

Investigation Report of Oscillation Circuit

[1] Customer : Messrs. Endrich Bauelemente Vertriebs GmbH

[2] Object : Investigation a matching between your PWB s/n. TB2 MEGARF and CM315D 32.768kHz.

(IC No. MEGA128RF-1)

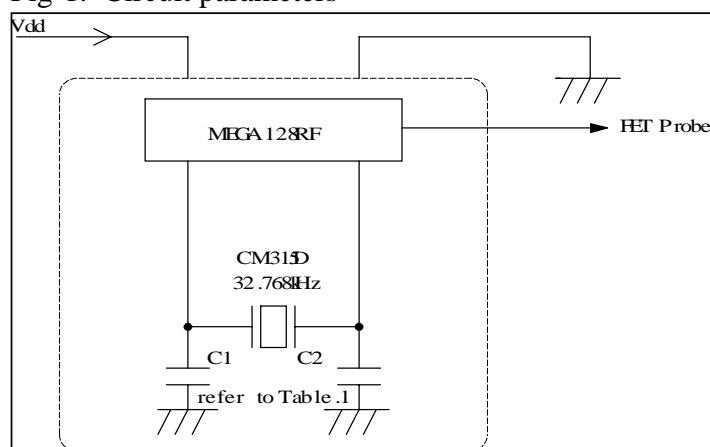
[3] Results : See the data in the following Table-1.

Table-1.Circuit investigation

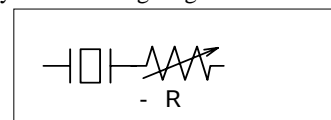
CM315D 32.768kHz	Circuit Parameters		CL (Load capacitance) (pF)	Vdd (V)	Frequency Gap (ppm)	Negative Resistance (k ohm)	Safety factor (times)	DL (uW)	Startup Time (ms)	Vstart (V)	Vstop (V)
	C1 (pF)	C2 (pF)									
Our Investigating rameters	12	10	7	1.6	-2.4	610	8.7	0.1	310	0.9	0.8
				2.0	-0.3	660	9.4	0.1	300		
				2.7	0.3	680	9.7	0.1	300		
				3.0	0.6	690	9.9	0.1	300		
				3.3	0.8	700	10.0	0.1	300		

* Our Recommendable Negative Resistance Value : over 200 k ohm

Fig-1. Circuit parameters



The way of measuring Negative Resistance (-R)



[4] Conclusion :

1. At Our Investigated Parameters, Frequency Gap of the circuit is +0.6ppm, and its Negative Resistance satisfies Our Recommendable Negative Resistance Value.

[5] Caution :

1. We would advise you to check a condition of performance with your whole sets for sure because the investigation was made the only condition of the oscillation circuit (Fig-1.)
2. The investigation report won't guarantee whole of your products and the results would be subject to change when the parameter of oscillation circuit was changed for some reason or other so that we advise you to re-investigate the oscillation circuit whenever it was changed .

Please feel free to contact us if you have any question.

Yours faithfully.

CITIZEN FINETECH MIYOTA CO., LTD.

Crystal Devices Division

Toshiki Satoh

Fig.2 Frequency-Load capacitance

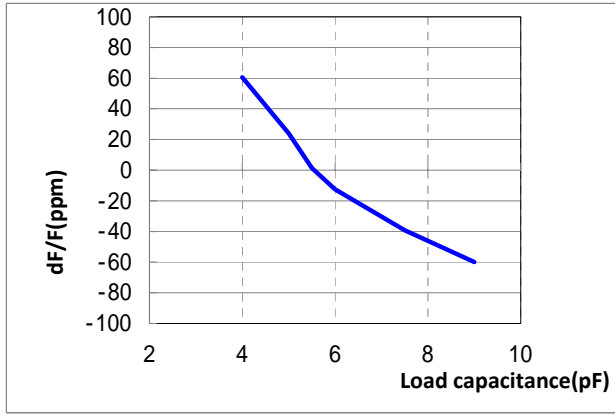


Fig.3 Drive level-Supply voltage

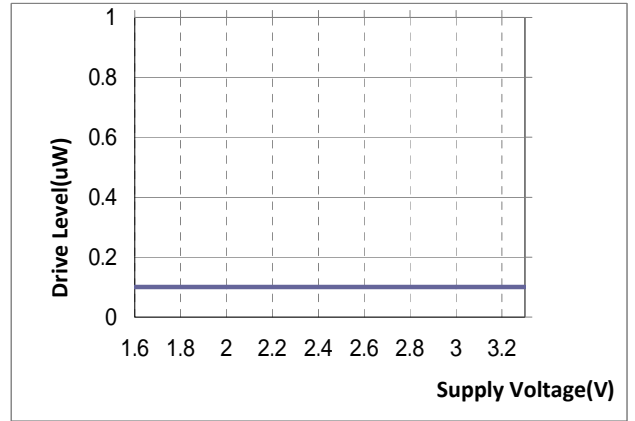


Fig.4 Startup time - Supply voltage

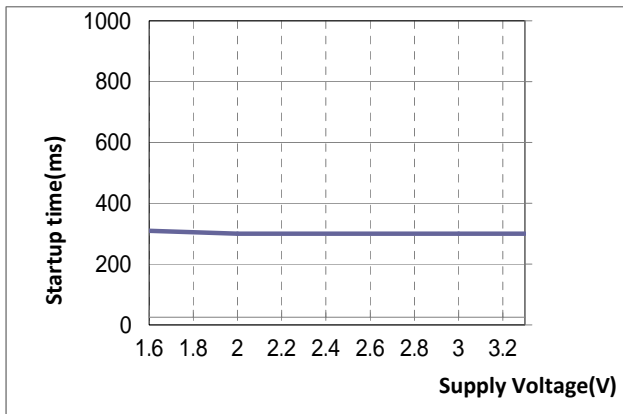


Fig.5 Frequency-Temperature

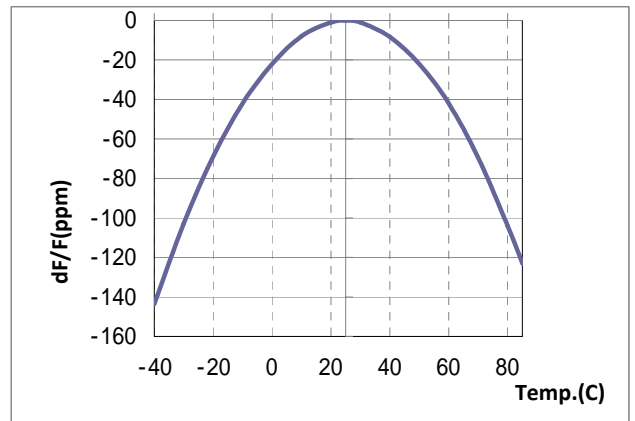


Fig.6 Negative Resistance - Temperature

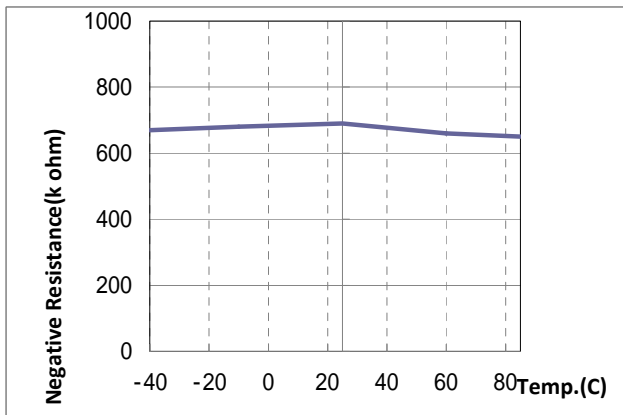


Fig.7 Safety Factor-Temperature

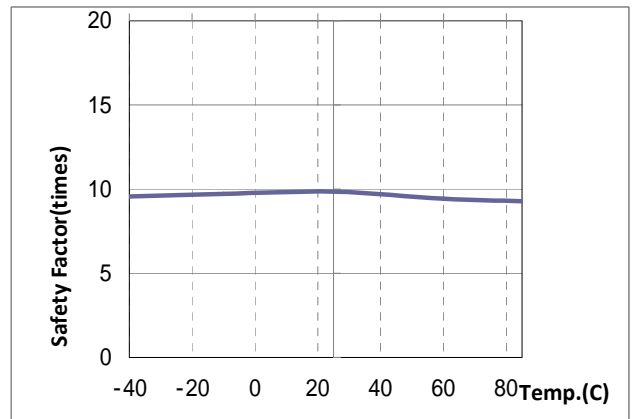


Fig.8 Startup Time - Temperature

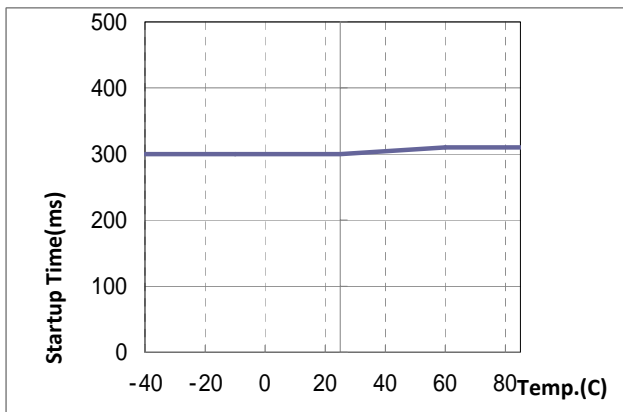


Fig.9 Oscillator Startup Waveform

