FREQUENCY

TEMEXPRESS

RoHS
2002/95/EC

QEN08

SMD 2.5x2.0 XO – Communications Equipment Application

Specification (Rev-C)

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Electrical Characteristics

Electrical Parameters		Unit	Minimum	Typical	Maximum	Test conditions
Frequency range		MHz	1		54	
Output logic		HCMOS / TTL Output				
Operating temperature range (see table 1)		°C		-10 to +70	-40 to +85	Refer to Ordering Information
Storage temperature range		°C	-55		+125	
Power supply voltage (V_{CC})		V	3.3V±10% / 2.8V±10% / 1.8V±10% / 1.5V±10%			Refer to Ordering Information
Frequency Stability (see note 1)		± ppm	±25	±50	±100	Refer to Ordering Information
Aging (First Year)		± ppm			2	Ref at 25°C
Input current		mA	See table 2			
Output	**low level V_{OL}**	V			10% V_{CC}	
	High level V_{OH}	V	90% V_{CC}			
Output load		pF			15	
Duty cycle (see note 2)		%		40/60		Refer to Ordering Information
Rise & Fall time		ns			7	From 10% Vcc to 90% Vcc
Start-up time		ms			10	

Note 1: Include 25°C tolerance, operating temperature range, input voltage change, load change, first year aging, shock and vibration.

Note 2: Duty cycle 45/55% is available on option.

Table 1 : Stability Codes

	± 25ppm	± 50ppm	± 100ppm
-10 to +70°C	C	B	A
- 40 to +85°C	G	F	D

Table 2 : Input Current

Frequency range (MHz)	Vcc=3.3V Cl=15pF	Vcc=2.8V Cl=15pF	Vcc=1.8V Cl=15pF	Vcc=1.5V Cl=15pF
1.000 to 9.999	8 mA	7mA	6mA	5mA
10.00 to 34.999	10mA	8mA	7mA	6mA
35.00 to 49.999	25mA	20mA	15mA	15mA
50.00 to 54.000	35mA	30mA	25mA	25mA

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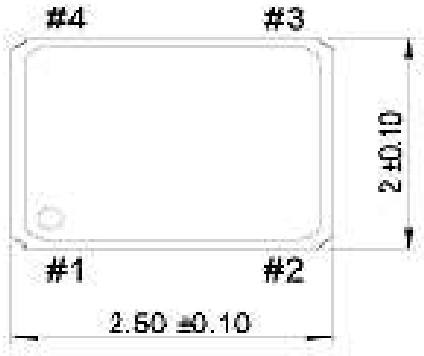
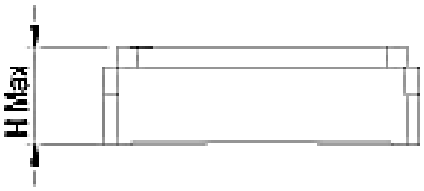
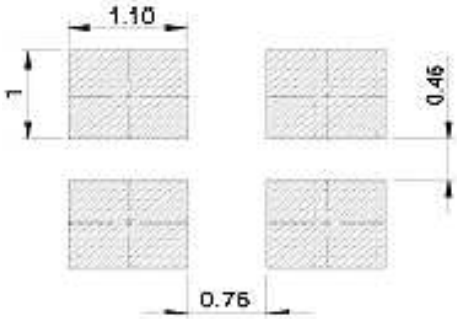
Mechanical Characteristics

TOP VIEW



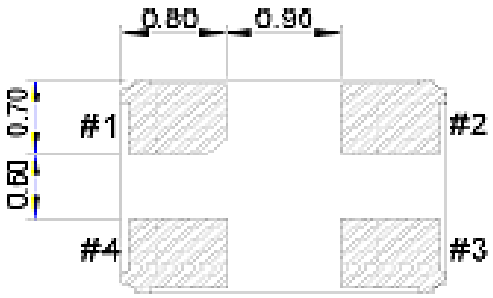


SUGGESTED PAD



Hmax = 0.9 mm

BOTTOM VIEW



Pin connections	
#1	Tri state
#2	Ground
#3	Output
#4	+Vcc

Tri state function	
Pin #1	Output (Pin #3)
Open	Active
"1"	Active
"0"	High Z

Note: 0.01µF bypass capacitor should be placed between Vcc (Pin 4) and GND (Pin 2) to minimize power supply line noise.

Marking	
Line 1	Rakon code : 1xxxxx
Line 2	Date code : YYWW – Manuf code

Example for QEN08FDAR / 25.000 MHz

- ⇨ Line 1 : 104154 (Rakon code)
- ⇨ Line 2 : 1346-G

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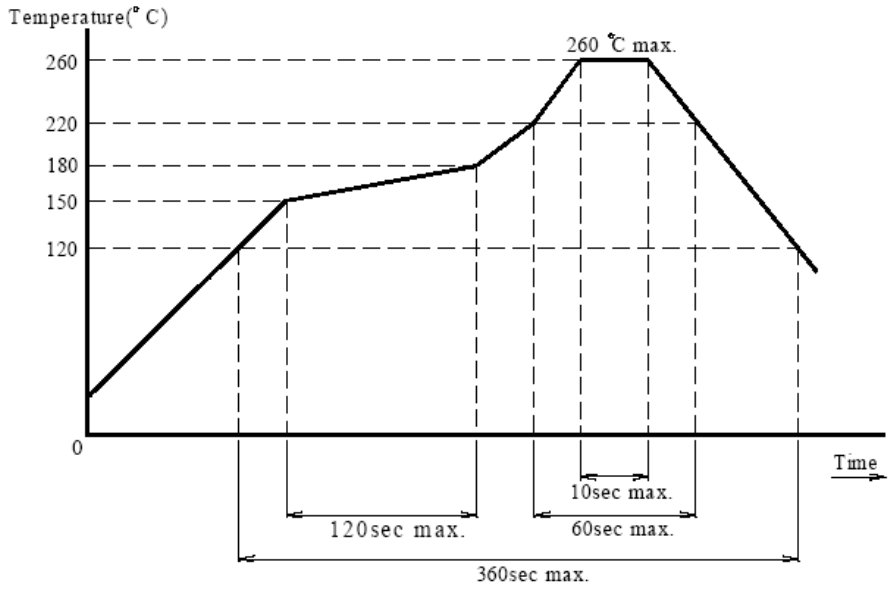
Ordering Information

Part numbering system					
QEN08	B	D	A	R	50.000MHZ
↓	↓	↓	↓	↓	↓
Package type	**Temperature Stability**	**Supply Voltage**	**Output**	**Output Symmetry Option**	**Nominal Frequency (MHz)**
SMD Package **QEN08 :** SMD 2.5x2.0	**A** : ± 100ppm vs -10 to +70°C **B** : ± 50ppm vs -10 to +70°C **C** : ± 25ppm vs -10 to +70°C **D** : ± 100ppm vs -40 to +85°C **F** : ± 50ppm vs -40 to +85°C **G** : ± 25ppm vs -40 to +85°C	**D** : +3.3V **M** : +2.8V **N** : +1.8V **P** : +1.5V	**A** : HCMOS 15pF	**Blank** : 40/60% **R** : 45/55%	Please enter the nominal frequency

Suggested Reflow Soldering Profile



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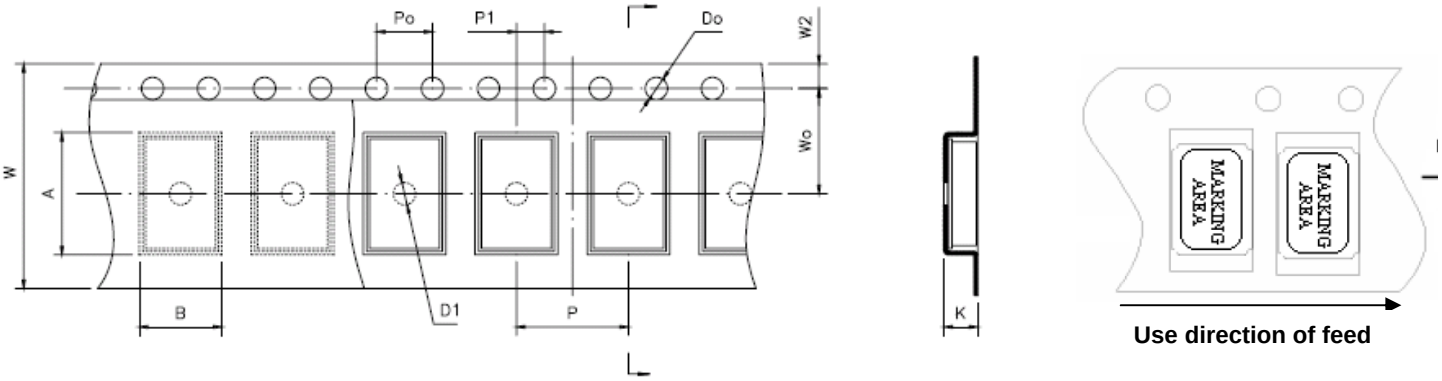
Tape Drawing

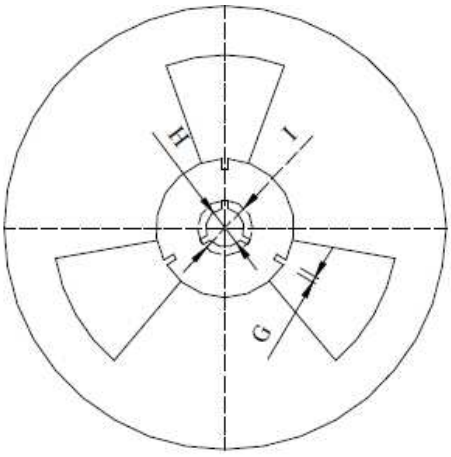


Item	Code	Dimension	Tolerance
Pitch of components	P	4.0	± 0.1
Pitch of sprocket hole	Po	4.0	± 0.1
Width of carrier tape	W	8.0	± 0.3
Width of adhesive tape	W0	1.75	± 0.1
Height of component hole	A	2.75	± 0.1
Length of component hole	B	2.25	± 0.1
Diameter of sprocket hole	Do	∅ 1.5	± 0.1
Total of tape thickness	K	1.0	± 0.1

Reel Drawing

Multiple: 3Kpcs per Reel

Unit: mm



Code	Dimension	Tolerance
G	2.5	± 0.1
H	∅ 13.5	± 0.1
I	∅ 21.6	± 0.1
J	60	± 0.1
K	178	± 0.1
L	9.5	± 0.1
M	1.6	± 0.1