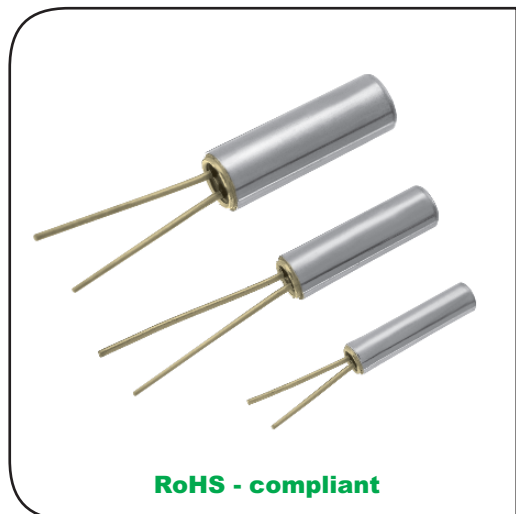
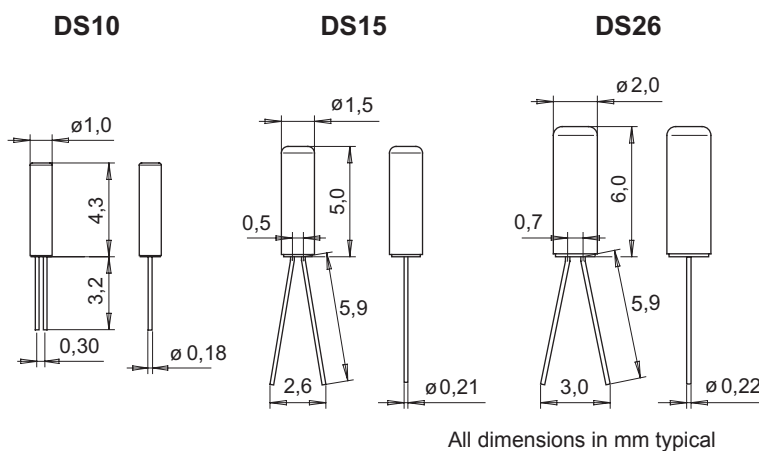


DS – Series

Watch Crystal 32.768 kHz



DIMENSIONS



Very small metal-can packages
High stability
Low aging
Low power consumption
High shock and vibration resistance

DESCRIPTION:

The DS-crystal-series are tubular metal-can packages in the standardized watch-crystal sizes DS26 = Ø 2 x 6.0 mm, DS15 = Ø 1.5 x 5.0 mm and DS10 = Ø 1 x 4.3 mm for thru-hole applications.

Within the package is a high-quality tuning fork quartz crystal resonator, manufactured with precision high-volume photolithographic process and operating in the fundamental mode at 32.768 kHz.

Due to highly automated, large-volume production, the DS-crystal-series is very price competitive and ideal for any consumer application.

DS Products are supplied in plastic-bags (1'000 pcs.)

ELECTRICAL CHARACTERISTICS AT 25°C:

Package Size		DS26	DS15	DS10	
Nominal frequency	F_L	32.768	32.768	32.768	kHz
Load capacitance ¹⁾	C_L	8.2	8.2	8.2	pF
Frequency tolerance ²⁾	$\Delta F/F$	+/-20	+/-20	+/-20	ppm
	$\Delta F/F$	+/-30	+/-30	+/-30	ppm
	$\Delta F/F$	+/-100	+/-100	+/-100	ppm
Series resistance typ./max.	R_s	30 / 42	35 / 50	45 / 60	k Ω
Motional capacitance typ.	C_1	2.1	2.1	2.4	fF
Static capacitance typ.	C_0	0.9	0.9	0.9	pF
Drive level max.	P	1.0	1.0	1.0	μ W
Insulation resistance min.	R_i	500	500	500	M Ω
Aging first year max.	$\Delta F/F$	+/-3	+/-3	+/-3	ppm
Turnover temperature	T_0	25 +/-5	25 +/-5	25 +/-5	°C
Frequency vs. temperature	$\Delta F/F_0$	$-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2 \text{ +/-10\%}$			ppm

1) Other load capacitances on request.

2) Tighter and wider frequency tolerances on request.

ENVIRONMENTAL CHARACTERISTICS:

		Conditions	Max. Dev.
Storage temperature range		-20 to +70°C	
Operating temperature range		-10 to +60°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, 1/2 sine	+/-5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10–2000 Hz	+/-5 ppm

TERMINATIONS AND PROCESSING:

Type	Termination	Processing
DS26-T1N	Can: Ni plated Leads: Straight leads Au flashed	Thru-hole mounting Wave or hand soldering Max. 280°C / 5 sec. leads only
DS15-T1N	Can: Ni plated Leads: Straight leads Au flashed	Thru-hole mounting Wave or hand soldering Max. 280°C / 5 sec. leads only
DS10-T1N	Can: Ni plated Leads: Straight leads Au flashed	Thru-hole mounting Wave or hand soldering Max. 280°C / 5 sec. leads only

PRODUCT DESCRIPTION AND ORDERING INFORMATION:

DS26-T1N

DS15-T1N **32.768kHz** **8.2 pF** **+/-30ppm**

DS10-T1N

Frequency F_L

C_L Load Capacitance

8.2 pF
9.0 pF
12.5 pF

Frequency tolerance

+/- 20 ppm
+/- 30 ppm
+/- 100 ppm

A unique part number will be generated for each product specification, i.e:

20xxxx-BA01 1'000 pcs (in plastic-bag)

Please contact us.

All specifications subject to change without notice.



Micro Crystal AG
Mühlestrasse 14
CH-2540 Grenchen
Switzerland

Tel. +41 32 655 82 82
Fax +41 32 655 82 83
sales@microcrystal.com
www.microcrystal.com