

RQRA-0433-0484

ELECTRICAL SPECIFICATIONS

PARAMETER	CONDITION	SYMBOL	VALUE			UNIT
			Min.	Typ.	Max.	
Lower Frequency ^{1,2}	Tuning Voltage:0.5V	fo(Vt)			433	MHz
Upper Frequency ^{1,2}	Tuning Voltage:9.5V	fo(Vt)	484			MHz
Tuning Voltage		Vt	0.5		9.5	V
Supply Voltage		Vcc	4.75	5.0	5.25	V
Supply Current					30	mA
Tuning Sensitivity	Maximum to Minimum ratio	df/dVt			1.5	-
Tuning Sensitivity	Over 433-484MHz	df/dVt		7.0		MHz/V
Pushing	Over Supply Variation 5V±5%	df/dVcc			200	KHz
Pulling ^{1,3}	VSWR= Load=2:1 All phase	df/dZI			200	KHz
Operating Temperature		Ta	-30		85	°C
Storage Temperature		Tstor	-45		105	°C
Maximum Voltage	V _{cc(abs)}				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

	PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
				Min	Typ.	Max	
SINE-WAVE	Output Power	Pw	Output termination 50Ω Vcc=5V ±5%	2.0	5.5	8.0	dBm
	2nd Harmonic Suppression	h ²				-30	dBc
	3rd Harmonic Suppression	h ³				-30	dBc
	Spurious (Non-Harmonic)	Sp	-Δf ≤4.0KHz			-60	dBc
			-Δf >4.0KHz			-100	
	Output Load	O _{CL}		50		Ω	

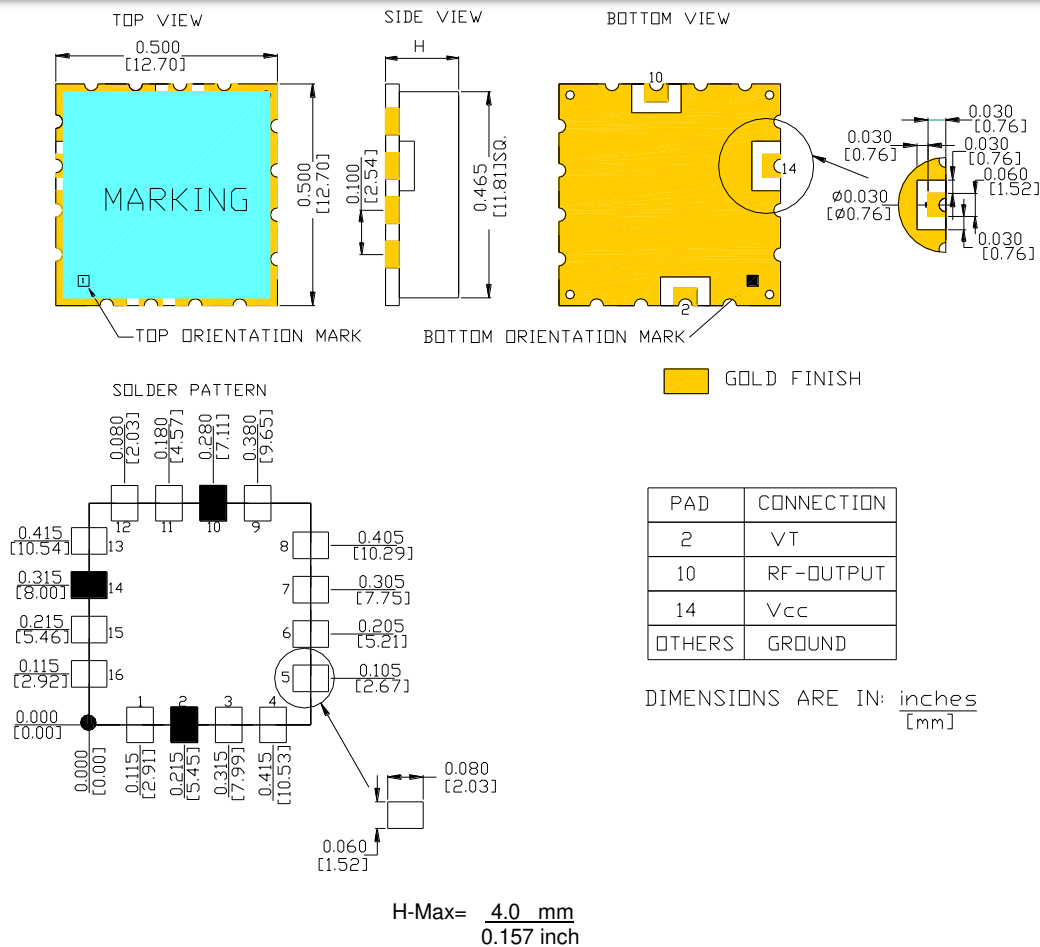
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PHASE NOISE

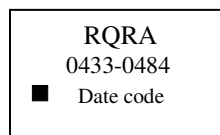
PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min	Typ	Max	
SSB Phase noise @ offset frequency over 0 to 55 °C	$\Sigma(\Delta f)$	$\Delta f=1.0\text{kHz}$		-90	-89	dBc/Hz
		$\Delta f=12.5\text{kHz}$		-114	-113	
		$\Delta f=25\text{kHz}$		-125	-120	
		$\Delta f=50\text{kHz}$		-128	-127	
		$\Delta f=100\text{kHz}$		-140	-138	
		$\Delta f=200\text{kHz}$		-143	-140	
		$\Delta f=500\text{kHz}$		-147	-145	
		$\Delta f=1.0\text{MHz}$		-150	-145	
		$\Delta f>5\text{MHz}$		-165	-160	

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MECHANICAL DIMENSIONS AND PIN FUNCTIONING



■ Marking:

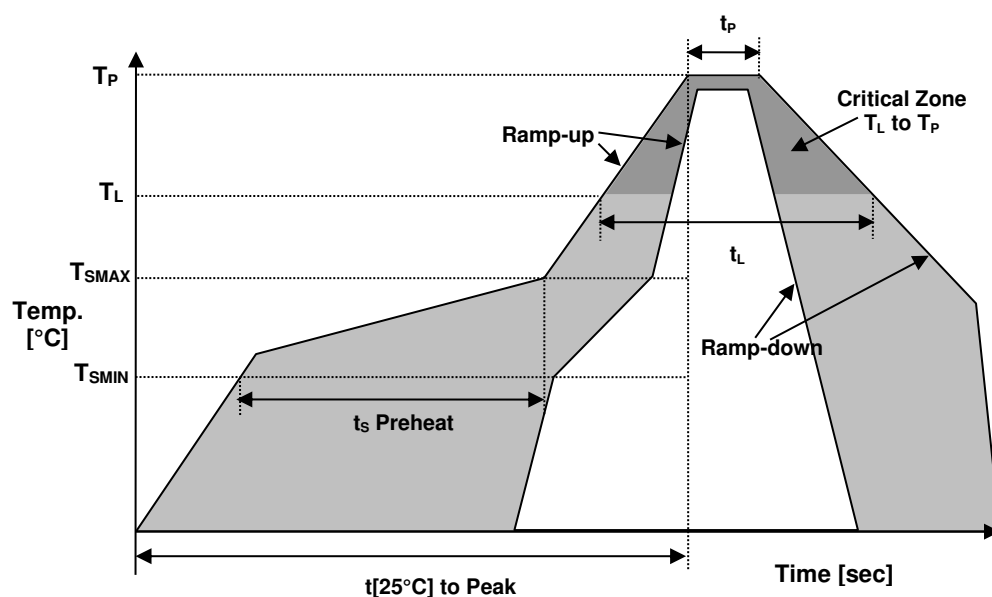


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COMMON SPECIFICATIONS

- 1.1 -Load impedance is 50 Ohms.
- 1.2- The frequency range is defined between the (max) lower frequency and (min) upper frequency.
- 1.3 -Pulling is measured with 12dB return loss, all phases.
- 1.4- Package outline tolerances are typ. $\pm 0.38\text{mm}$ / $\pm 0.015\text{inch}$ if not stated differently on the drawing.
- 1.5 -It is recommended to provide two bypass-capacitors (ceramic), from Vcc to Gnd, 1nF || 100pF.
- 1.6- Solder temperature (peak) is 260°C for 10-20s

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 02/02/2016

Created by, date: MH 02/02/2016

Revision: A

