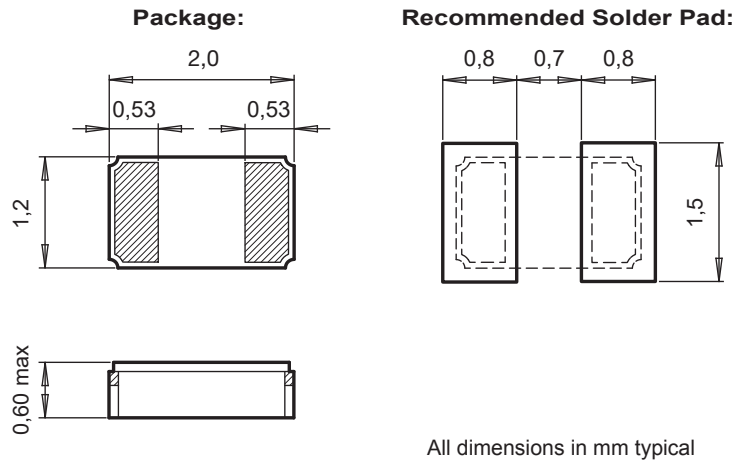


CM8V-T1A Low ESR

Tuning Fork Crystal 32.768 kHz



DIMENSIONS



APPLICATIONS

IoT
Metering
Industrial
Automotive
Health Care
Wearables, Portables

DESCRIPTION

The CM8V-T1A Low ESR is a low frequency SMD Quartz Crystal Unit that incorporates a tuning fork Quartz Crystal Resonator. It operates under vacuum in a hermetically sealed ceramic package with metal lid.

FEATURES

Maximum ESR value of 50 kΩ for low power designs.
Outstanding hermetic sealing with gold-tin preform.
High stability and low aging guaranteed by hermetic sealing.
Available for extended operating temperature range.
Ultra small size, low profile, lightweight (4.6 mg).
High shock and vibration resistant.
100% Pb-free, RoHS-compliant.
Automotive qualification according to AEC-Q200 available.

ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequency	¹⁾ F_L	32.768	kHz
Load capacitance	²⁾ C_L	4.0 / 6.0 / 7.0 / 9.0 / 12.5	pF
Frequency tolerance	³⁾ $\Delta F/F$	± 20	ppm
		± 100	ppm
Series resistance typ./max.	R_S	40 / 50	kΩ
Motional capacitance typ.	C_1	6.1	fF
Static capacitance typ.	C_0	1.4	pF
Drive level max.	P	0.5	μW
Insulation resistance min.	R_i	500	MΩ
Aging first year max.	$\Delta F/F$	± 3	ppm
Turnover temperature	T_0	25 ± 5	°C
Frequency vs. temperature	$\Delta F/F_0$	$-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2 \pm 10\%$	ppm

- 1) Other frequencies on request.
2) Other load capacitances on request.
3) Tighter frequency tolerances on request.

STANDARD FREQUENCIES

Frequency
32.768 kHz
Other frequencies on request

ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temperature range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
TB Extended oper. temp. range		-40 to +125°C	
TC Extended oper. temp. range		-55 to +125°C	
Shock resistance	ΔF/F	5000 g, 0.3 ms, ½ sine	±5 ppm
Vibration resistance	ΔF/F	20 g / 10–2000 Hz	±5 ppm

TERMINATIONS AND PROCESSING

Type	Termination	Processing
CM8V-T1A Low ESR	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

ORDERING INFORMATION

<p style="text-align: center;">C M 8 V - T 1 A Low ESR 32.768 kHz 12.5 pF ±20 ppm TA QC</p> <p>Ceramic package</p> <p>Metal lid</p> <p>Package size 8 = 2.0 x 1.2 x 0.60 mm</p> <p>Tuning fork</p> <p>SMD Package</p> <p>Au flashed pads</p> <p>2 pads</p> <p>Special feature Low ESR = 50 kΩ max.</p>	<p>Frequency F_L</p> <p>Load capacitance C_L 4.0 pF 6.0 pF 7.0 pF 9.0 pF 12.5 pF Other C_L on request</p> <p>Frequency tolerance ±20 ppm ±100 ppm Tighter freq. tolerances on request</p> <p>Temperature range TA = -40 to +85°C (Standard) TB = -40 to +125°C TC = -55 to +125°C</p> <p>Qualification QC = Commercial Grade (Standard) QA = Automotive Grade AEC-Q200</p>				
<p>A unique part number will be generated for each product specification, i.e:</p> <table border="1" style="margin: auto;"> <tr> <td>20xxxx-MC01</td> <td>1'000 pcs (in 8 mm tape on 7" reel)</td> </tr> <tr> <td>20xxxx-MC03</td> <td>3'000 pcs (in 8 mm tape on 7" reel)</td> </tr> </table>		20xxxx-MC01	1'000 pcs (in 8 mm tape on 7" reel)	20xxxx-MC03	3'000 pcs (in 8 mm tape on 7" reel)
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All specifications subject to change without notice.



Micro Crystal AG
Muehlestrasse 14
CH-2540 Grenchen
Switzerland

Phone +41 32 655 82 82
sales@microcrystal.com
www.microcrystal.com