

CMC159-SERIES



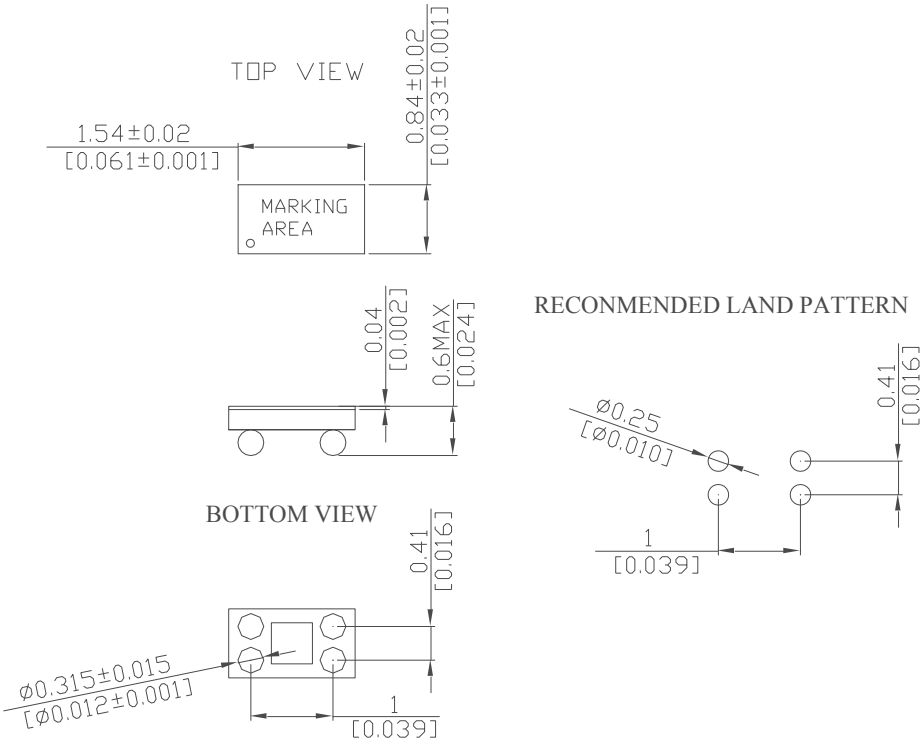
- Ultra Low power: $1\mu\text{A}$
- Fixed 32.768 kHz
- No Supply Voltage external bypass capacitors required
- Frequency Stability over Temperature as low as $\pm 5\text{ppm}$
- Small SMD package 1.5 x 0.8 mm

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Frequency nominal	f_0			32.768		kHz
Supply Voltage	V_s	$T_a = -40^\circ\text{C}$ to $+85^\circ\text{C}$	1.5		3.63	V
Core Supply Current	I_s	$V_s = 1.8\text{V}$, no load condition, LVCMOS, $T_a = 25^\circ\text{C}$ $V_s = 3.63\text{V}$ max, $T_a = -10^\circ\text{C}$ to $+70^\circ\text{C}$ no load condition $V_s = 1.5\text{V}$ to 3.63V , $T_a = -40^\circ\text{C}$ to $+85^\circ\text{C}$, no load condition I_s does not include output stage current or load.		0.99		μA
						1.52
Operating Temperature	T_a	Commercial	0		+70	$^\circ\text{C}$
		Industrial	-40		+85	$^\circ\text{C}$
Frequency Stability vs. Temperature (without initial offset)	$\Delta f/T_a$	Initial offset is defined as the frequency deviation from the nominal value at room temperature after reflow	-5 -10 -20		+5 +10 +20	ppm ppm ppm
Frequency Stability vs. Temperature (with initial offset)	$\Delta f/T_a$	Initial offset is defined as the frequency deviation from the nominal value at room temperature after reflow	-10 -13 -22		+10 +13 +22	ppm ppm ppm
Frequency stability vs. Supply Voltage	$\Delta f/V_s$	$V_s = 1.8\text{V} \pm 10\%$ $V_s = 1.5\text{V} \sim 3.63\text{V}$	-0.75 -1.5		+0.75 +1.5	ppm ppm
Power supply Ramp		$T_a = -40^\circ\text{C}$ to $+85^\circ\text{C}$, 0 to 90% V_s			100	ms
Start-up Time	T_{START}	$T_a = -40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$, valid output		180	300	ms
		$T_a = +60^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$, valid output			350	ms
		$T_a = +70^\circ\text{C} \leq T_a \leq +85^\circ\text{C}$, valid output			380	ms
Long Term Frequency Stability	$\Delta f/T$	$T_a = 25^\circ\text{C}$, $V_s = 3.3\text{V}$	-1.0		+1.0	ppm
Period Jitter RMS		Cycles = 10,000, $T_a = 25^\circ\text{C}$, $V_s = 1.5\text{V} \sim 3.63\text{V}$		35		ns
Long Term Jitter		81920 cycles (2.5 sec), 100 samples			2.5	$\mu\text{s p-p}$

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MECHANICAL DIMENSIONS AND PIN FUNCTIONING



PIN	SYMBOL	FUNCTION
1	GND	Electrical Ground
2	OUTPUT	Output Signal ¹
3	Vs	Supply Voltage ²
4	GND	Electrical Ground