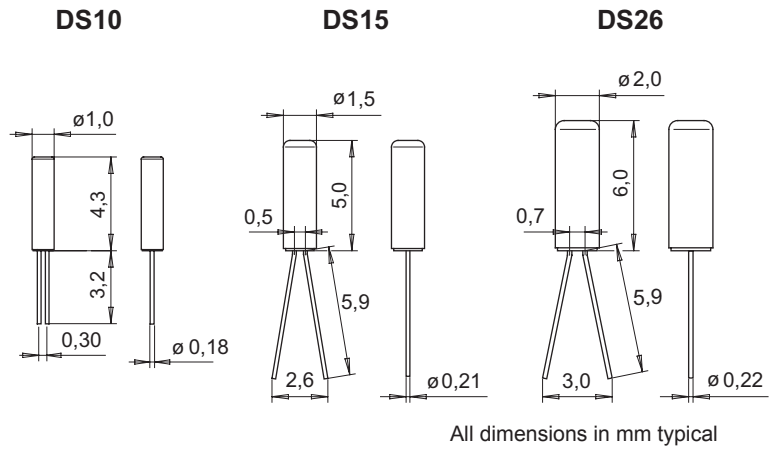




### DIMENSIONS



**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 =  $\varnothing$  2 x 6.0 mm, DS15 =  $\varnothing$  1.5 x 5.0 mm and DS10 =  $\varnothing$  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	$C_L$ <sup>1)</sup>	8.2	8.2	8.2	pF
Frequency tolerance	$\Delta F/F$ <sup>2)</sup>	+/-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 $\Omega$
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	$\mu$ W
Insulation resistance min.	$R_i$	500	500	500	M $\Omega$
Aging first year max.	$\Delta F/F$	+/-3	+/-3	+/-3	ppm
Turnover temperature	$T_0$	25 +/-5	25 +/-5	25 +/-5	$^{\circ}$ C
Frequency vs. temperature	$\Delta F/F_0$	-0.035 ppm/ $^{\circ}$ C <sup>2</sup> (T - T <sub>0</sub> ) <sup>2</sup> +/-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	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
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.



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