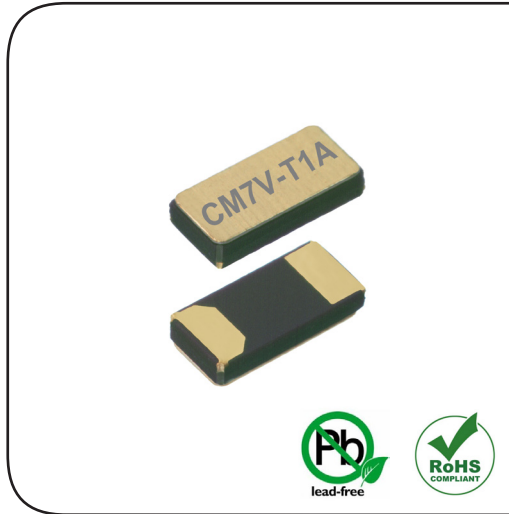
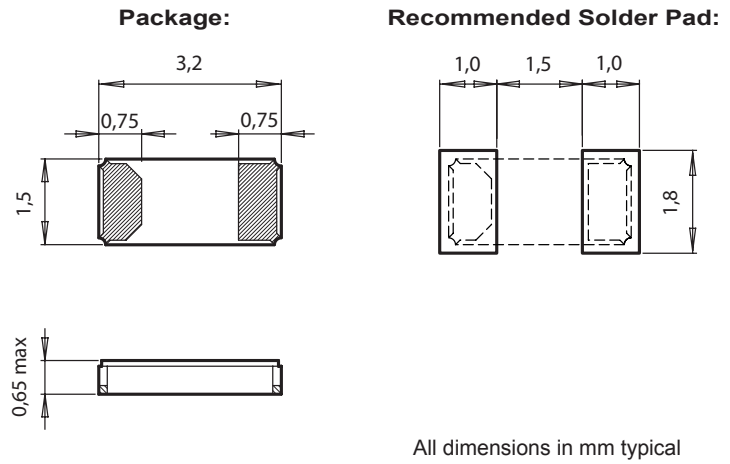


CM7V-T1A Low ESR

Tuning Fork Crystal 32.768 kHz



DIMENSIONS



APPLICATIONS

IoT
Metering
Industrial
Automotive
Health Care
Wearables, Portables

DESCRIPTION

The CM7V-T1A Low ESR is a low frequency SMT 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.
Small size, low profile, lightweight (10.3 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	6.0 / 7.0 / 9.0 / 12.5	pF
Frequency tolerance	³⁾ ΔF/F	±20	ppm
	ΔF/F	±100	ppm
Series resistance typ./max.	R _S	40 / 50	kΩ
Motional capacitance typ.	C ₁	4.7	fF
Static capacitance typ.	C ₀	1.3	pF
Drive level max.	P	1.0	μW
Insulation resistance min.	R _i	500	MΩ
Aging first year max.	ΔF/F	±3	ppm
Turnover temperature	T ₀	25 ±5	°C
Frequency vs. temperature	ΔF/F ₀	-0.035 ppm/°C ² (T - T ₀) ² ±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 temp. 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
CM7V-T1A Low ESR	For SMT mounting Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

ORDERING INFORMATION

C M 7 V - T 1 A Low ESR 32.768 kHz 12.5 pF ±20 ppm TA QC	
Ceramic package	Frequency F_L
Metal lid	Load capacitance C_L 6.0 pF 7.0 pF 9.0 pF 12.5 pF Other C_L on request
Package size 7 = 3.2 x 1.5 x 0.65 mm	Frequency tolerance ±20 ppm ±100 ppm Tighter freq. tolerances on request
Tuning fork	Temperature range TA = -40 to +85°C (Standard) TB = -40 to +125°C TC = -55 to +125°C
SMT Package	Qualification QC = Commercial Grade (Standard) QA = Automotive Grade AEC-Q200
Au flashed pads	
Pads on both ends	
Special feature Low ESR = 50 kΩ max.	

A unique part number will be generated for each product specification, i.e:	
20xxxx-MG01	1'000 pcs (in 12 mm tape on 7" reel)
20xxxx-MG03	3'000 pcs (in 12 mm tape on 7" reel)
20xxxx-PG14	14'000 pcs (in 12 mm tape on 13" reel)

All specifications subject to change without notice.



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