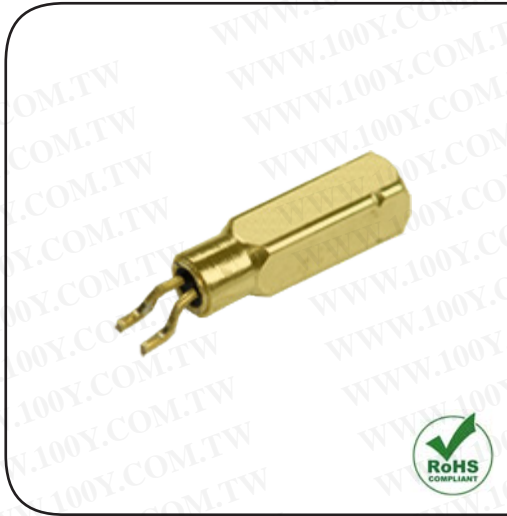
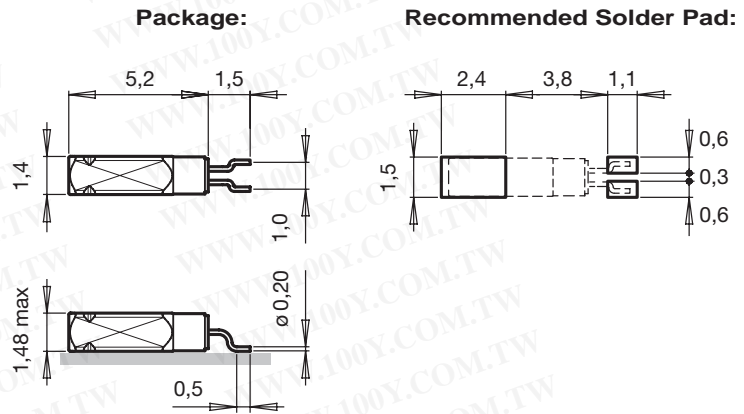


# MS3V-T1R

Tuning Fork Crystal 30 kHz – 200 kHz



## DIMENSIONS



All dimensions in mm typical

## APPLICATIONS

IoT  
Metering  
Wearables  
Health Care  
Mobile Phones  
Consumer Electronics

## DESCRIPTION

The MS3V-T1R is a low frequency surface mount technology Quartz Crystal Unit that incorporates a tuning fork Quartz Crystal Resonator. It operates under vacuum in a hermetically sealed square-bodied metal can package.

MS3V-T1R is compatible with other suppliers' same footprint crystals.

## FEATURES

High stability is guaranteed by hermetic sealing.  
High shock and vibration resistant.  
Small, proven surface mount technology package for reflow soldering.  
Excellent lead coplanarity for surface mounting.  
RoHS-compliant.

## ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequency	<sup>1)</sup> $F_L$	32.768	kHz
Load capacitance	<sup>2)</sup> $C_L$	6.0 / 7.0 / 9.0 / 12.5	pF
Frequency tolerance	<sup>3)</sup> $\Delta F/F$	$\pm 20$	ppm
		$\pm 100$	ppm
Series resistance typ./max.	$R_S$	50 / 65	k $\Omega$
Motional capacitance typ.	$C_1$	2.25	fF
Static capacitance typ.	$C_0$	0.9	pF
Drive level max.	P	1.0	$\mu$ W
Insulation resistance min.	$R_i$	500	M $\Omega$
Aging first year max.	$\Delta F/F$	$\pm 3$	ppm
Turnover temperature	$T_0$	25 $\pm$ 5	$^{\circ}$ 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 and wider frequency tolerances on request.

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 胜特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## STANDARD FREQUENCIES

Frequencies		
32.768 kHz	60.000 kHz	76.800 kHz
Other frequencies on request		

## ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temperature range		-55 to +85°C	
TA Operating temperature range		-40 to +85°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
MS3V-T1R	Can: Au flashed <sup>1)</sup> Leads: Formed leads Au flashed	For surface mounting IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
MS3V-T1N	Can: Au flashed <sup>1)</sup> Leads: Straight leads Au flashed	For through-hole mounting IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

1) Pd plated can on request.

## ORDERING INFORMATION

MS3V-T1R		32.768 kHz	12.5 pF	±20 ppm	TA	QC	Au
<b>Square metal package</b> MS3V = 1.4 x 1.4 x 5.2 mm		<b>Frequency <math>F_L</math></b>					
<b>SMT Package</b>		<b>Load capacitance <math>C_L</math></b> 6.0 pF 7.0 pF 9.0 pF 12.5 pF Other $C_L$ on request					
<b>Au flashed leads</b>		<b>Frequency tolerance</b> ±20 ppm ±100 ppm Tighter and wider freq. tolerances on request					
<b>Package lead form</b> R = SMD spacing 1.0 mm N = Straight leads		<b>Temperature range</b> TA = -40 to +85°C					
		<b>Qualification</b> QC = Commercial Grade					
		<b>Au flashed can</b>					

A unique part number will be generated for each product specification, i.e.:		
20xxxx-ML02	2'000 pcs (in 16 mm tape on 7" reel)	MS3V-T1R
20xxxx-PL09	9'000 pcs (in 16 mm tape on 13" reel)	MS3V-T1R
20xxxx-BA01	1'000 pcs (in plastic bag)	MS3V-T1N

All specifications subject to change without notice.

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