ECS-.327-12.5-8X-C

32.768 KHz Tuning Fork Crystal

RoHS COMPLIANT

The ECS-.327-12.5-8X-C tuning fork type crystal is used as a clock source in communication equipment, measuring instruments, microprocessors and other time management applications. Their low power consumption makes these crystals ideal for portable equipment.

Request a Sample

ECS INC INTERNATIONAL®

ECS-.327-12.5-8X-C

- Cost Effective
- Tight Tolerance
- Long Term Stability
- Excellent Resistance and Environmental Characteristics
- Pb Free/RoHS Compliant

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS		ECS-.327-12.5-8X-C	UNITS
Frequency	F_O	32.768	KHz
Frequency Tolerance	Δf/fo	±10	ppm
Load Capacitance	C_L	12.5	pF
Drive Level (max)	D_L	1	µW
Resistance At Series Resonance	R_1	35(max)	KΩ
Q-Factor	Q	90,000(typ.)	
Turnover Temperature	T_M	+25 ±5	°C
Temperature Coefficient	ß	-0.040ppm/°C² max.	PPM/ΔC°
Shunt Capacitance	C_O	1.60 (typ.)	pF
Capacitance Ratio		460 (typ.)	
Operating Temp	Topr	-10 ~ +60	°C
Storage Temperature	Tstg	-40 ~ +85	°C
Shock Resistance		Drop 3 times on hard wooden board from height of 75cm / ±5 ppm max.	PPM
Insulation Resistance	IR	500 MΩ min./DC100V	MΩ
Aging (First Year)	Δf/fo	±3 ppm max. @ +25°C ±3°C	ppm
Motional Capacitance	C_1	0.0035(typ.)	pF

DIMENSIONS (mm)

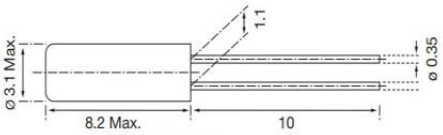
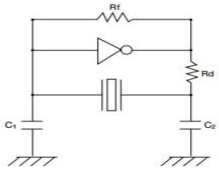


Figure 1) ECS-3X8X

RECOMMENDED OSCILLATION CIRCUIT

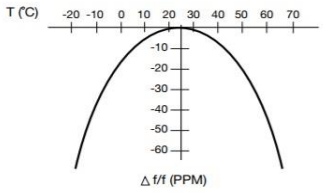


ELECTRICAL CHARACTERISTICS

IC: TC 4069P
Rf: 10MΩ
Rd: 330KΩ (As required)
C_1 = 22pF, C_2 = 22pF
V_{DD} = 3.0V

In this circuit, low drive level with a maximum of 1µW is recommended. If excessive drive is applied, irregular oscillation or quartz element fractures may occur.

PARABOLIC TEMPERATURE CURVE



To determine frequency stability, use parabolic curvature. For example: What is the stability at 45°C?

1) Change in T (°C) = 45 -25 = 20°C
2) Change in frequency = -0.04 PPM x (ΔT)² = -0.04 PPM x (20)² = -16.0 PPM

PART NUMBERING GUIDE:

Manufacturer		Frequency		Load Capacitance		Package Type*		**Tolerance Spec.
ECS	-	.327	-	12.5	-	8X	-	C

* Package type example (8X = 3x8X)
** C = ±10 ppm

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