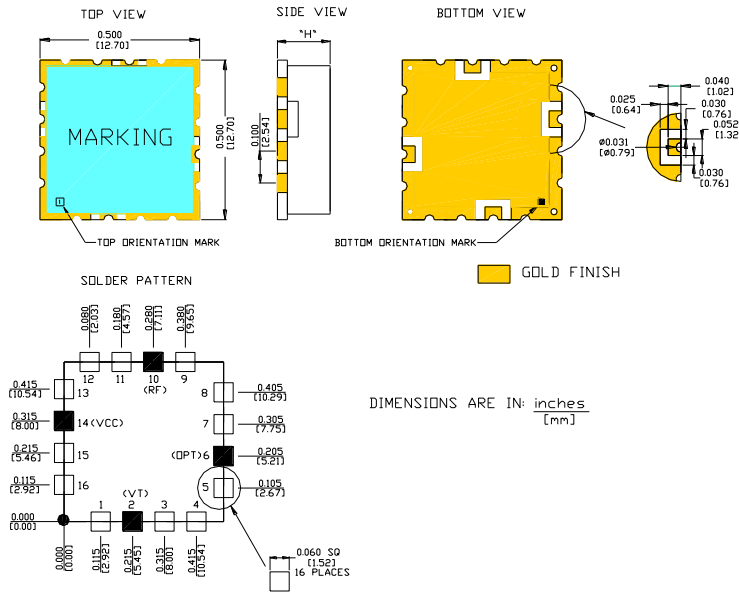
PARAMETER	CONDITION	SYMBOL	VALUE			UNIT
			Min.	Typ.	Max.	
Frequency Range	Vt=0.5 V	fo(Vt)			600	MHz
	Vt=5.0 V		660			
Power Supply Voltage		Vcc	4.75	5.0	5.25	V
Tuning Voltage		Vt	0.5		4.5	V
Supply Current	Vcc=5.0V ±5%	Icc		15	20	mA
Tuning Sensitivity	Vt=0.5-5V Vcc=5.0V ±5% T=25°C	df/dVt	15		30	MHz/V
Modulation Bandwidth	@-3 dB			60		MHz
Tuning Port Capacitance	Vt=0.5-5V			68		pF
Pushing	Vcc=4.75 – 5.25V	df/dVcc		1	2	MHz/V
Pulling <sup>1,2</sup>	Return Loss: 12dB	df/dZL		1	2	MHz-pk-pk
Operating Temperature		Ta	-35		85	°C
Storage Temperature		Tstor	-55		100	°C
Maximum Limits Voltage	V <sub>cc(abs)</sub>		-0.4		8.0	V
Moisture Sensitivity Level	MSL	JEDEC J-STD-2	1			
Termination; Finish			Glass-reinforced laminate base and nickel-silver cover			
ESD Sensitivity	HBM	Human body model JESD22-A114		3		kV

## OUTPUT CHARACTERISTICS

SINE-WAVE	PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
				Min	Typ.	Max	
	Output Power	Pw	Output termination 50Ω Vcc=5.0V ±5%	-2	-1	4	dBm
	2nd Harmonic Suppression	h <sup>2</sup>			-13	-8	dBc
	3rd Harmonic Suppression	h <sup>3</sup>			-20	-10	dBc
	Spurious (Non-Harmonic)	Sp			-90		dBc
	Output Load(Imped)	O <sub>CL</sub>			50		Ω

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## MECHANICAL DIMENSIONS AND PIN FUNCTIONING



$$H = \frac{0.156}{3.96}$$

$$H \text{ Tolerance: } \pm 0.020 \text{ in} \\ \pm 0.51 \text{ mm}$$

PIN	SYMBOL	FUNCTION
2	Vt	Control Voltage
10	Rf <sub>out</sub>	RF Output
14	Vcc	Power Supply
6, Others, Cover	GND	Ground

■ Marking:

RQRA  
 0600-0660  
**1** Date code

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## PHASE NOISE

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min	Typ	Max	
SSB Phase noise	$\Sigma(\Delta f)$	$\Delta f=1.0\text{kHz}$		-90		dBc
		$\Delta f=10\text{kHz}$		-112		
		$\Delta f=100\text{kHz}$		-133		
		$\Delta f=1000\text{kHz}$		-151		

## COMMON SPECIFICATIONS

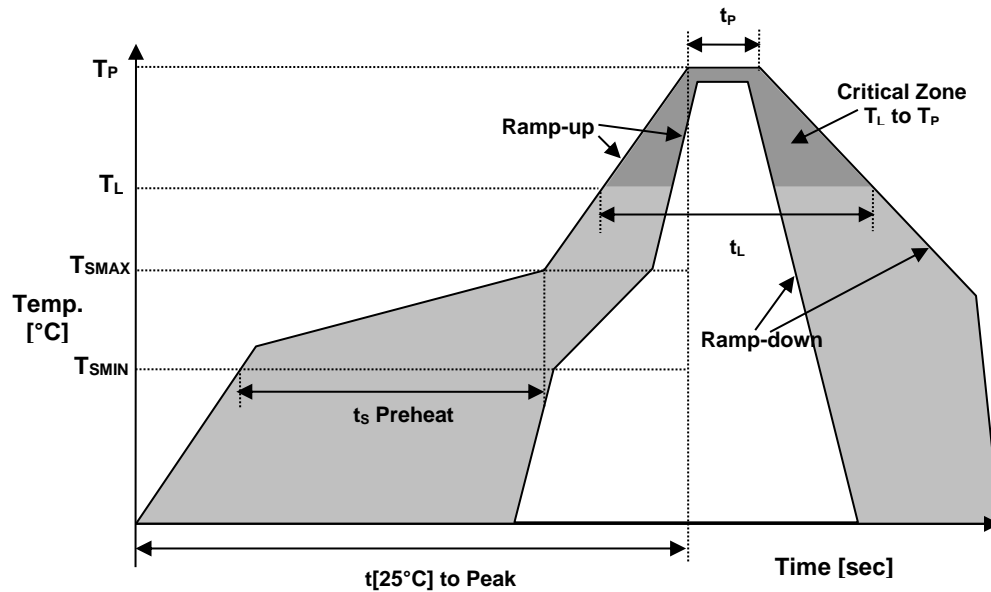
- 1.1 -Load impedance is 50 Ohms.
- 1.2 -Pulling is measured with 12dB return loss, all phases.
- 1.3- Package outline tolerances are typ.  $\pm 0.30\text{mm}$  /  $\pm 0.012$  inch if not stated differently on the drawing.
- 1.4 -It is recommended to provide two bypass-capacitors (ceramic), from Vcc to Gnd,  $1\text{nF} \parallel 100\text{pF}$ .
- 1.5- Solder temperature (peak) is  $260^\circ\text{C}$  for 10-20s.

## Environmental Compliance

PARAMETER	CONDITIONS
Mechanical Shock	MIL-STD-883, Method 2002
Mechanical Vibration	MIL-STD-883, Method 2007
Solderability	MIL-STD-883, Method 2003
Resistance to Solvents	MIL-STD-883, Method 2016

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## REFLOW PROFILE



Recommended Solder Reflow Profile			
Temperature Min Preheat	$T_{SMIN}$		150°C
Temperature Max Preheat	$T_{SMAX}$		175°C
Time ( $T_{SMIN}$ to $T_{SMAX}$ )	$t_s$		60-180 sec.
Temperature	$T_L$		217°C
Peak Temperature	$T_P$		260°C
Ramp-up rate	$R_{UP}$		3°C/sec max.
Ramp-down rate	$R_{DOWN}$		6°C/sec max.
Time within 5°C of Peak Temperature	$t_p$		10-20 sec max.
Time $t[25^\circ\text{C}]$ to Peak Temperature	$t[25^\circ\text{C}]$ to Peak		480 sec.
Time	$t_L$		60-150 sec.

APPROVALS		
Eng. approval, date:	IM	9/7/2018
Created by, date:	MP	9/7/2018
Revision: A		

