

# 780HX-4 Series

## 7.0 x 5.0mm Hybrid SMD Crystal



RoHS & REACH compliant  
Wide frequency range from 8MHz  
Excellent stability range



Parameters	Specification	Remarks
Frequency range	F_nom 8.0MHz ~ 48.0MHz	
Frequency tolerance	F_tol ±20.0ppm ~ ±50.0ppm	
Frequency stability over operating temperature range	F_stb ±20.0ppm ~ ±100.0ppm	Table 2
Operating temperature range	T_use 0°C ~ +60°C to -40°C ~ +85°C	Table 2
Storage temperature	T_stg -40°C ~ +85°C	
Load capacitance	CL 8.0pF ~ 30.0pF	
Equivalent series resistance	ESR Table 1	
Shunt capacitance	C0 7.0pF max	
Drive level	DL 200µW max	
Frequency aging	F_age ±5.0ppm / year max	
Moisture sensitivity level	MSL 1 (unlimited)	
Electrostatic discharge	ESD Not applicable	
Insulation resistance	IR 500MΩ min	At 100V DC

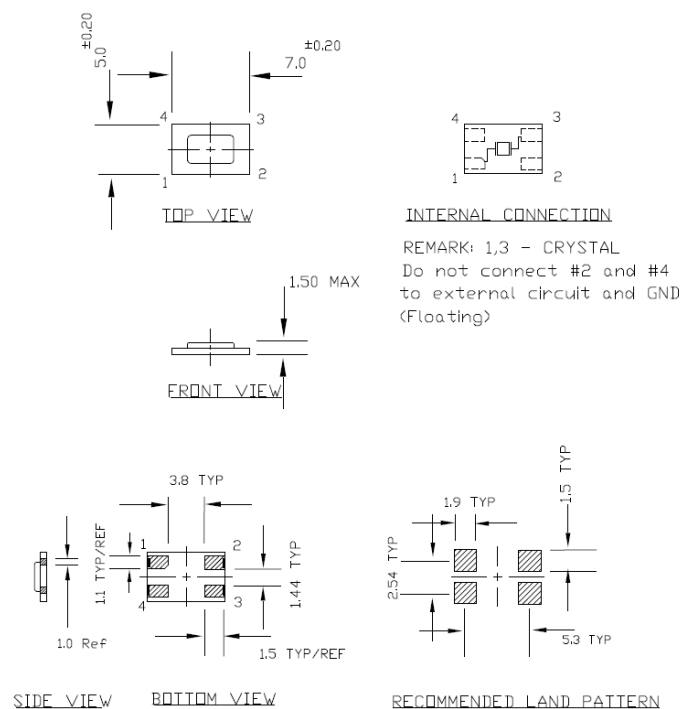
Table 1. Frequency range (MHz) vs ESR

8.0MHz ~ 8.999MHz (Fundamental)	100Ω
9.0MHz ~ 9.999MHz (Fundamental)	60Ω
10.0MHz ~ 10.999MHz (Fundamental)	50Ω
11.0MHz ~ 12.999MHz (Fundamental)	40Ω
13.0MHz ~ 48.000MHz (Fundamental)	30Ω

Table 2. Frequency Stability vs Temperature

Temp. (°C)	Stability in ppm			
	±20	±30	±50	±100
-10°C ~ 60°C	✓	✓	✓	✓
-10°C ~ 70°C	✓	✓	✓	✓
-20°C ~ 70°C	✓	✓	✓	✓
-30°C ~ 70°C	X	✓	✓	✓
-20°C ~ 85°C	X	✓	✓	✓
-30°C ~ 85°C	X	✓	✓	✓
-40°C ~ 85°C	X	✓	✓	✓

Dimensions (mm)



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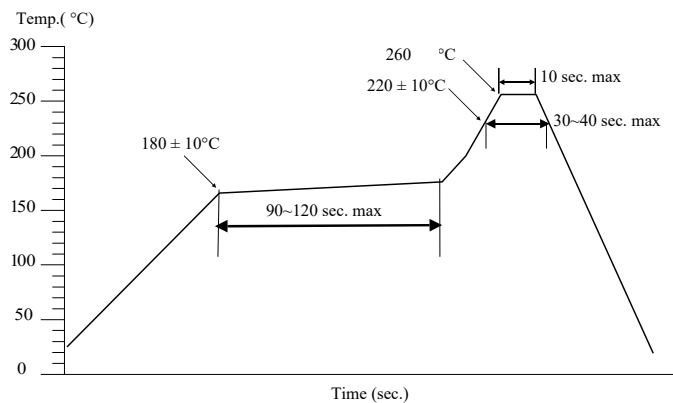
7.0 x 5.0mm Crystal unit



Part number generation								
EHX	2700	G	K	L	GO	F	L	-PF
ACT Series Code	Frequency (MHz)	Frequency Tolerance ( $\pm$ ppm)	Frequency stability over temperature range ( $\pm$ ppm)	Operating Temperature Range ( $^{\circ}$ C)	Load capacitance (CL -pF)	Frequency mode	Packaging (Tape & Reel)	RoHS
EHX	8MHz = 0800 27MHz = 2700  Note: Use the first 4 characters of the frequency in Hz i.e. 27MHz =27000000Hz  If the frequency is 100MHz or higher then the first 5 characters are used	$\pm$ 20 = G $\pm$ 25 = H $\pm$ 30 = I $\pm$ 50 = L $\pm$ 100 = N	$\pm$ 20 = I $\pm$ 30 = K $\pm$ 50 = O $\pm$ 100 = V	0 ~ +60 = B -10 ~ +60 = E -10 ~ +70 = F -20 ~ +70 = G -30 ~ +65 = W -30 ~ +70 = T -20 ~ +85 = H -30 ~ +85 = L -40 ~ +85 = M	8 = GO 9 = JO 10 = KO 12 = OO 13 = YO 14 = ZO 16 = RO 18 = TO 20 = VO 22 = WO 30 = DA	Fundamental = F  3 <sup>rd</sup> Overtone = A	Loose = L 1000pcs = C	RoHS = -pF

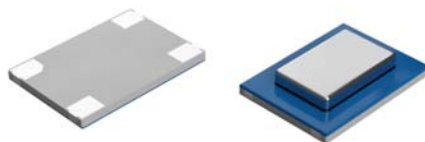
Note: It is important to suffix the above part number with full frequency required to give a completed part number as illustrated below.  
Full Example Part Number : EHX0800GKLGOF-L-PF [8.000MHz], EHX2700GKLGOF-L-PF [27.000MHz], EHL2457GKLGOF-L-PF [24.576MHz]

### Solder Reflow Profile



### Additional information

Hybrid Crystal Unit (7 x 5 mm):



-ACT hybrid crystal series is an alternative to traditional 7 x 5mm seam sealing crystal. The hybrid crystal has 7x5mm base with 5.0x3.2mm crystal unit construction. The main difference of Hybrid ceramic package series and traditional ceramic package series is that hybrid package uses resin sealing (vacuum sealing), while original ceramic package uses seam-welding. ACT 7x5mm hybrid crystal series land pattern is fully compatible with original ceramic package crystal.

Hybrid Crystals are not recommended to use in safety critical and high reliability application such as aircraft equipment, aerospace equipment, automotive equipment, marine equipment medical equipment, undersea equipment and other application has similar reliability requirements.

Drawing control: (Internal use only)  
Commodity code: 854160 00 00  
Issue number: N1  
Date: 26/05/2021  
Internal reference: H3

ACT (A wholly owned Acal BFi Company)  
+44 (0) 118 978 8878 | sales@act.co.uk | www.act.co.uk

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