

**EPSON**<sup>®</sup>  
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EPSON ELECTRONICS AMERICA

# TIMING DEVICES

## Product Configuration Guide



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Epson's standard product offering is compliant with EU RoHS directive.

Please refer to the 2016 Crystal Master (pp. 143 ~ 145) for a complete list of products that are RoHS compliant (with Pb exemption) and/or Pb Free and its associated terminal materials.

# Product Configuration Guide

## CRYSTALS



- 32.768kHz Crystals
- Standard kHz Crystals
- MHz Crystals



**EPSON**

February 2017

**NOTE: Use this updated PCS for all NEW crystal part numbers from May 2016**

# NEW CRYSTAL TIMING DEVICES Product Configuration Guide

**EPSON**

February 2017

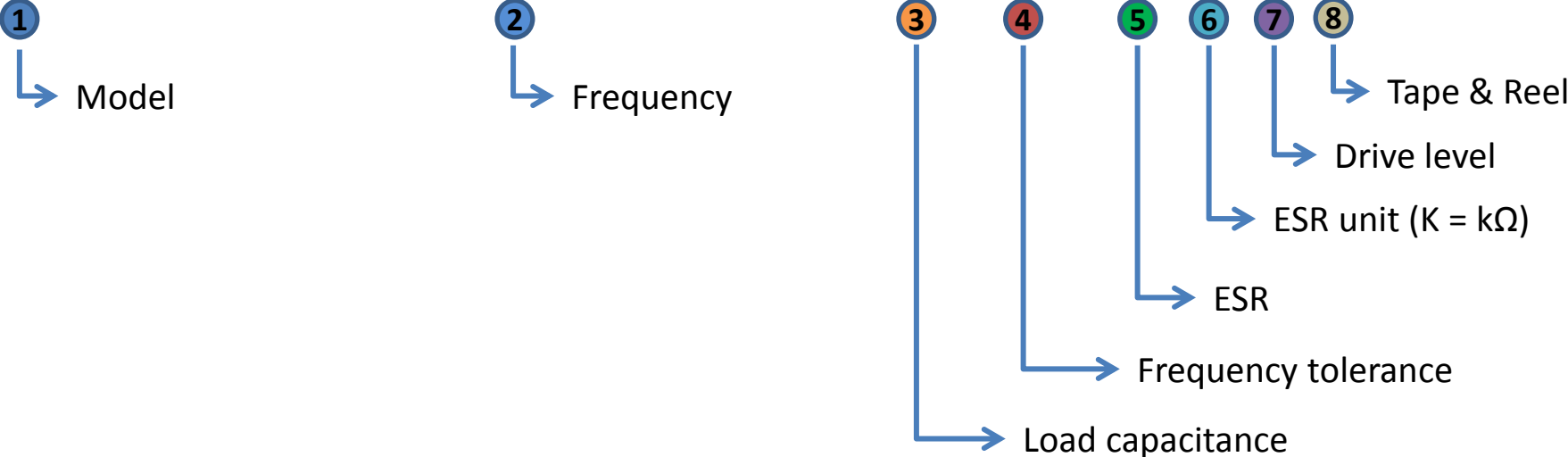


# Product Configuration System

## 32.768 kHz Crystal Unit

**FCXXXXXX**

**32.768K - 90NN50KD5**



1	2	3	4	5	6	7	8
Model	Frequency	Load Cap	Frequency Tolerance	ESR	ESR Unit	Drive level	Tape & Reel
FCXXXXXX	32.768kHz	C5 = 12.5 pF 90 = 9.0 pF 70 = 7.0 pF	NN = +/-20 ppm AA = +/- 10 ppm	A5 = 150 kΩ 90 = 90 kΩ 70 = 70 kΩ 50 = 50 kΩ	K = kΩ	A = 0.1 μW B = .25 μW C = 0.5 μW D = 1.0 μW	B = Bulk 3 = 250pcs/reel 0 = 1000pcs/reel 5 = 3000pcs/reel



February 2017

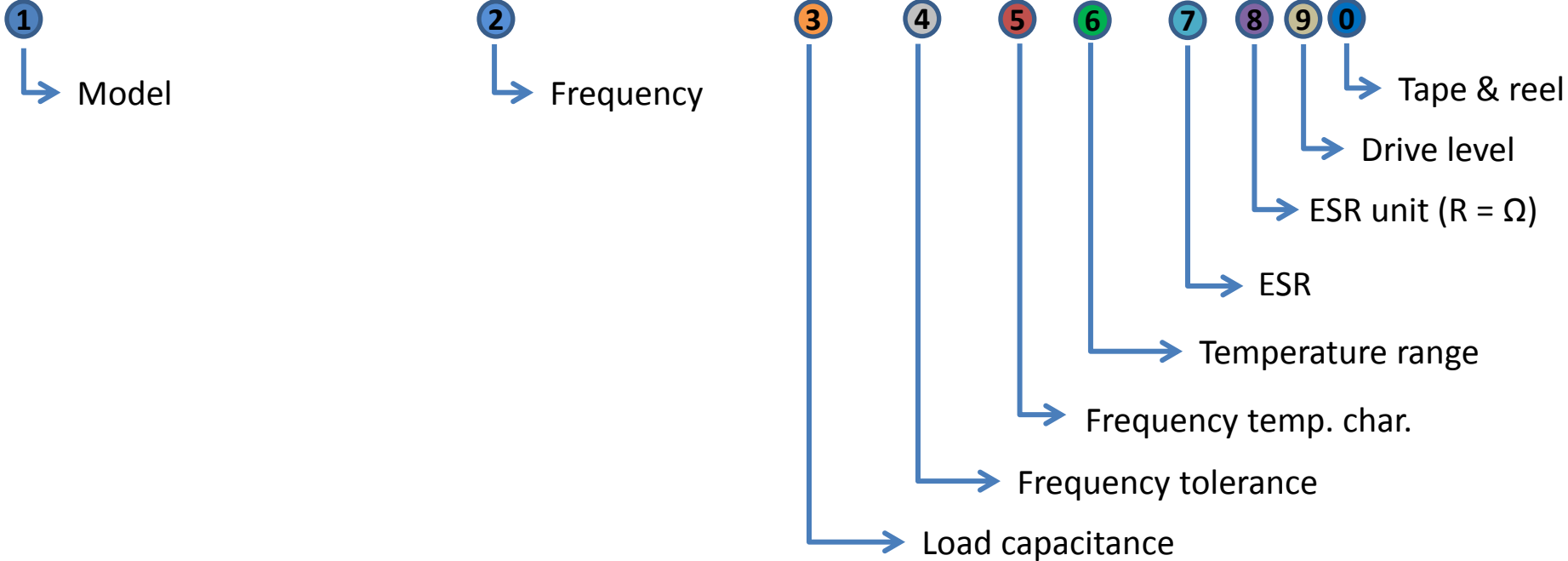
**NOTES:**  
 The values listed above are common/standard values for kHz crystals; some combinations are not possible depending the specific model. Please contact you EEA representative for assistance to verify the part configuration or inquire about a certain value that is not listed above.

# Product Configuration System



## MHz Range Crystal Units

**FAXXXXXX 38.40M – 60NNYYBA0RE5**



1	3	4	5	6	7	8	9	0
<b>Model</b> FAXXXXXX	<b>Load cap</b> J0 = 18 pF C5 = 12.5 pF A0 = 10 pF 90 = 9.0 pF 70 = 7.0 pF	<b>Frequency tolerance</b> bb = +/-50 ppm NN = +/-20 ppm FF = +/-15 ppm AA = +/- 10 ppm	<b>Freq. temp. char.</b> bb = +/-50 ppm NN = +/-20 ppm FF = +/-15 ppm AA = +/- 10 ppm	<b>Temp. range</b> U = -20 to +75C N = -30 to +85C G = -40 to +85C H = -40 to 105C	<b>ESR = Ω</b> B0 = 200 Ω A0 = 100 Ω 80 = 80 Ω 60 = 60 Ω	<b>Drive level</b> E = 100 μW G = 200 μW	<b>Tape &amp; reel</b> B = Bulk 3 = 250pcs/reel 0 = 1000pcs/reel 5 = 3000pcs/reel 8 = 6000 pcs/reel	
<b>2</b> <b>Frequency</b> 12 ~ 60 MHz								

**NOTES:** The values listed above are common/standard values for MHz crystals; some combinations are not possible depending the specific model. Please contact you EEA representative for assistance to verify the part configuration or inquire about a certain value that is not listed above.

**NOTE: This PCS applies to crystal part numbers before May 2016**

# LEGACY CRYSTAL TIMING DEVICES Product Configuration Guide

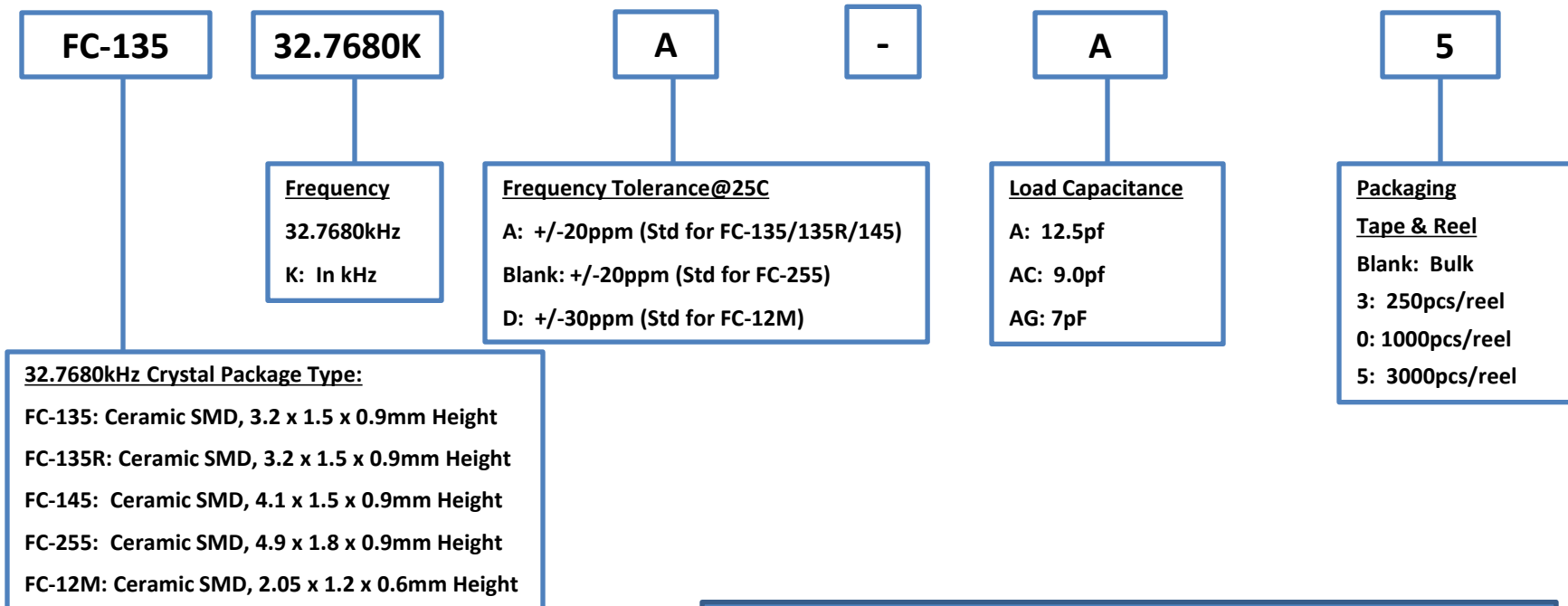
**EPSON**

February 2017

# Product Configuration System



## kHz Range Crystal Units



### NOTES:

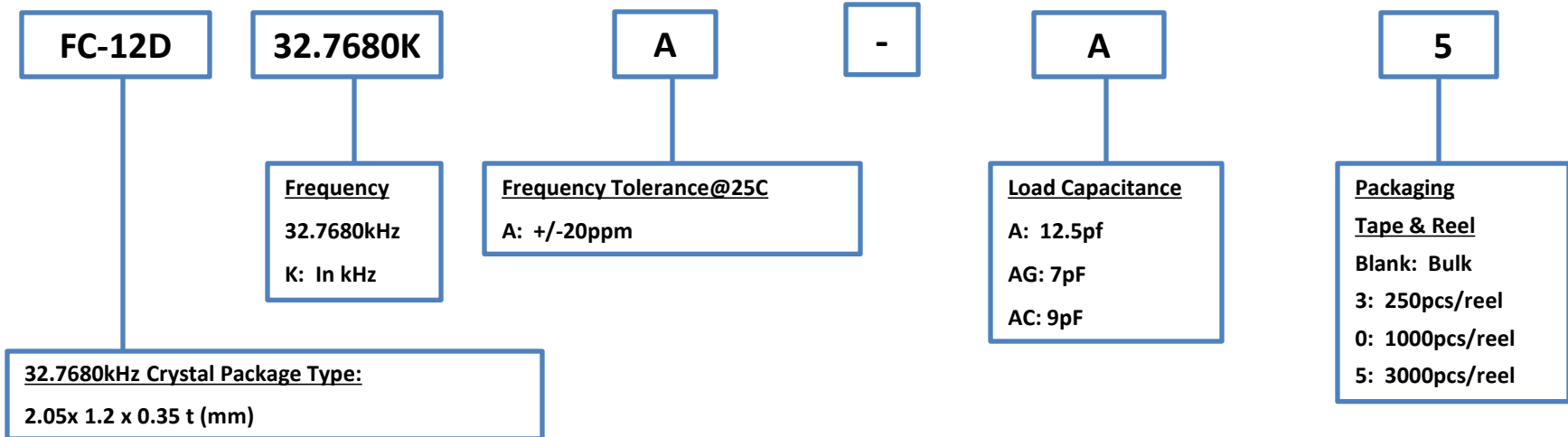
- 1) This product configuration guide is applicable only to 32.7680kHz Crystals. For other frequencies, please reference the Standard kHz Crystal Product Configuration System.
- 2) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.





# Product Configuration System

## 32.768 kHz Crystal Unit with 0.35mm height for Smart Card



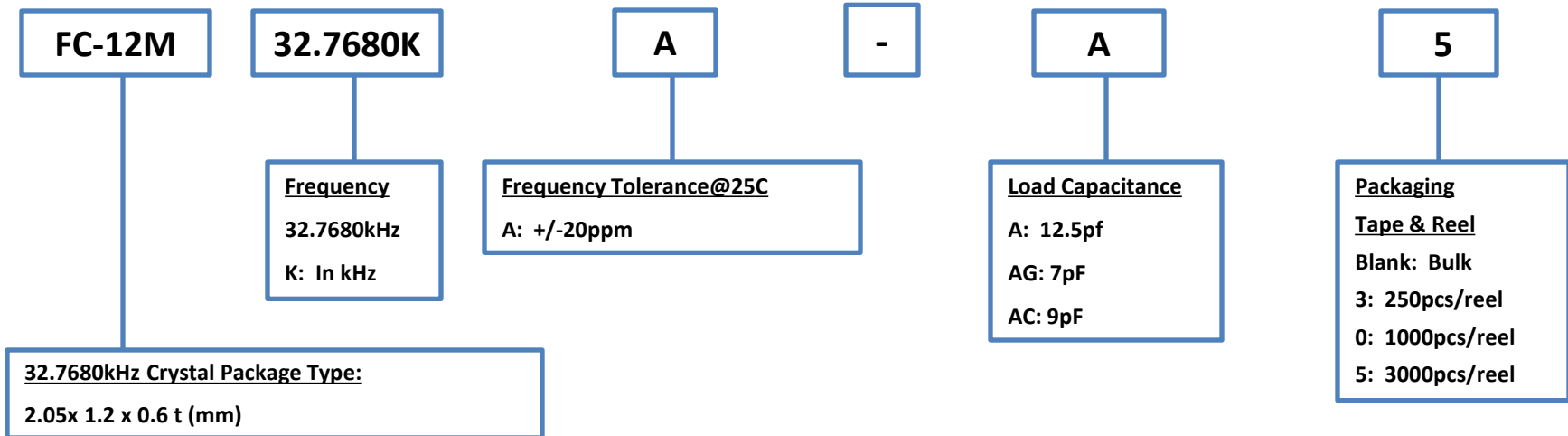
### NOTES:

- 1) If your application for this part is not a Smart Card, please contact your EEA representative for assistance.
- 2) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.



# Product Configuration System

## kHz Range Crystal Units



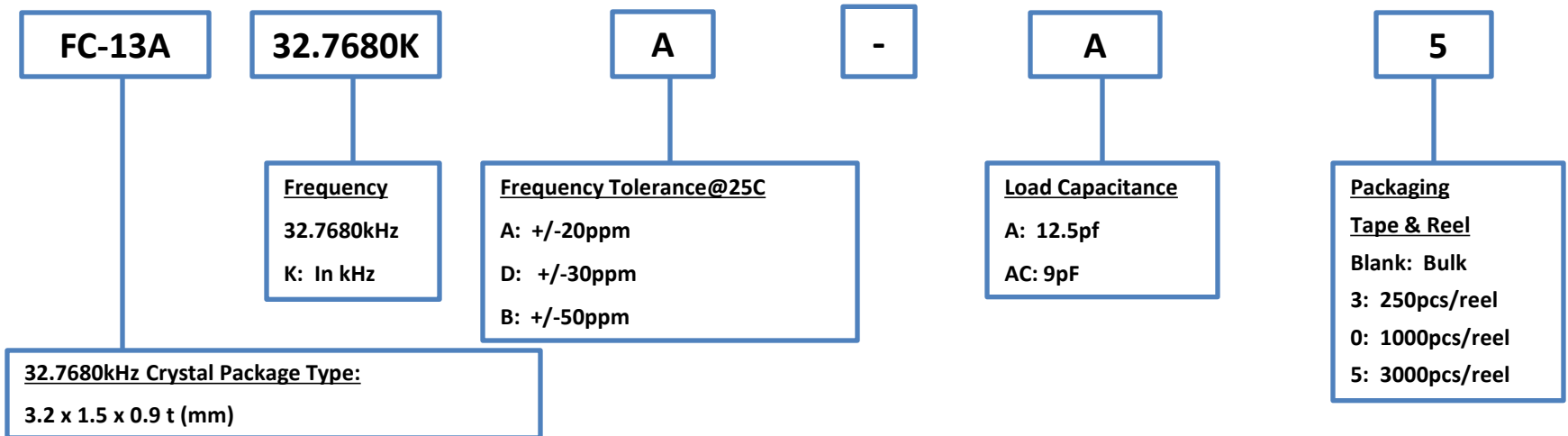
### NOTES:

- 1) If you require a frequency or tolerance other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## kHz Range Crystal Units



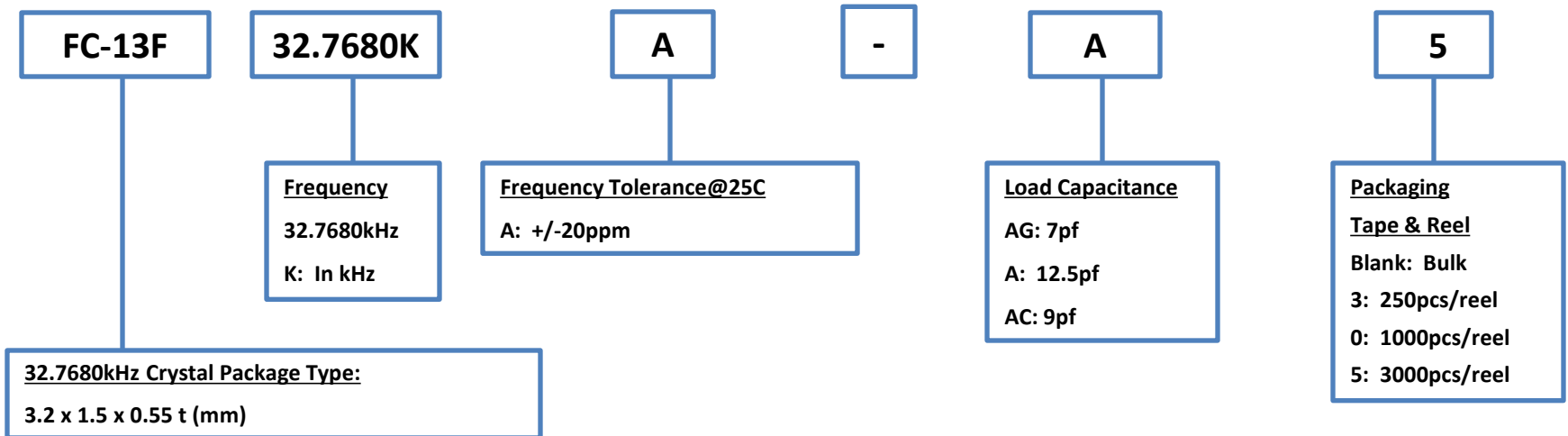
### NOTES:

- 1) This product configuration guide is applicable only to 32.7680kHz Crystals. For other frequencies, please reference the Standard kHz Crystal Product Configuration System.
- 2) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## kHz Range Crystal Units



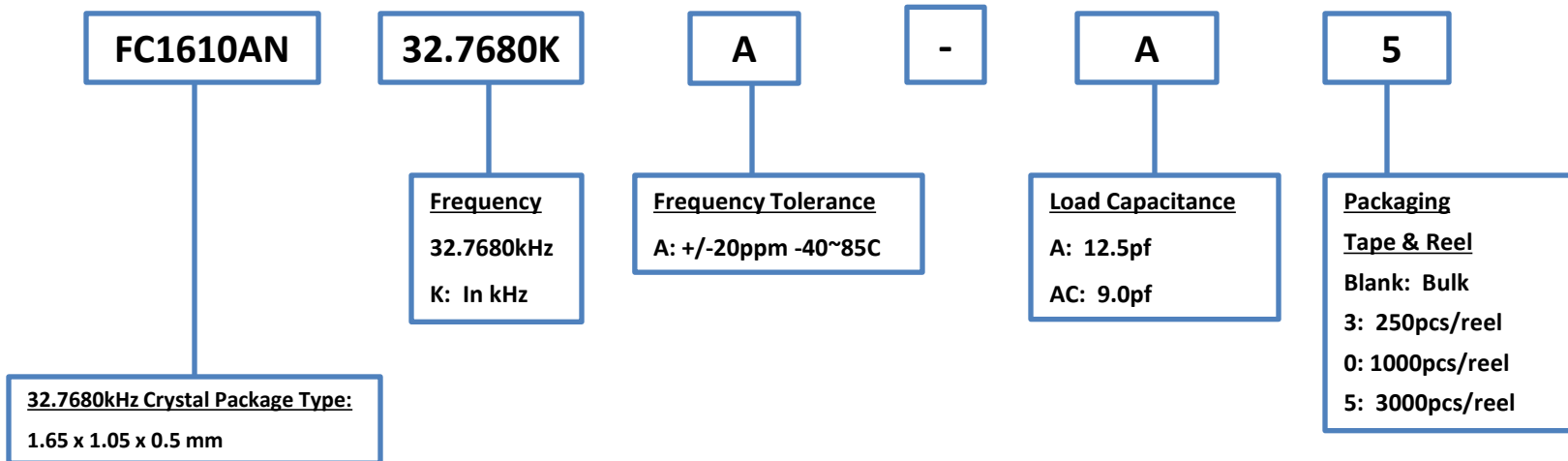
### NOTES:

- 1) If you require a frequency or tolerance other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## kHz Range Crystal Unit



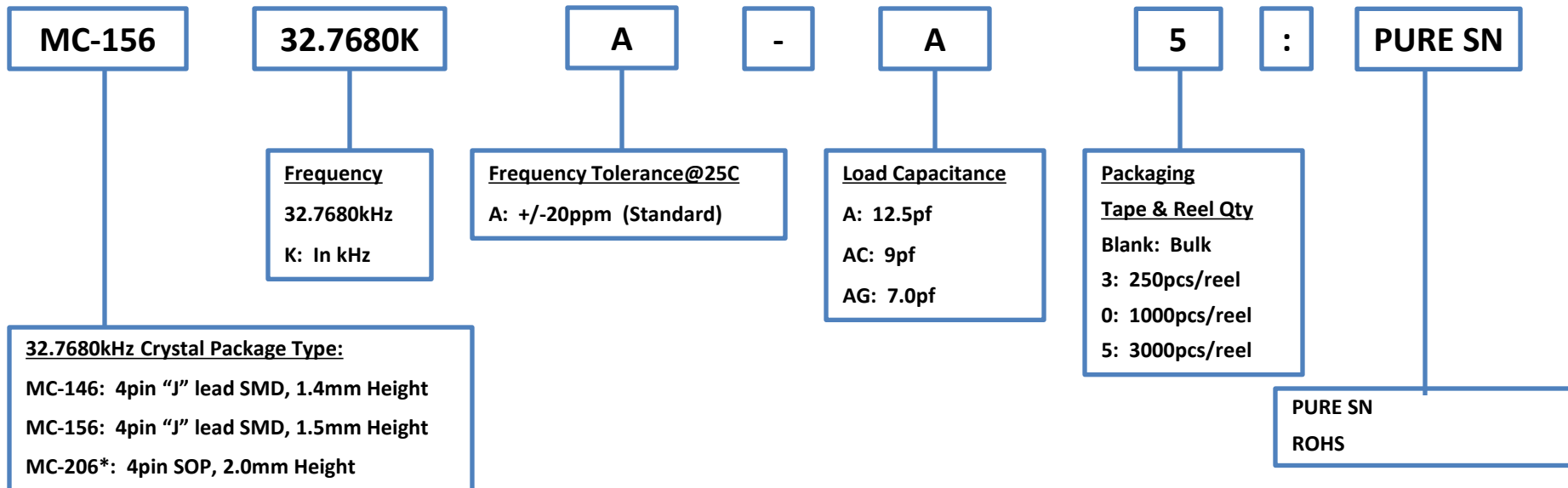
### NOTES:

- 1) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## kHz Range Crystals Units



**MC-206:**  
Not Recommended for New Designs

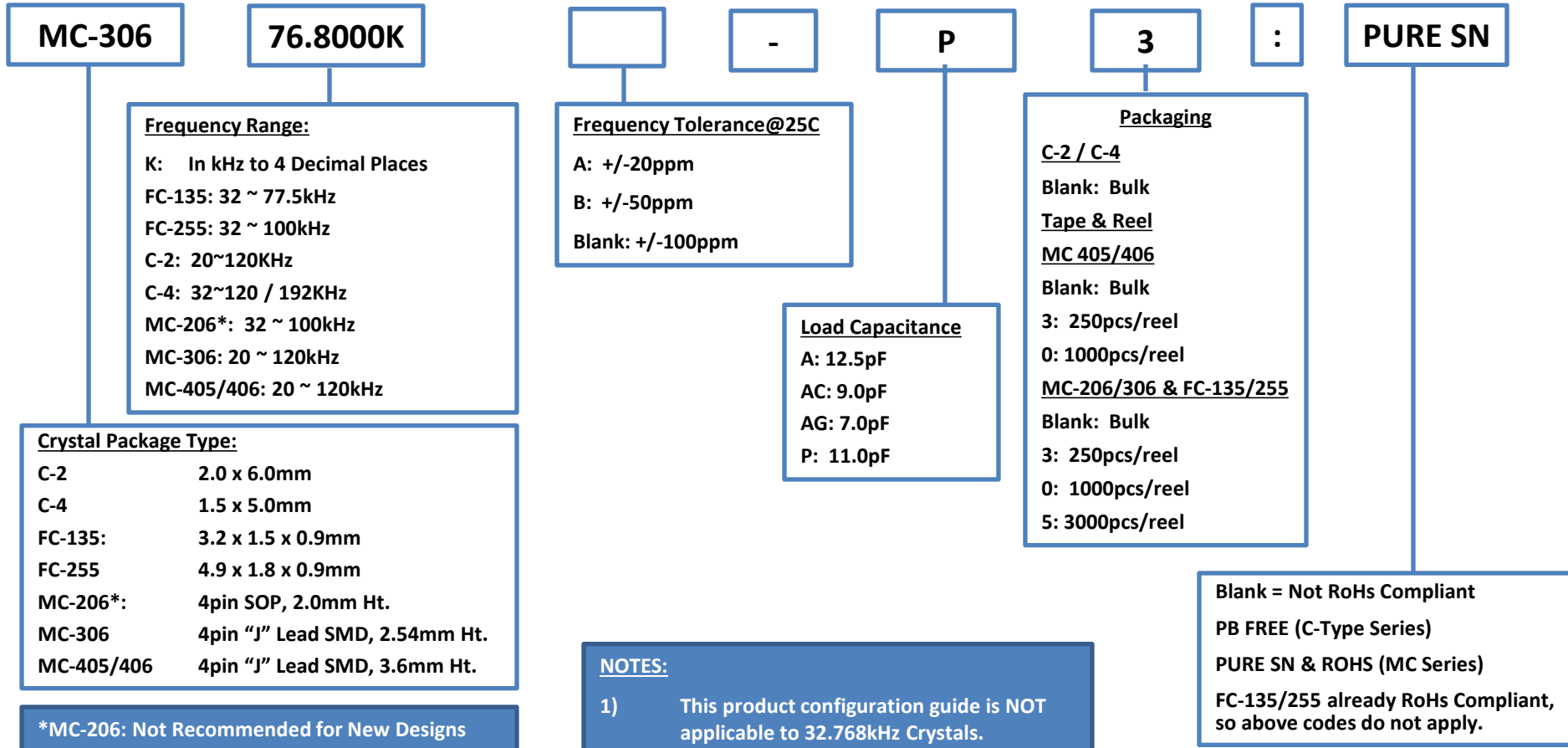
- NOTES:**
- 1) This product configuration guide is applicable only to 32.7680kHz Crystals. For other frequencies, please reference the Standard kHz Crystal Product Configuration System.
  - 2) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.





# Product Configuration System

## kHz Range Crystals Units



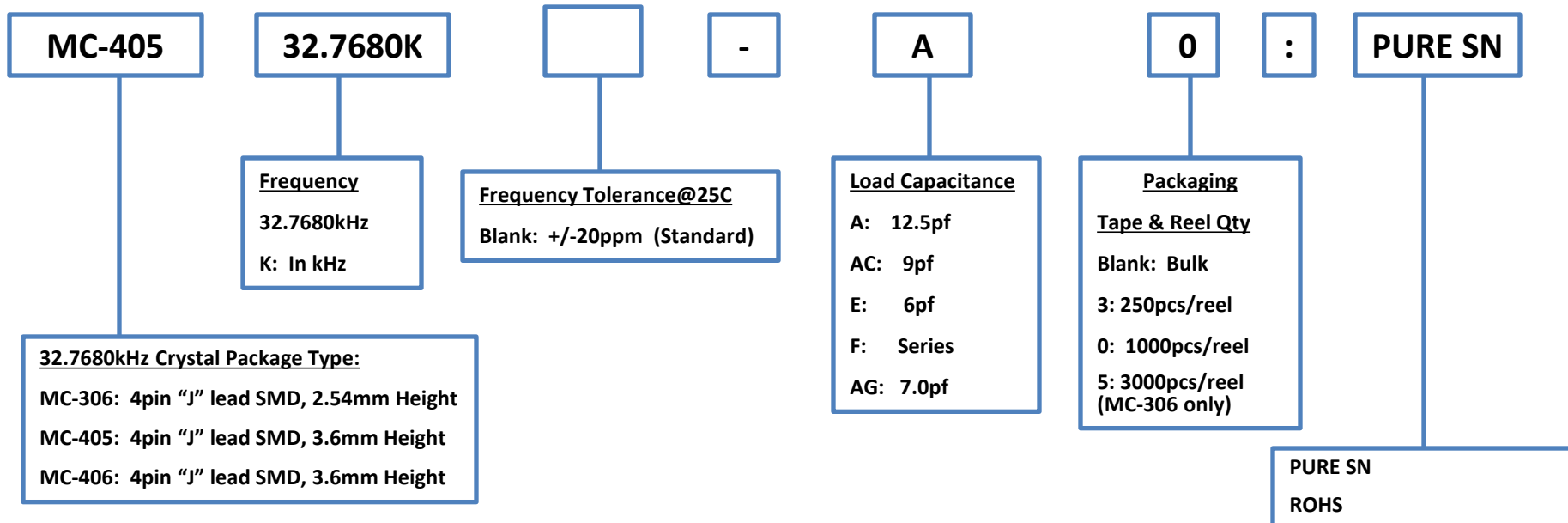
- NOTES:**
- 1) This product configuration guide is NOT applicable to 32.768kHz Crystals.
  - 2) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.



# Product Configuration System



## kHz Range Crystals Units



### NOTES:

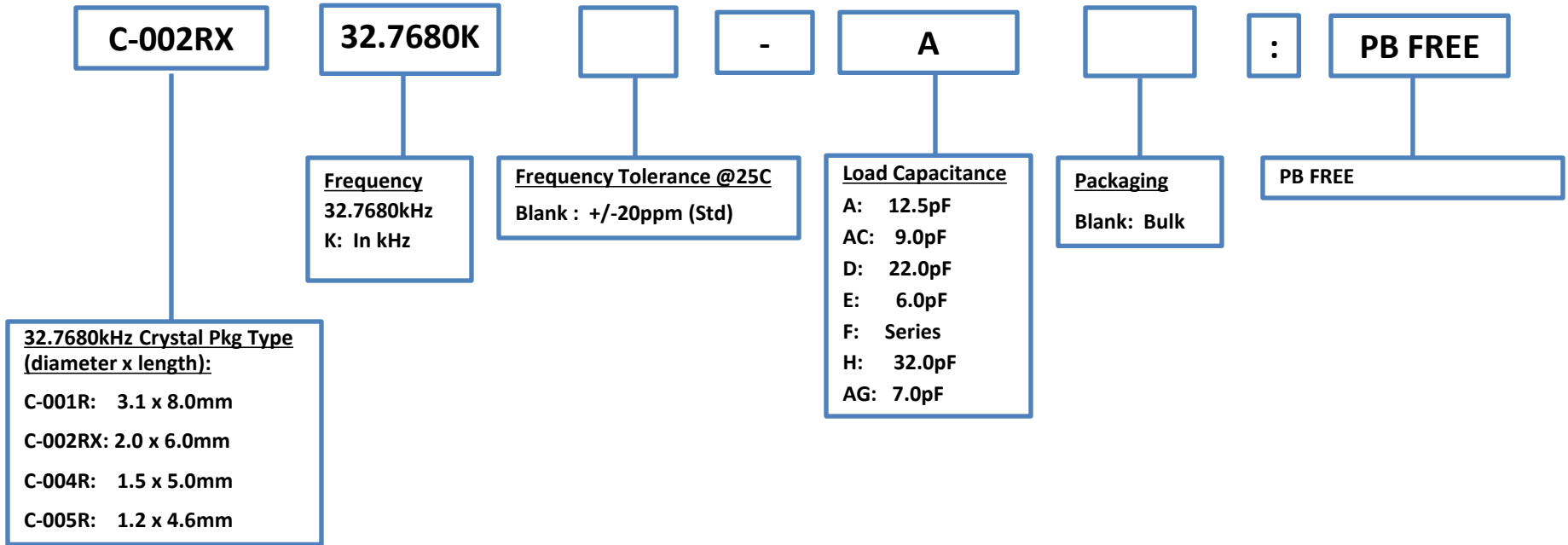
- 1) This product configuration guide is applicable only to 32.7680kHz Crystals. For other frequencies, please reference the Standard kHz Crystal Product Configuration System.
- 2) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.



# Product Configuration System



## kHz Range Crystals Units



**NOTES:**

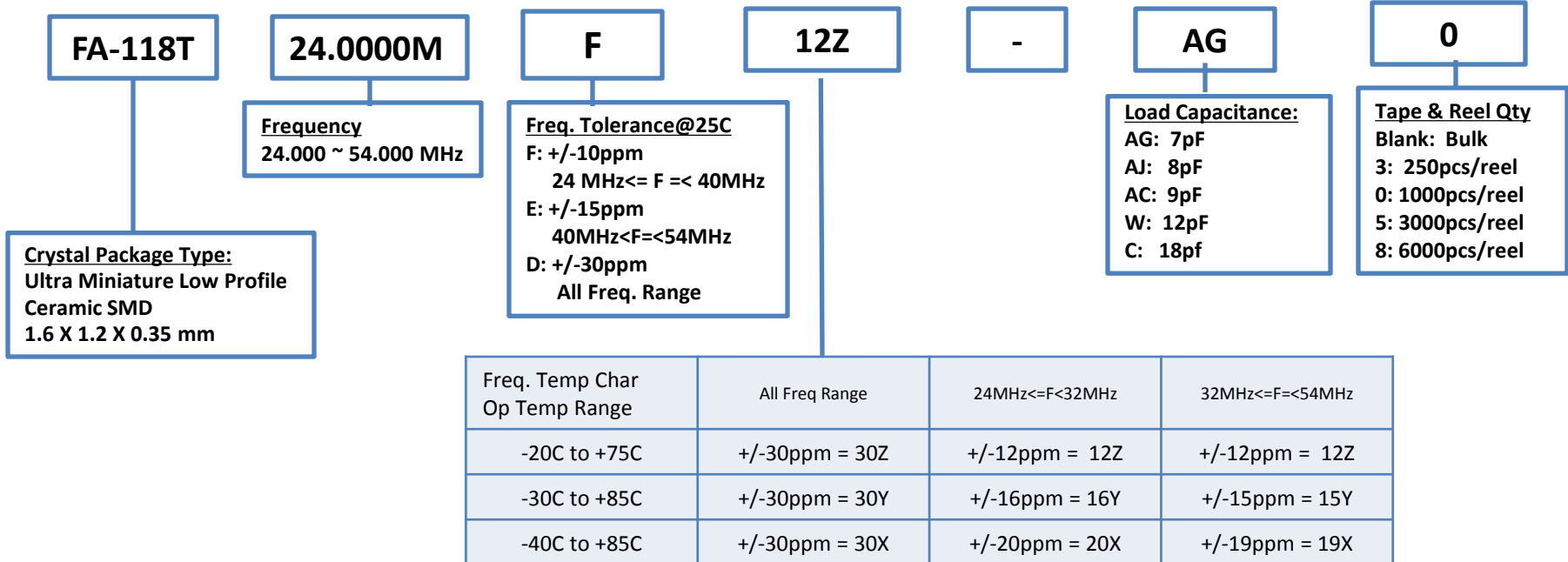
- 1) This product configuration guide is applicable only to 32.7680kHz crystals. For other frequencies, please refer to the Standard kHz Crystal Product Configuration System.
- 2) If you require a load capacitance other than the above listed, please contact your EEA representative for assistance.



# Product Configuration System



## MHz Range Crystals Units



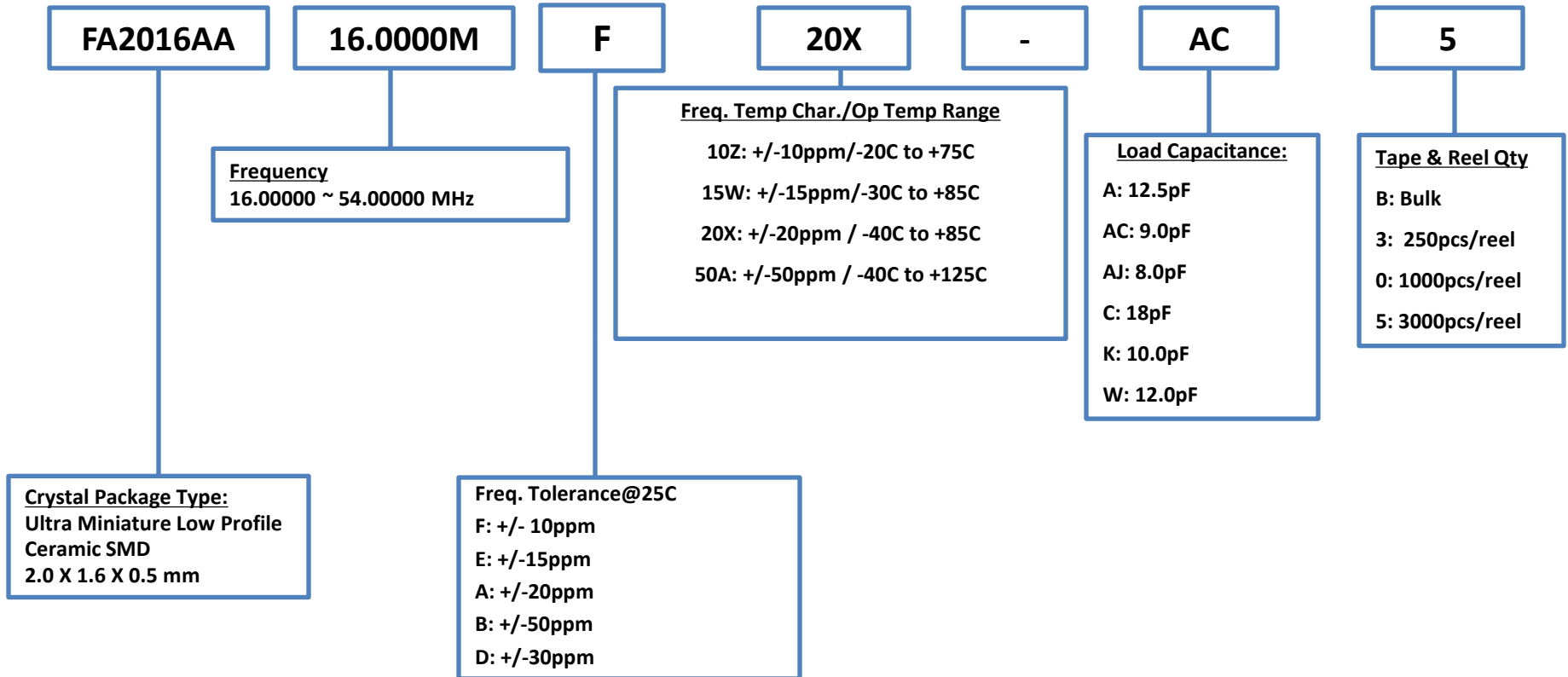
### NOTES:

- 1) If you require frequency , tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## MHz Range Crystal Units



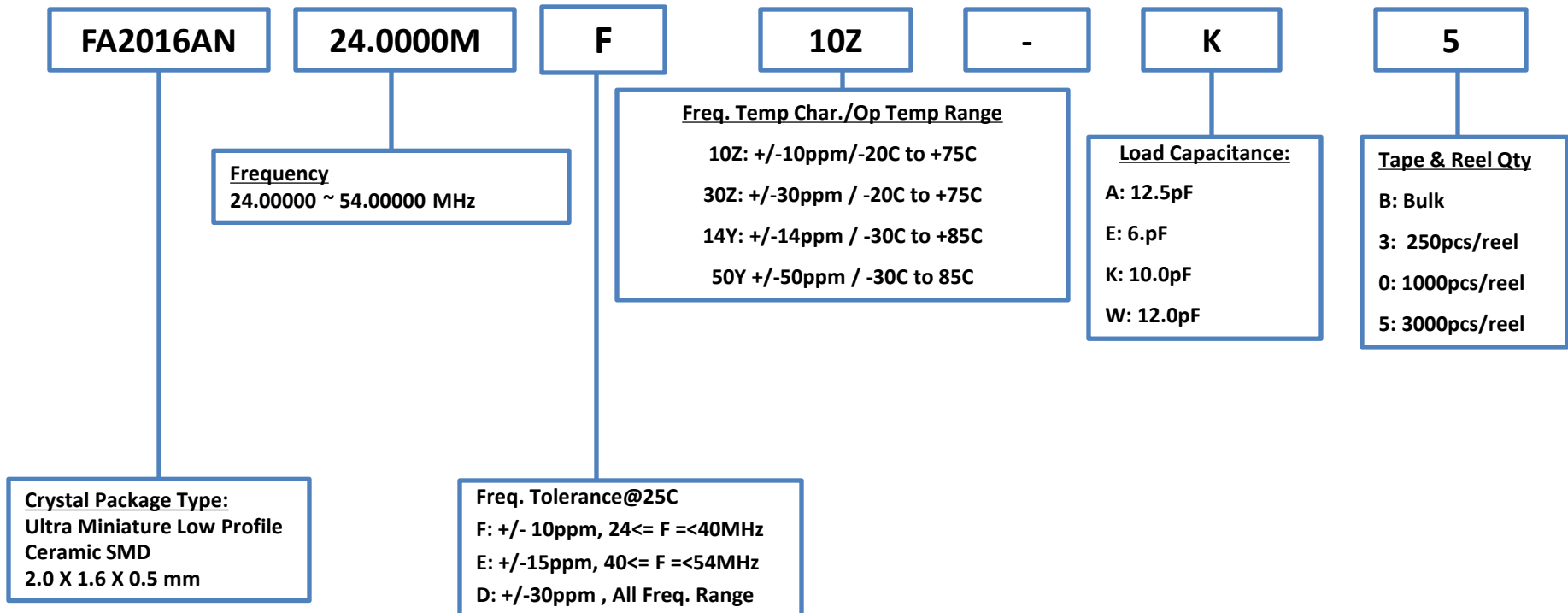
**NOTES:**

- 1) If you require frequency , tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## MHz Range Crystal Units



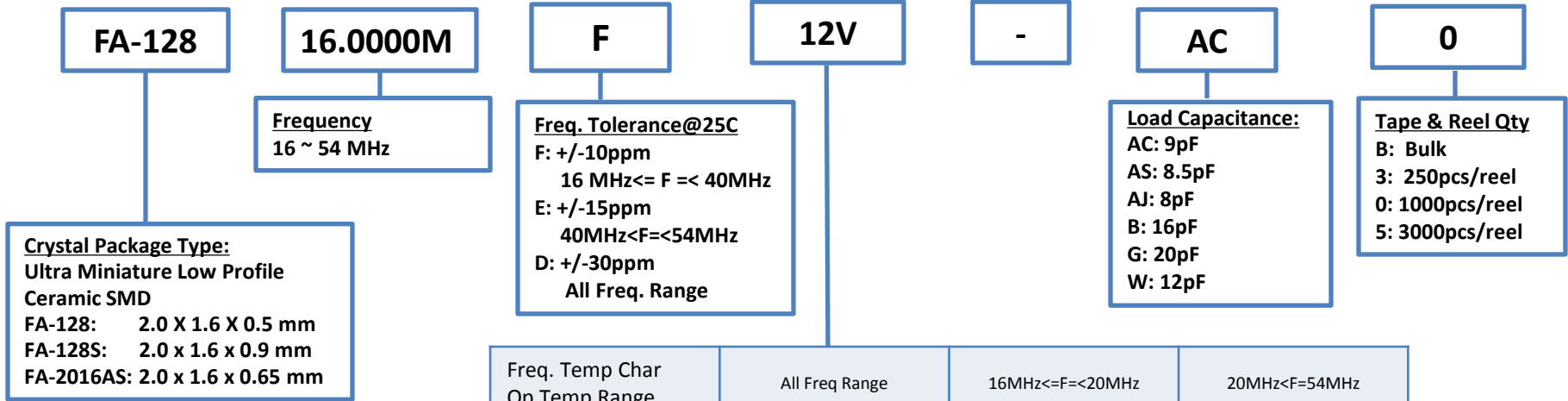
### NOTES:

- 1) If you require frequency , tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## MHz Range Crystals Units



Freq. Temp Char Op Temp Range	All Freq Range	16MHz<=F=<20MHz	20MHz<F=54MHz
-20C to +75C	+/-20ppm = 20Z	+/-12ppm = 12Z	+/-10ppm = 10Z
-20C to +80C	+/-20ppm = 20K	+/-12ppm = 12K	+/-10ppm = 10K
-20C to +85C	+/-20ppm = 20P	+/-12ppm = 12P	+/-12ppm = 12P
-30C to +70C	+/-28ppm = 28R	+/-17ppm = 17R	+/-14ppm = 14R
-30C to +75C	+/-28ppm = 28E	+/-17ppm = 17E	+/-14ppm = 14E
-30C to +80C	+30ppm = 30W	+/-17ppm = 17W	+/-14ppm = 14W
-30C to +85C	+/-30ppm = 30Y	+/-17ppm = 17Y	+/-14ppm = 14Y
-30C to +85C	+/-50ppm = 50Y	+/-17ppm = 17Y	+/-14ppm = 14Y
-40C to +85C	+/-40ppm = 40X	+/-22ppm = 22X	+/-20ppm = 20X

**NOTE: 81Z = +8/-10ppm / -20C to +75C**

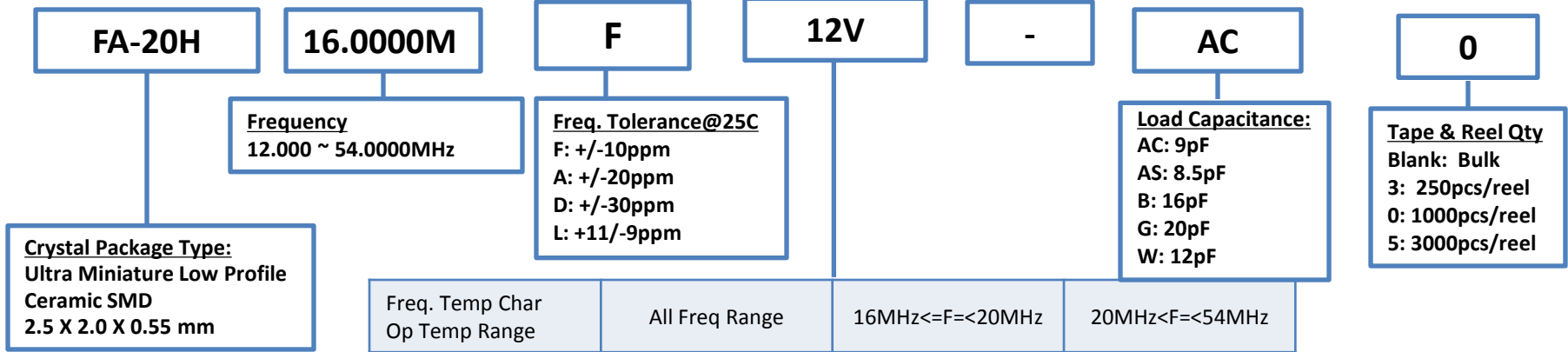


**NOTES:**  
1) If you require frequency, tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## MHz Range Crystals Units



Freq. Temp Char Op Temp Range	All Freq Range	16MHz<=F<20MHz	20MHz<F<54MHz
-20C to +70C	+/-20ppm = 20V	+/-12ppm = 12V	+/-10ppm = 10V
-20C to +70C	+/-30ppm = 30V	+/-12ppm = 12V	+/-10ppm = 10V
-20C to +75C	+/-20ppm = 20Z	+/-12ppm = 12Z	+/-10ppm = 10Z
-20C to +80C	+/-20ppm = 20K	+/-12ppm = 12K	+/-10ppm = 10K
-20C to +85C	+/-20ppm = 20P	+/-12ppm = 12P	+/-12ppm = 12P
-30C to +70C	+/-28ppm = 28R	+/-17ppm = 17R	+/-14ppm = 14R
-30C to +75C	+/-28ppm = 28E	+/-17ppm = 17E	+/-14ppm = 14E
-30C to +80C	+/-30ppm = 30W	+/-17ppm = 17W	+/-14ppm = 14W
-30C to +85C	+/-30ppm = 30Y	+/-17ppm = 17Y	+/-14ppm = 14Y
-30C to +85C	+/-50ppm = 50Y	+/-17ppm = 17Y	+/-14ppm = 14Y
-40C to +85C	+/-40ppm = 40X	+/-22ppm = 22X	+/-20ppm = 20X

**NOTE:** 81Z = +8/-10ppm / -20C to +75C

**NOTES:**

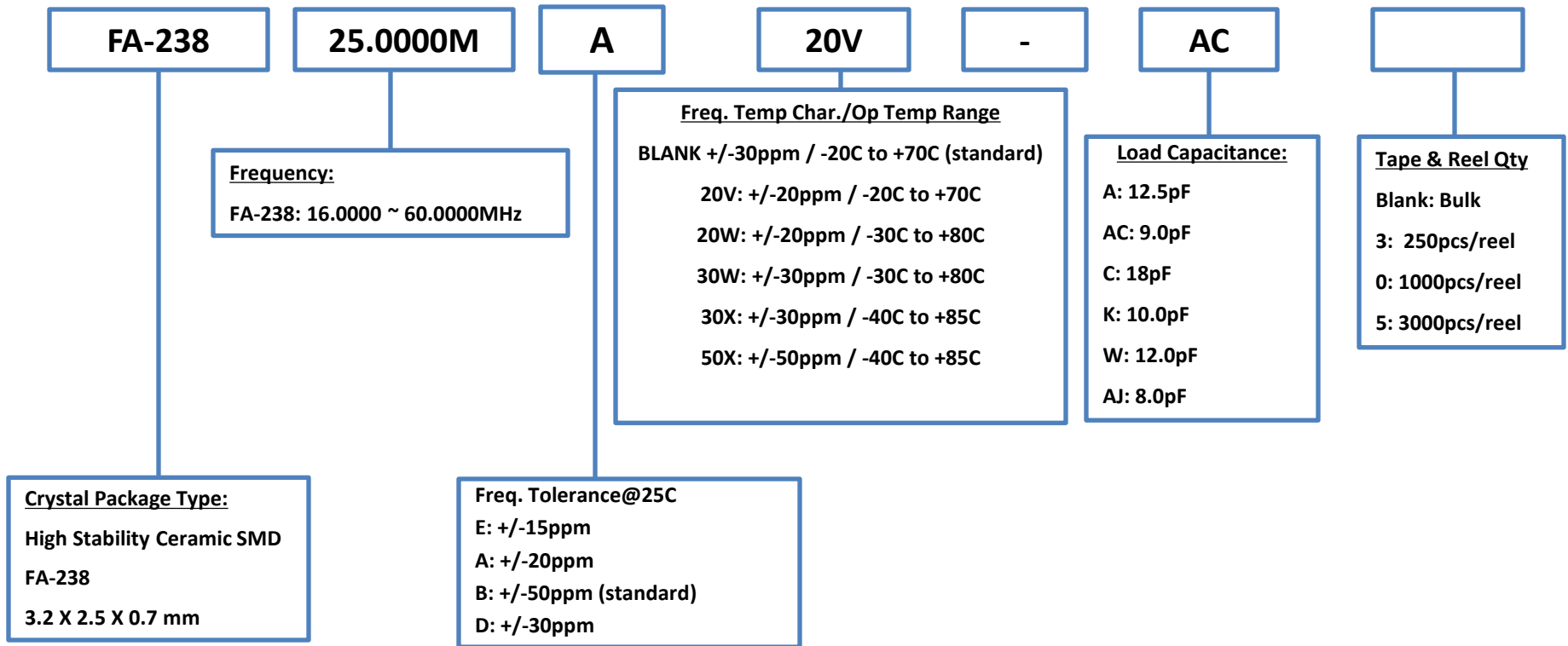
1) If you require frequency, tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.



# Product Configuration System



## MHz Range Crystal Units



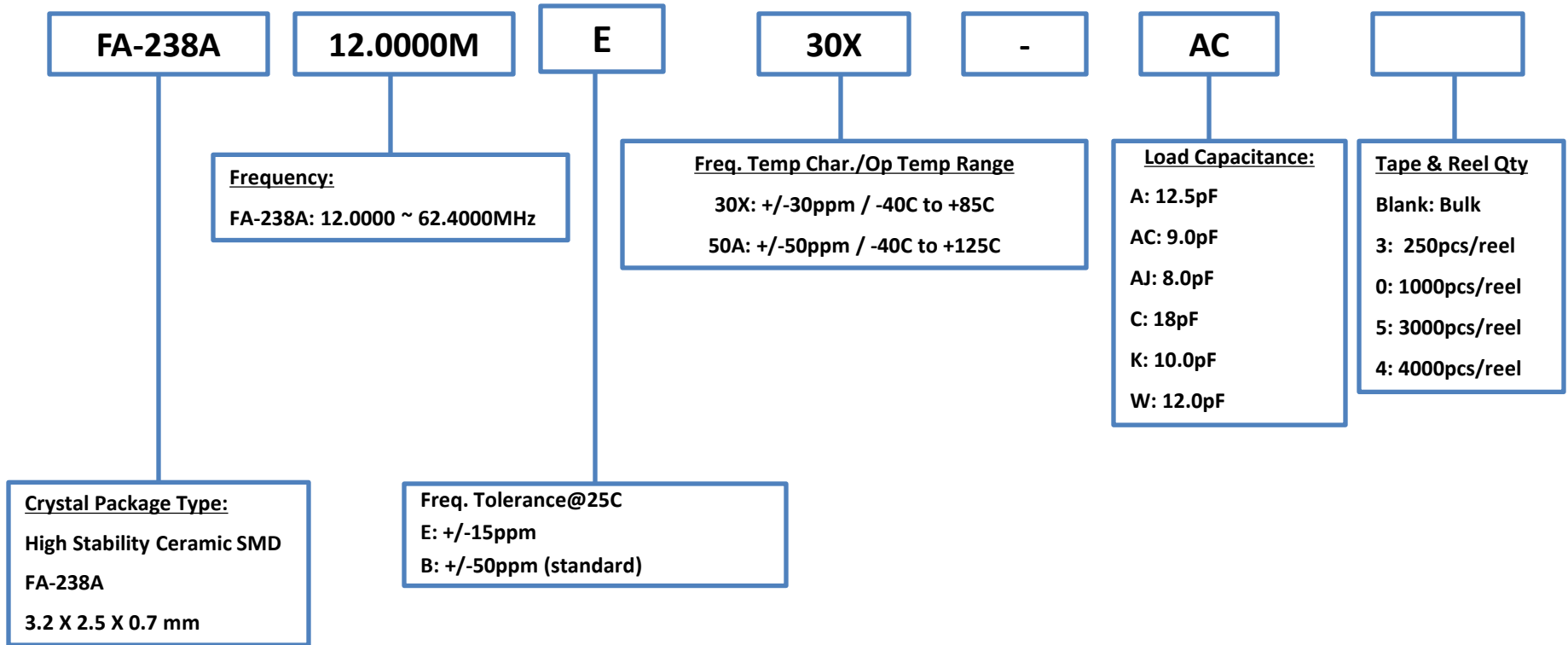
### NOTES:

- 1) If you require frequency, tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## MHz Range Crystal Units



**NOTES:**

1) If you require frequency , tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

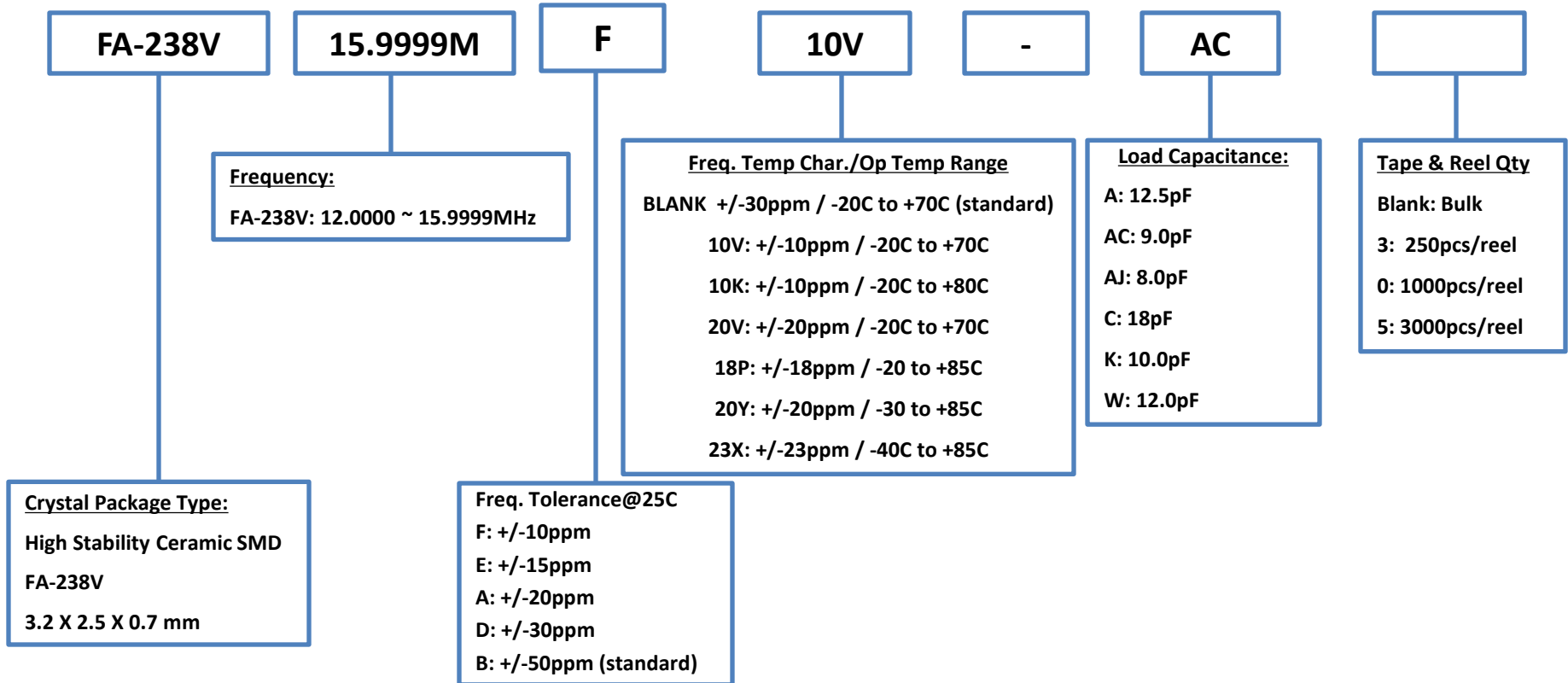




# Product Configuration System



## MHz Range Crystal Units



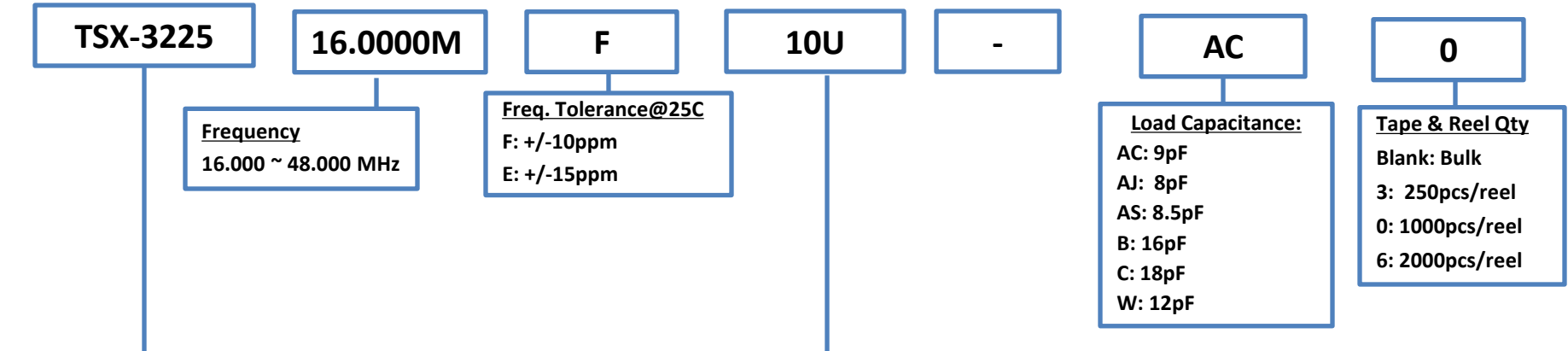
**NOTES:**  
1) If you require frequency, tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.



# Product Configuration System



## MHz Range Crystal Units



**Crystal Package Type:**  
Miniature Size Low Profile Ceramic SMD  
3.2 X 2.5 X 0.6 mm

Freq. Temp Char Op Temp Range	16MHz<=F=<26.99MHz	27MHz<F=<48MHz
-10C to 60C	+/-10ppm = 10U	+/-10ppm = 10U
-20C to +75C	+/-9ppm = 09Z	+/-9ppm = 09Z (for <40MHz)
-20C to +75C	+/-10ppm = 10Z	+/-10ppm = 10Z
-20C to +85C	+/-10ppm = 10P	+/-10ppm = 10P
-30C to +85C	+/-13ppm = 13Y	+/-15ppm = 15Y
-40C to +85C	+/-18ppm = 18X	+/-18ppm = 18X
-40C to +105C	+/-20ppm = 20G (for 20MHz and 24MHz only)	



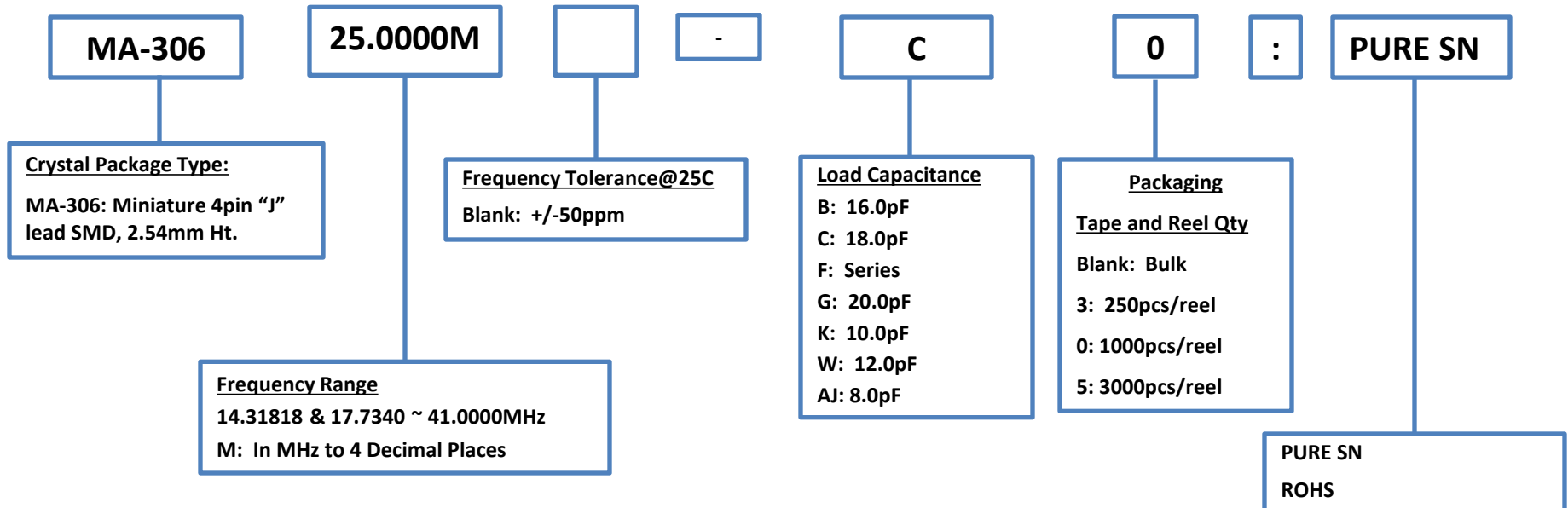
**NOTES:**

1) If you require frequency, tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## MHz Range Crystal Units



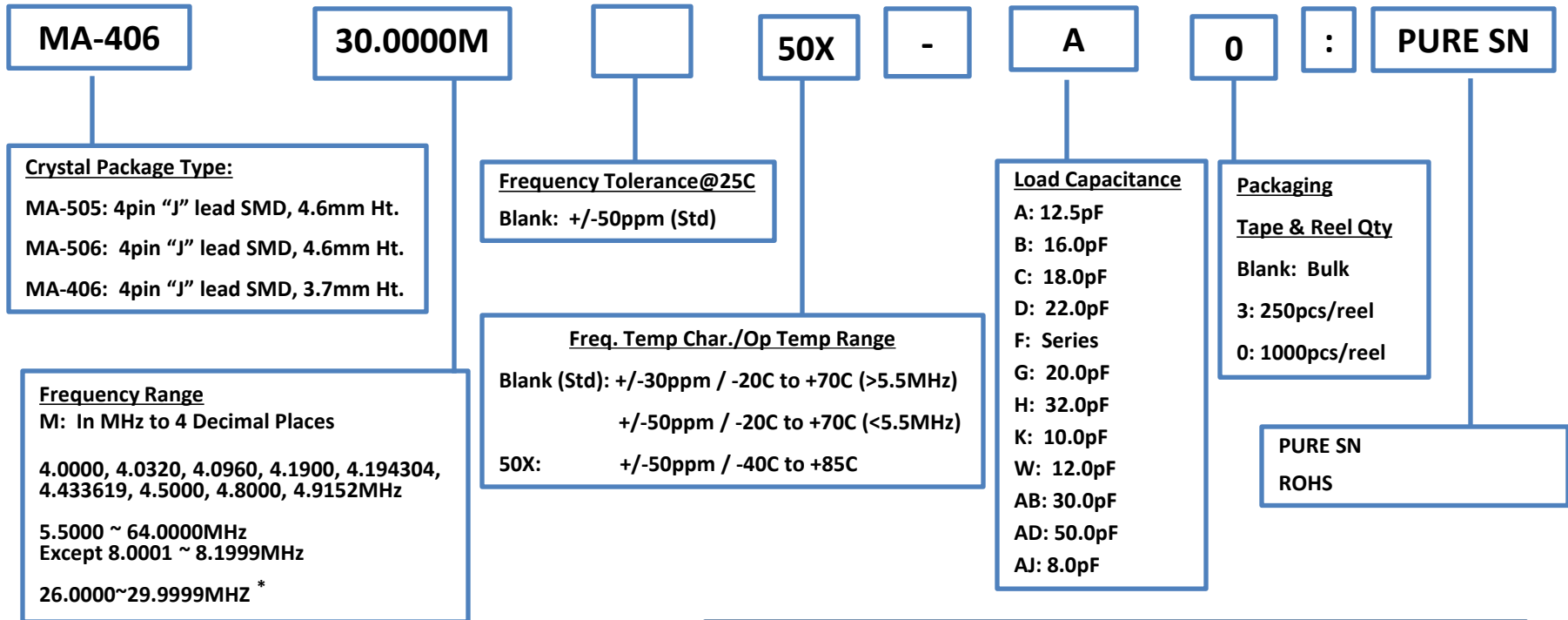
### NOTES:

- 1) If you require frequency, tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.

# Product Configuration System



## MHz Range Crystal Units



**NOTES:**

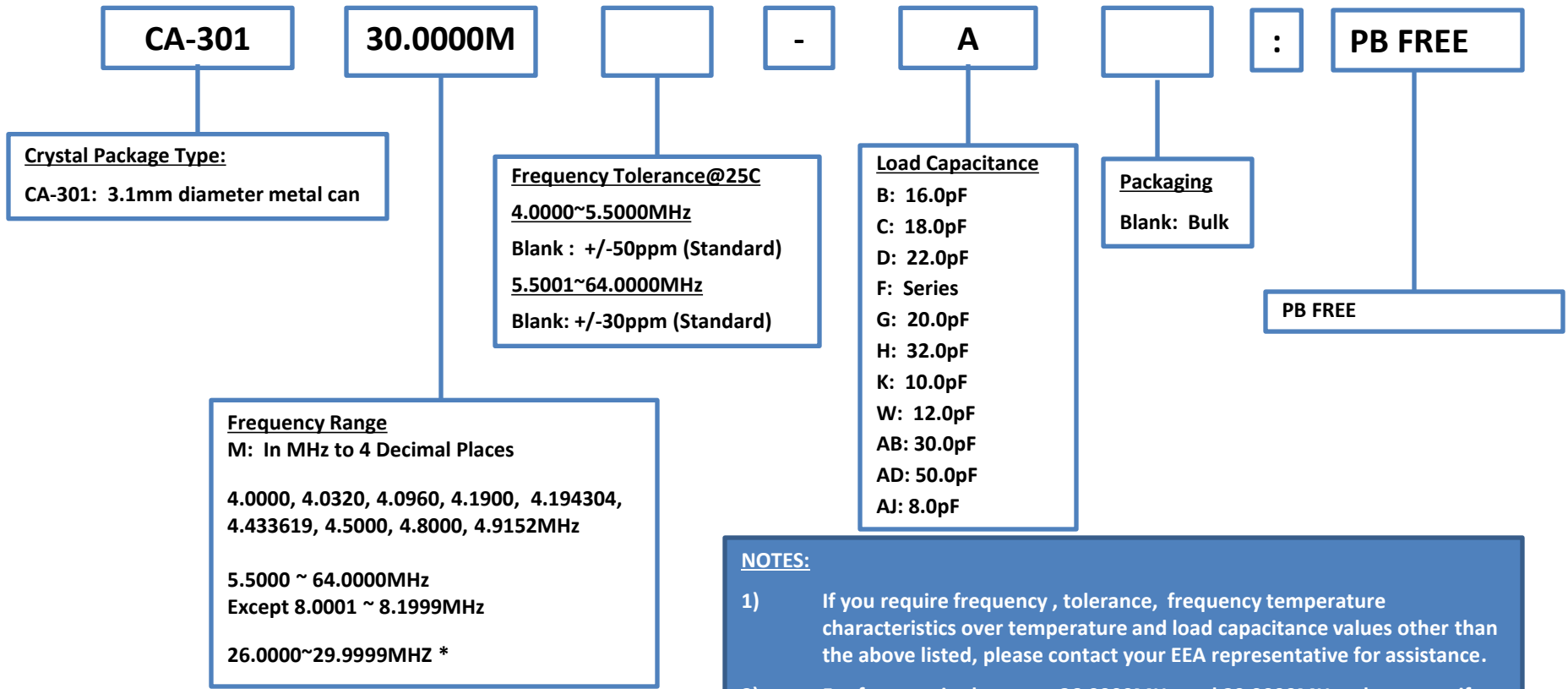
- 1) If you require frequency, tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.
- 2) For frequencies between 26.0000MHz and 29.9999MHz, please specify "(FUND)" at end of part number if fundamental mode required. Otherwise, 3<sup>rd</sup> Overtone is default.



# Product Configuration System



## MHz Range Crystal Units



**NOTES:**

- 1) If you require frequency , tolerance, frequency temperature characteristics over temperature and load capacitance values other than the above listed, please contact your EEA representative for assistance.
- 2) For frequencies between 26.0000MHz and 29.9999MHz, please specify "(FUND)" at end of part number if fundamental mode required. Otherwise, 3<sup>rd</sup> Overtone is default.



# Product Configuration System

## Crystal Units Load Cap Codes and Values (as of March 2014)

Load Cap Code	Load Cap Value
AZ	3.5
VJ	4.0
EE	4.4
AT	4.8
X	5.0
JJ	5.4
E	6.0
FF	6.4
DD	6.5
VC	6.7
AG	7.0
AR	7.1
JK	7.4
VB	7.6
AN	7.8
AJ	8.0
AS	8.5
CC	8.7
GG	8.8
AC	9.0
AM	9.2

Load Cap Code	Load Cap Value
AL	9.5
S	9.6
VF	9.8
K	10.0
HH	10.4
AK	10.5
AP	10.7
P	11.0
AY	11.2
AW	11.5
W	12.0
A	12.5
T	13.0
N	13.5
Y	14.0
VH	14.5
R	15.0
B	16.0
AV	17.0
C	18.0
L	18.3

Load Cap Code	Load Cap Value
J	18.5
AQ	19.0
G	20.0
AF	21.5
D	22.0
AU	22.5
AE	22.9
AH	23.0
V	24.0
AI	25.0
Z	26.0
AA	27.0
Q	28.0
AB	30.0
H	32.0
I	33.0
U	47.0
AD	50.0
M	100.0
F	Series

# Product Configuration Guide

## OSCILLATORS



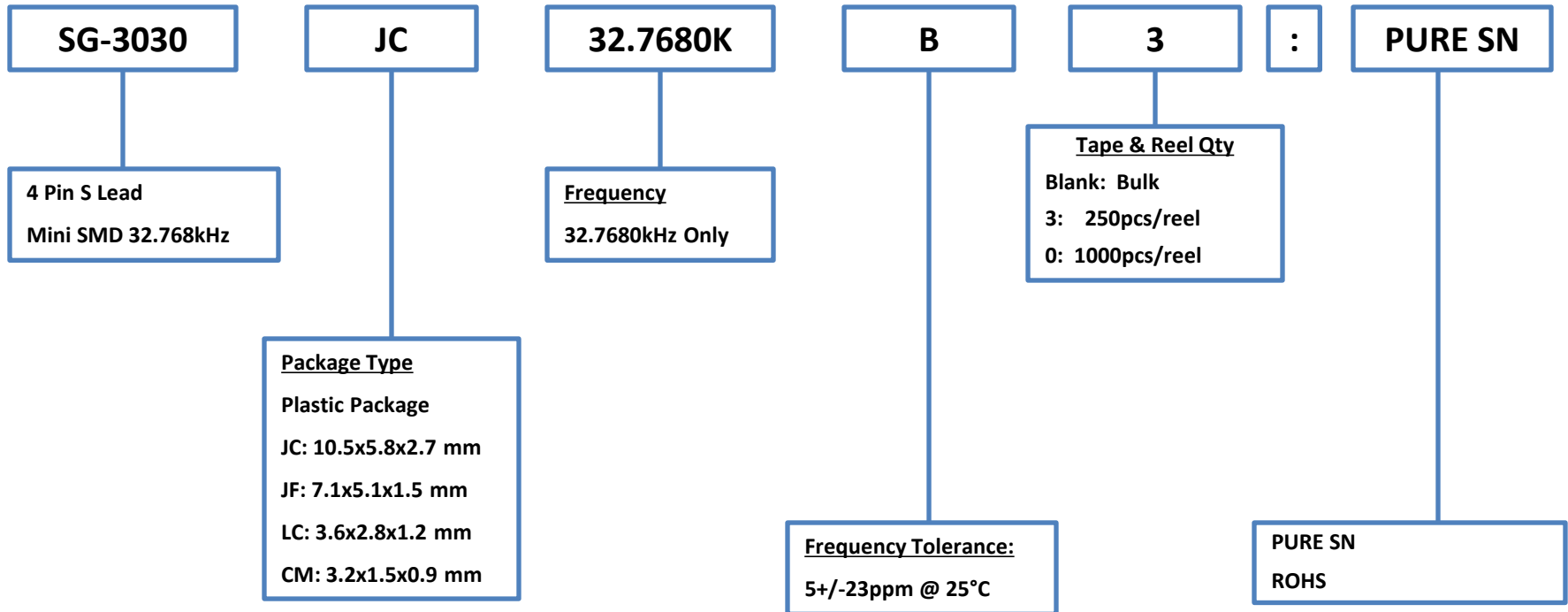
- SPXO
- Programmable
- Spread Spectrum
- High Stability



# Product Configuration System



## Crystal Oscillators - SPXO



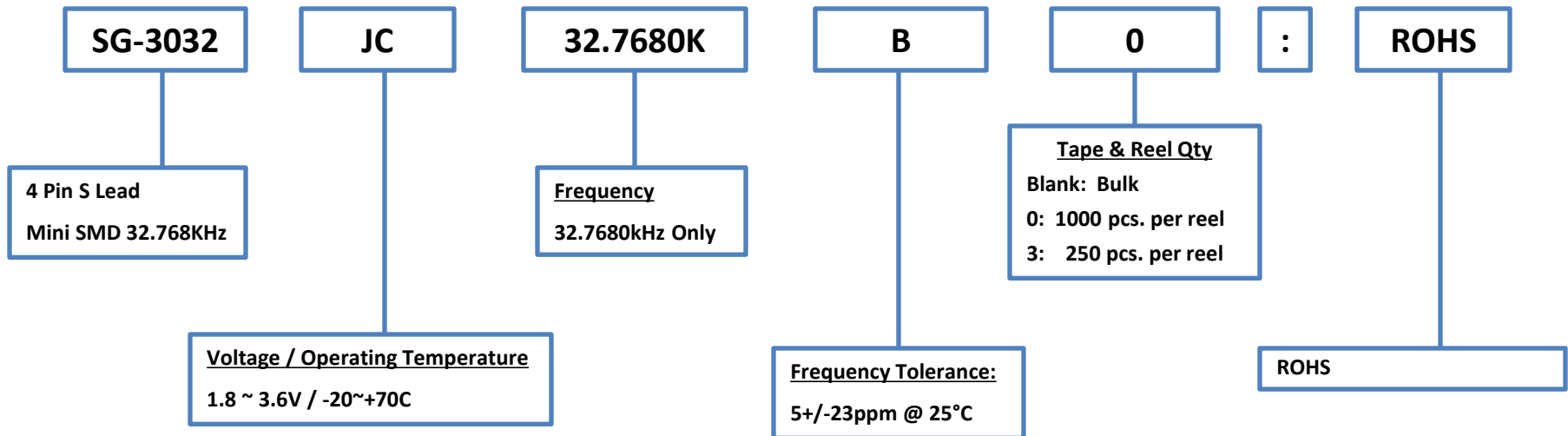
Note: All LC packages are RoHS Compliant, Pure SN



# Product Configuration System



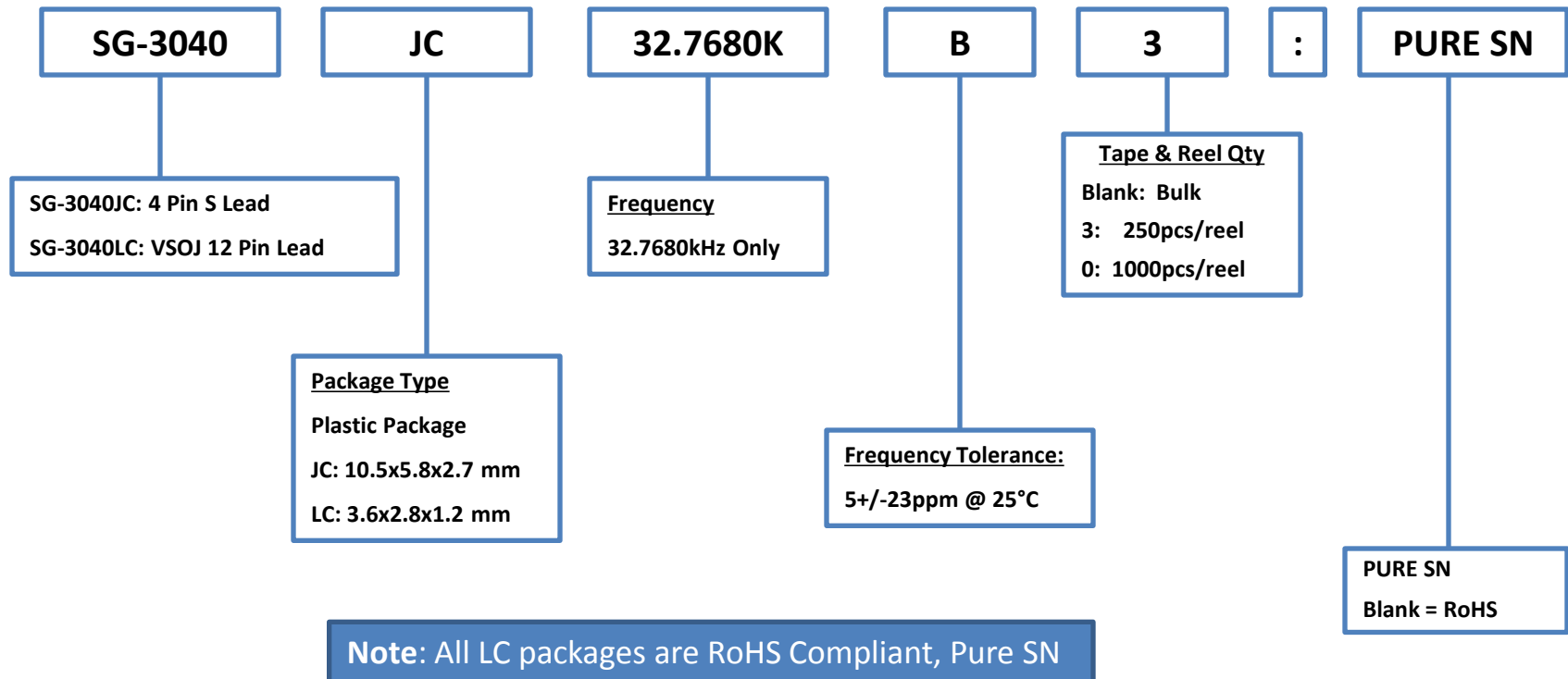
## Crystal Oscillators - SPXO



# Product Configuration System



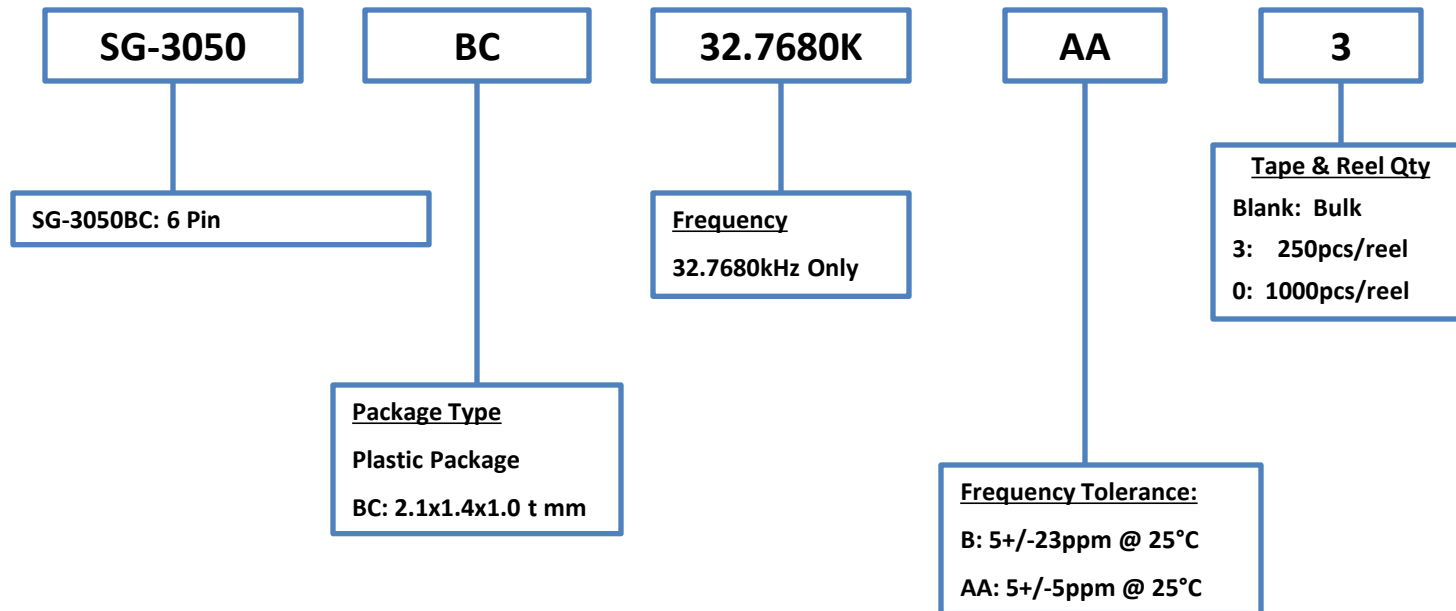
## Crystal Oscillators - SPXO



# Product Configuration System



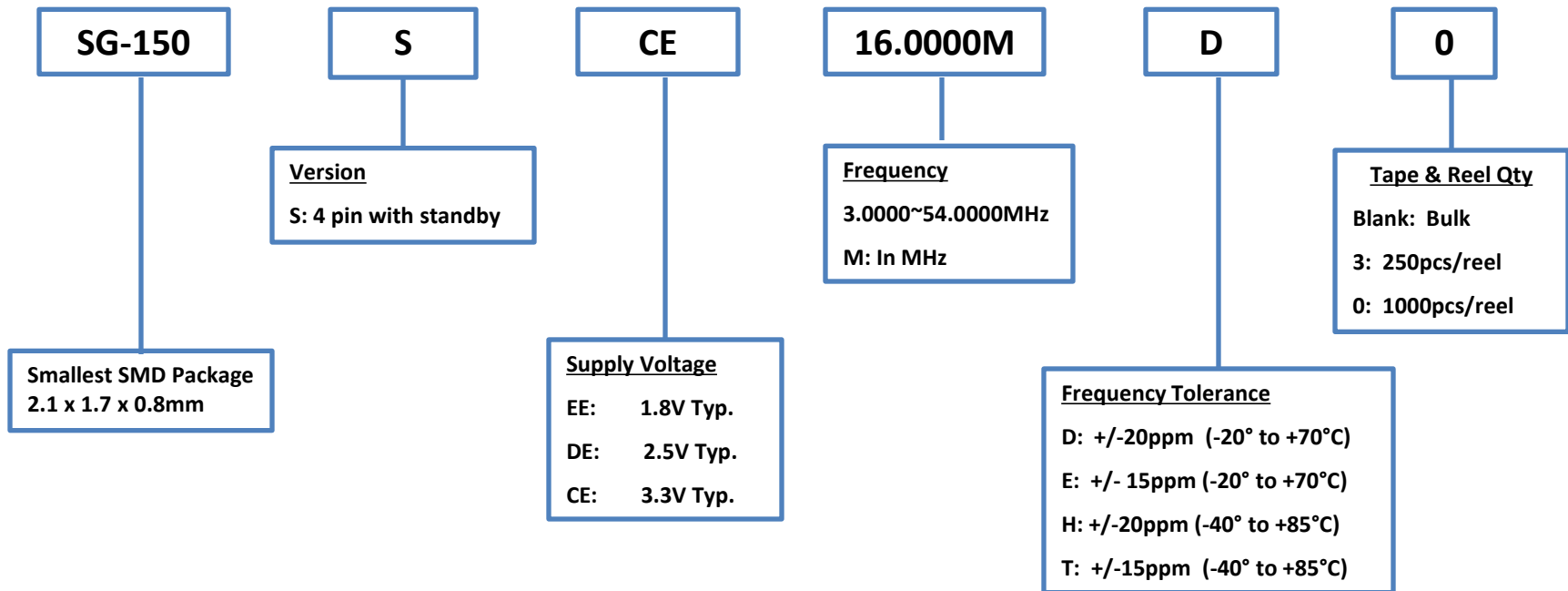
## Crystal Oscillators - SPXO



# Product Configuration System



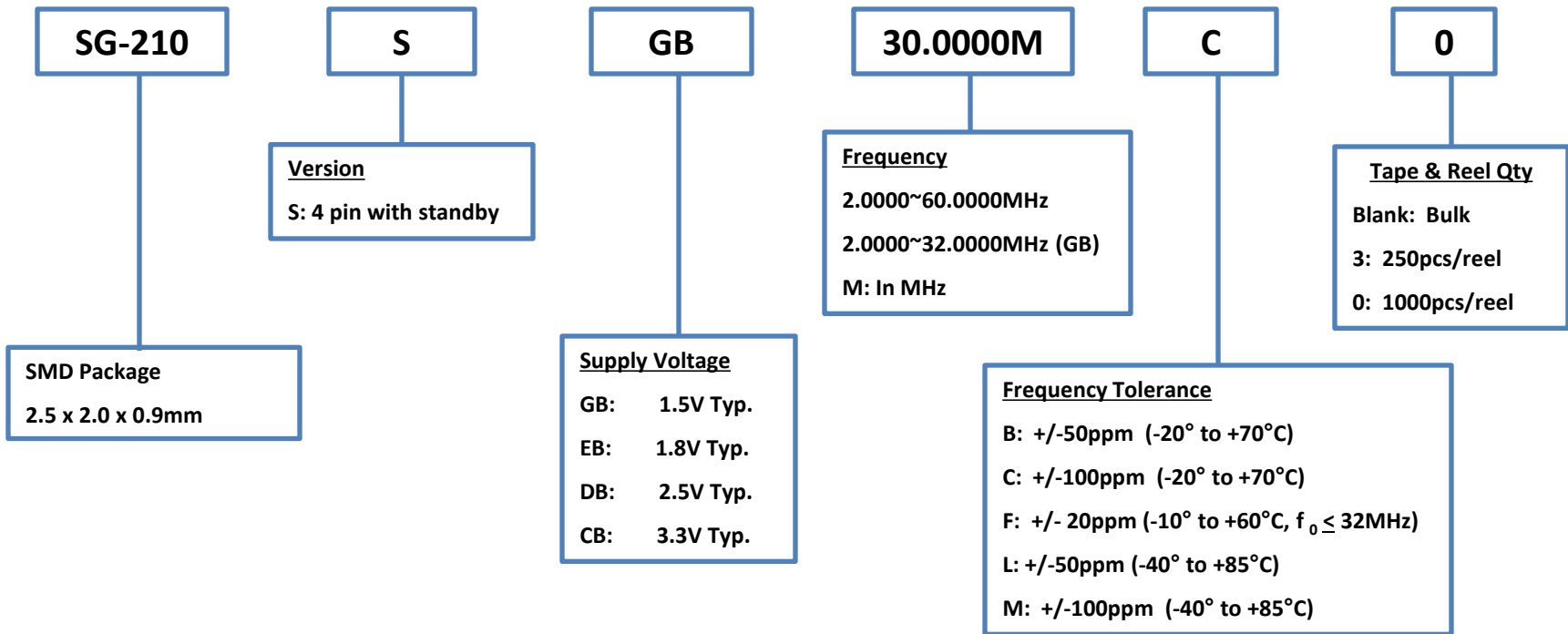
## Crystal Oscillators - SPXO



# Product Configuration System



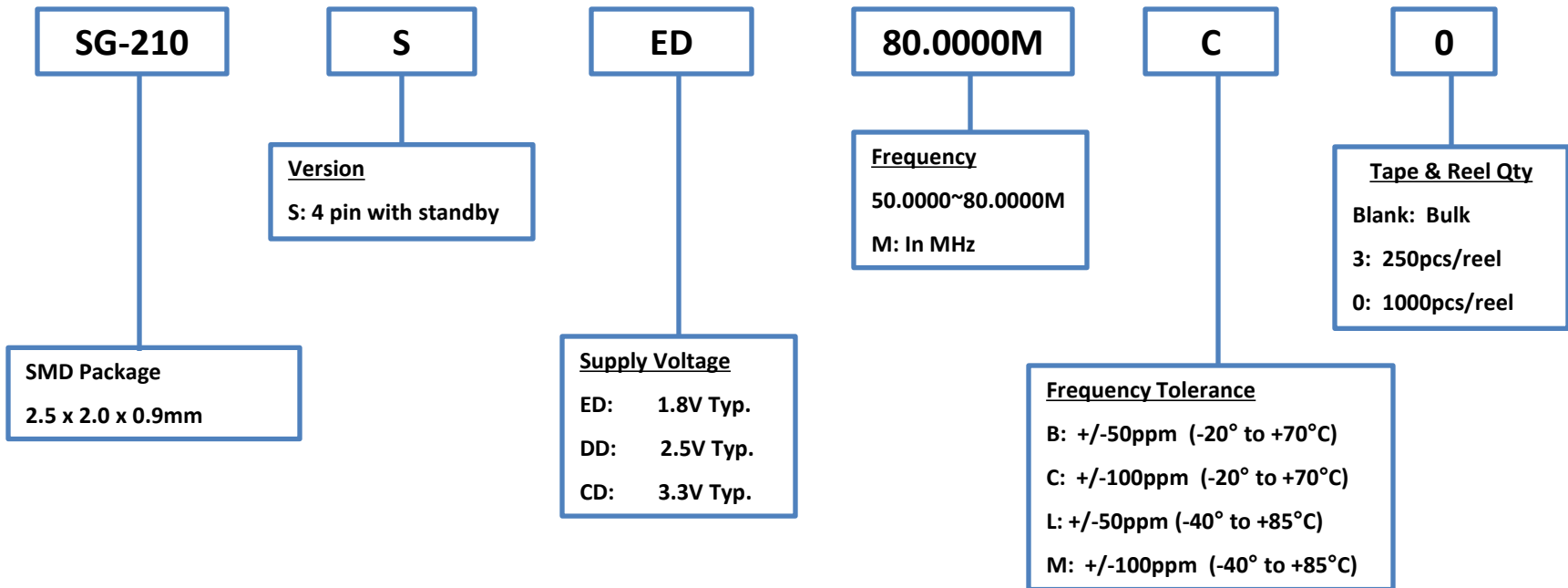
## Crystal Oscillators - SPXO



# Product Configuration System



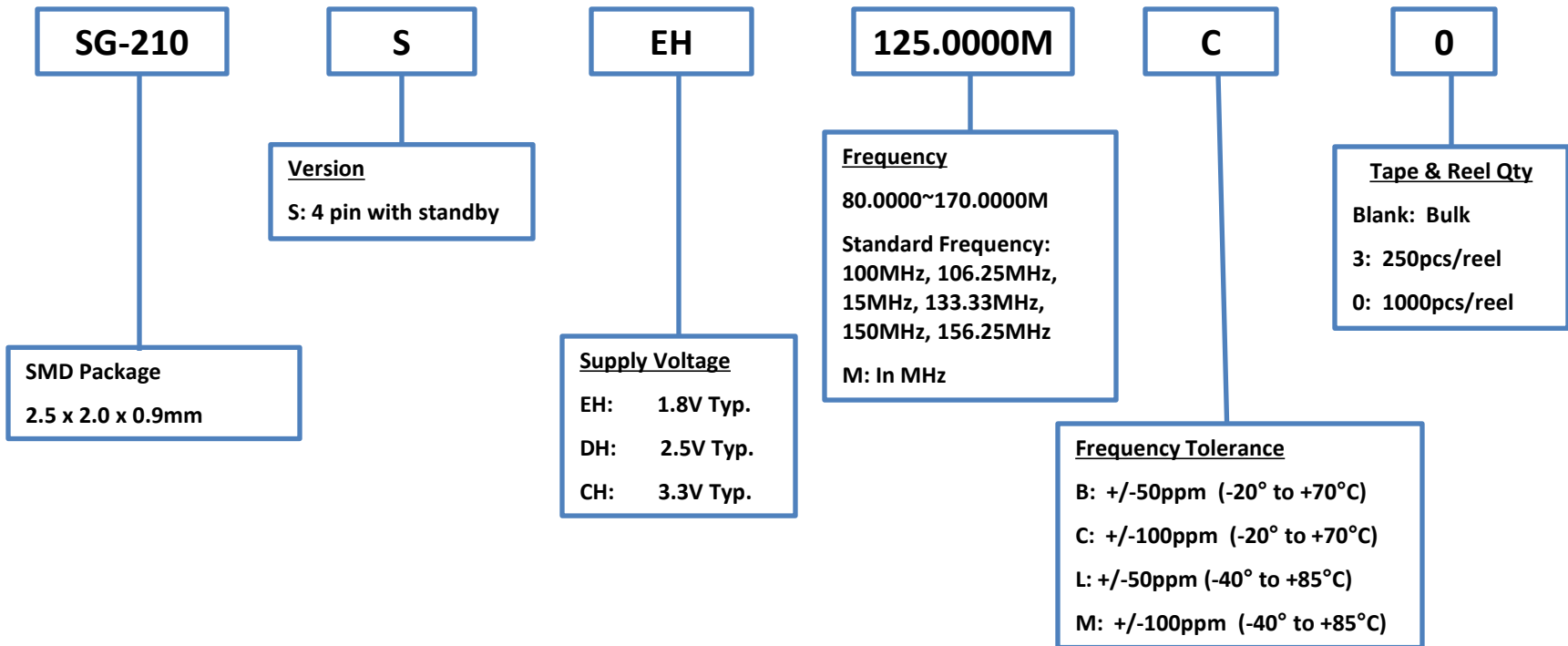
## Crystal Oscillators - SPXO



# Product Configuration System



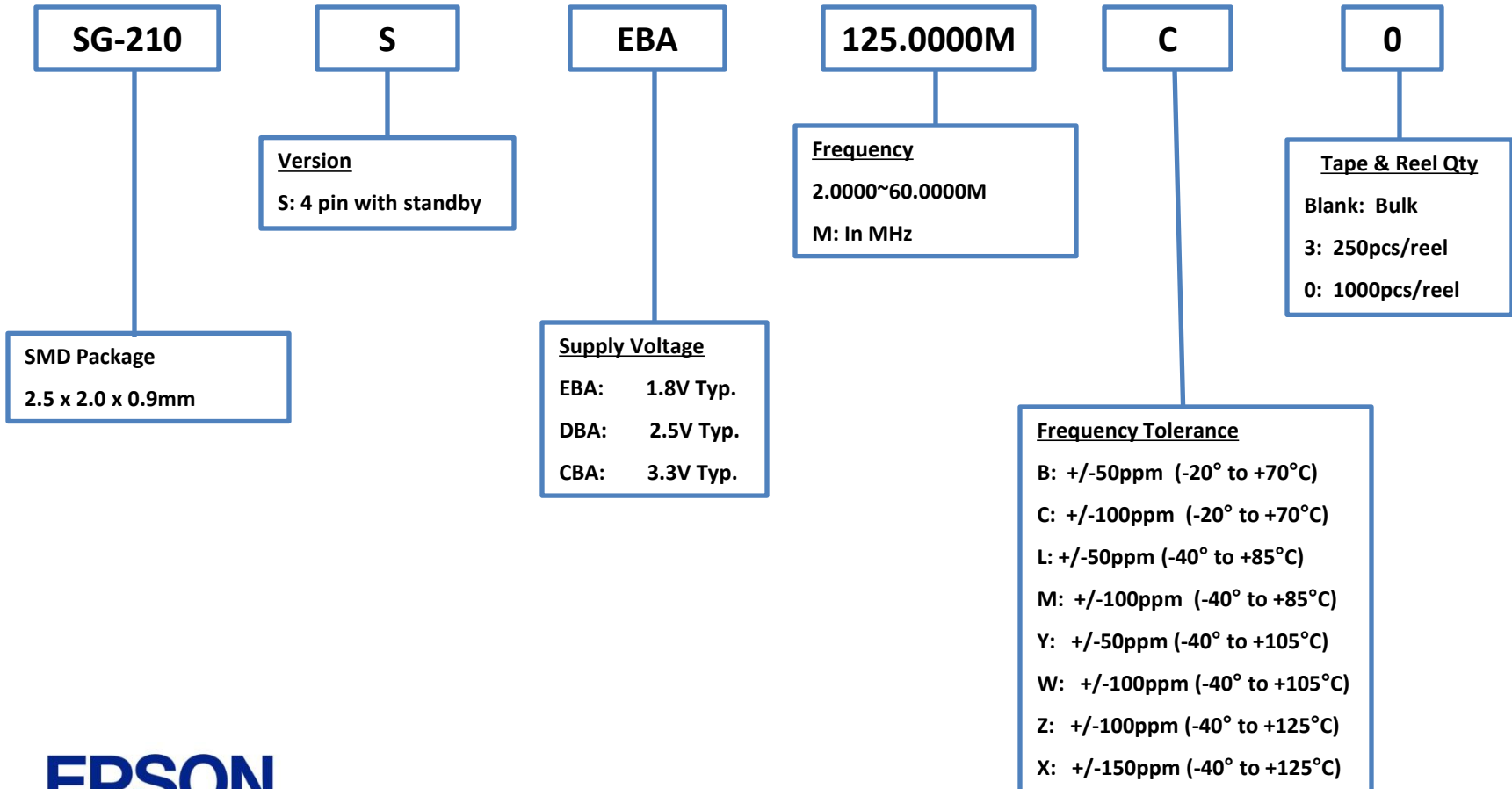
## Crystal Oscillators - SPXO



# Product Configuration System



## Crystal Oscillators - SPXO

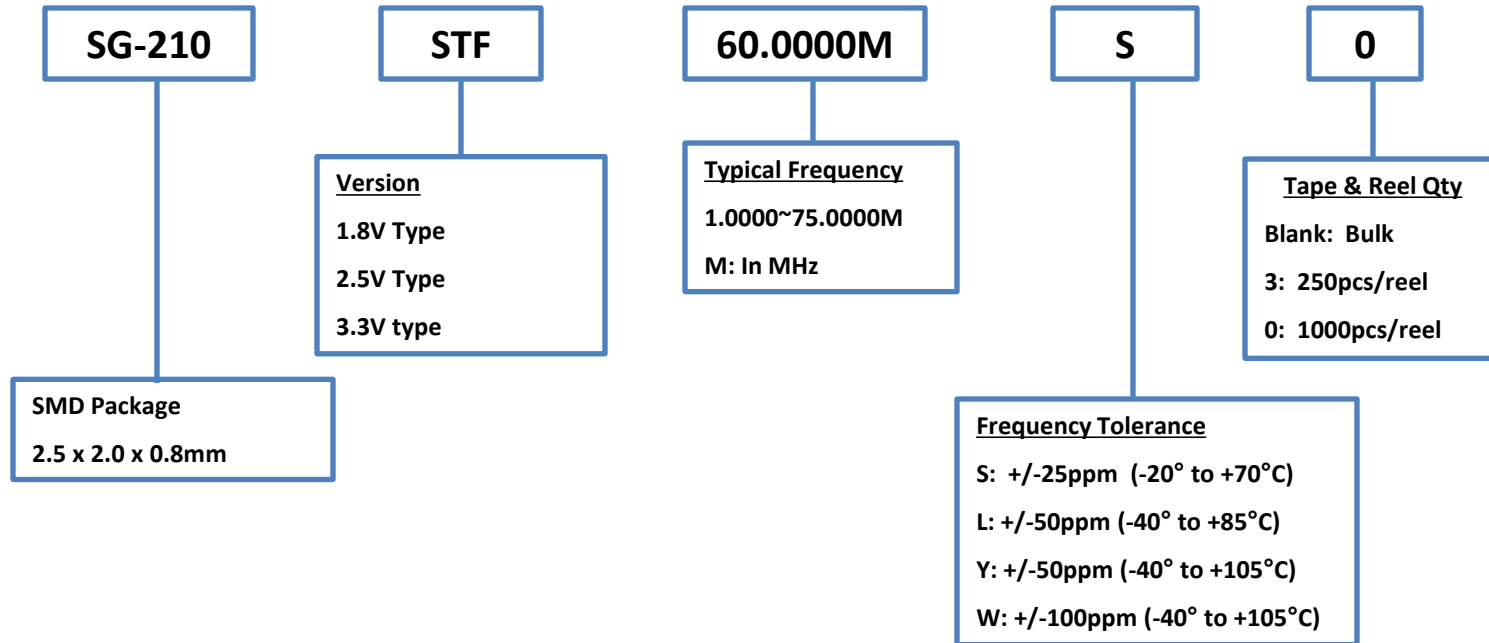




# Product Configuration System



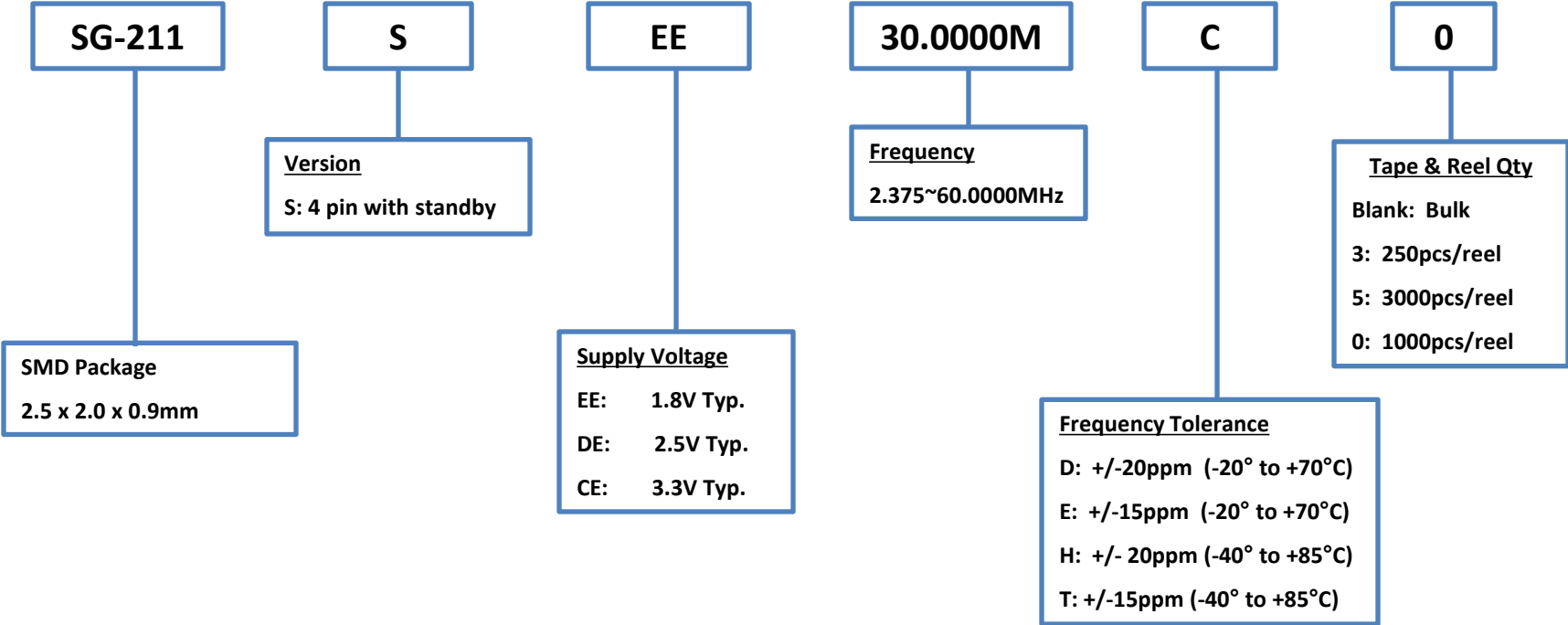
## Crystal Oscillators - SPXO





# Product Configuration System

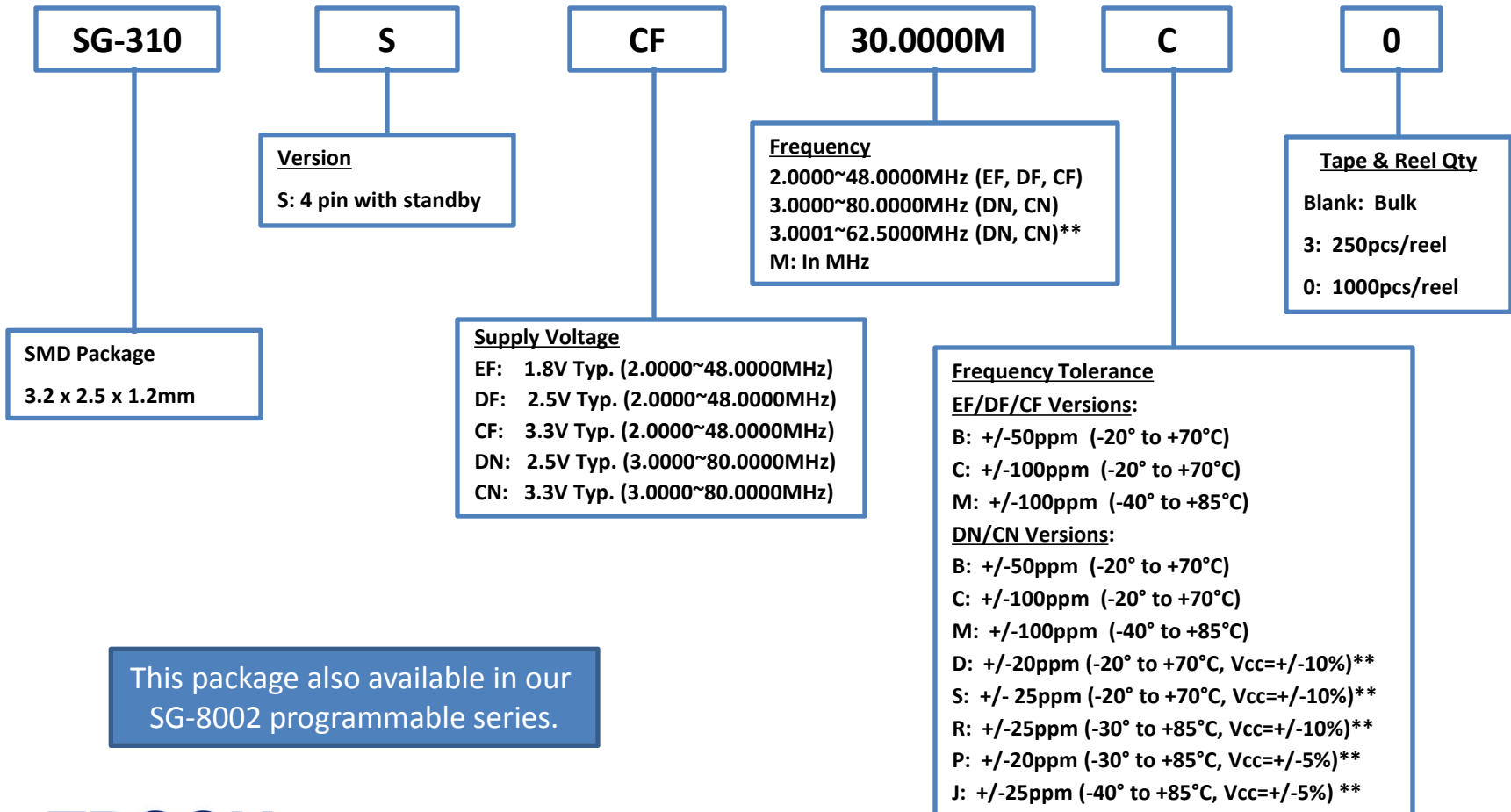
## Crystal Oscillators - SPXO



# Product Configuration System



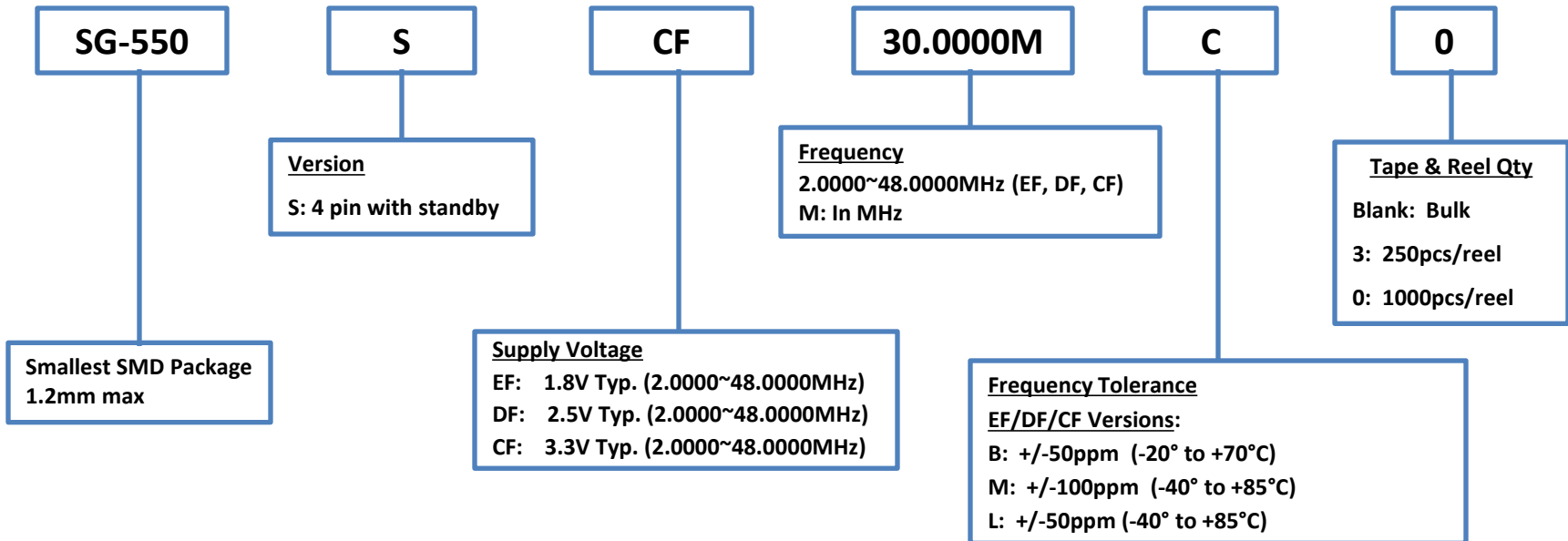
## Crystal Oscillators - SPXO



# Product Configuration System



## Crystal Oscillators - SPXO

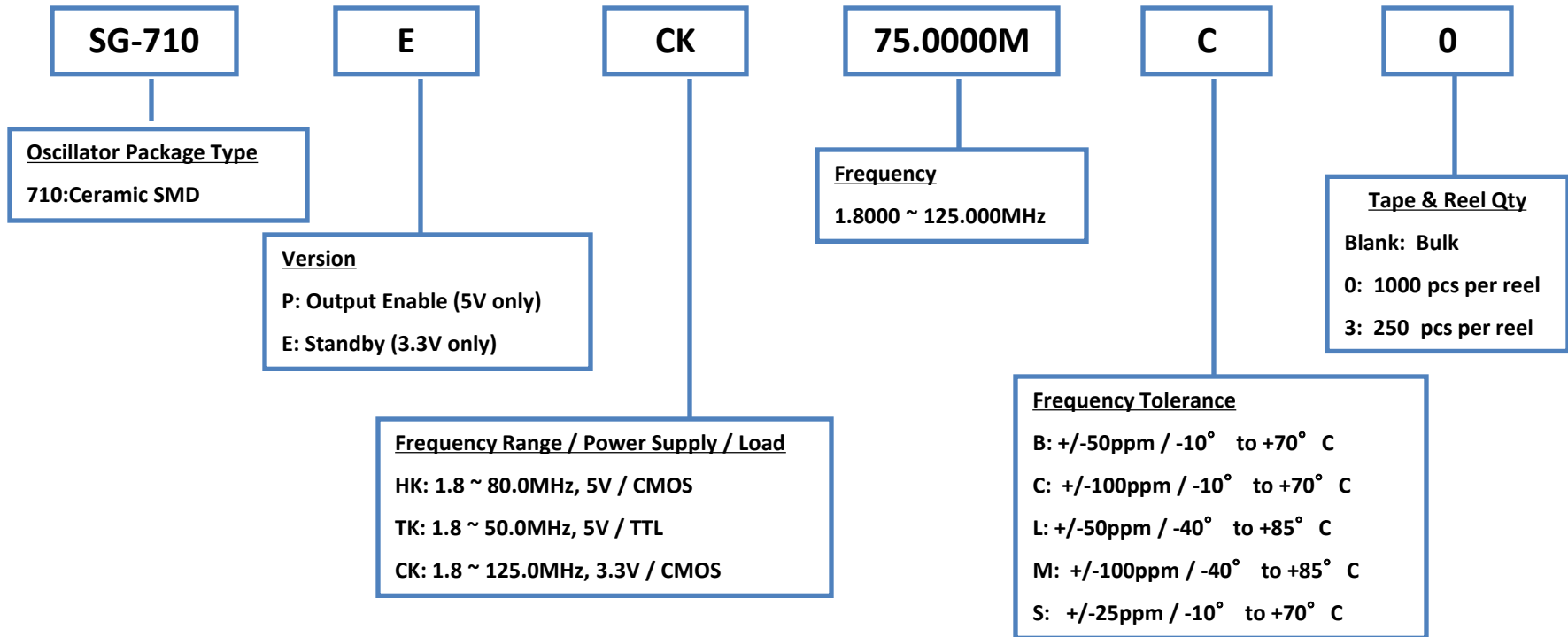


This package also available in our SG-8002LB programmable series.

# Product Configuration System



## Crystal Oscillators - SPXO

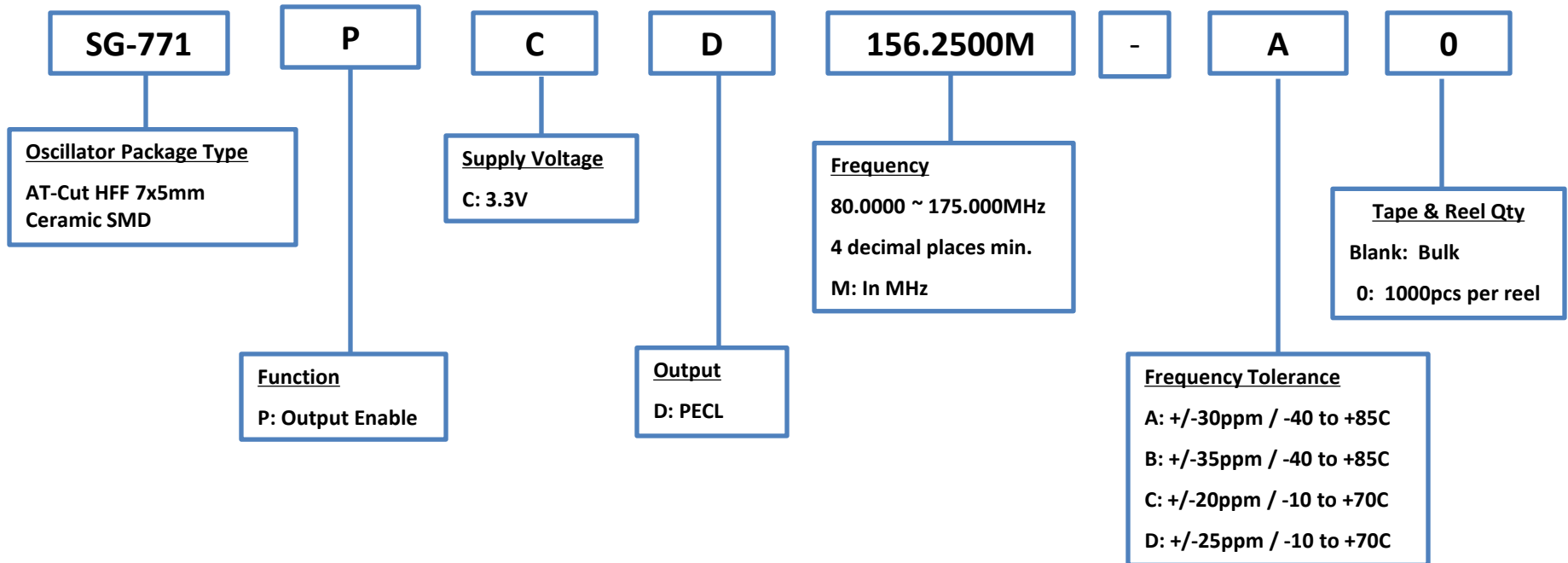


These packages also available in our SG-8002 programmable series.

# Product Configuration System



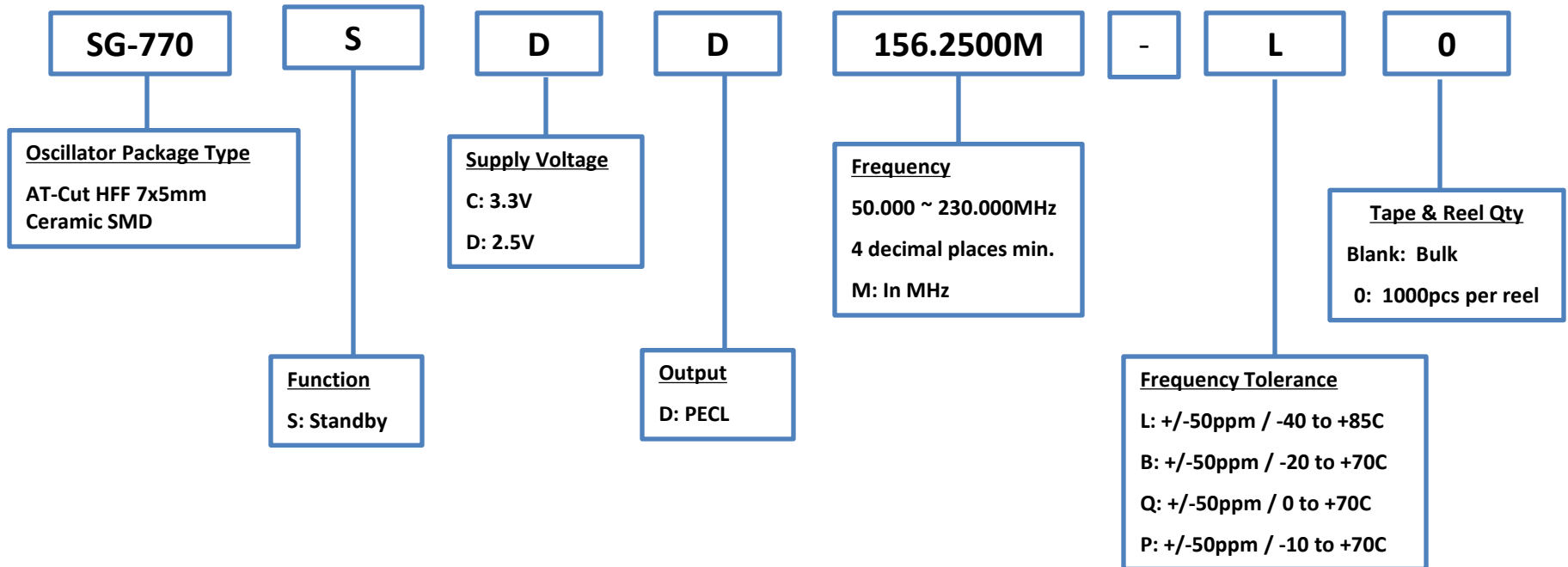
## Crystal Oscillators - SPXO



# Product Configuration System



## Crystal Oscillators - SPXO

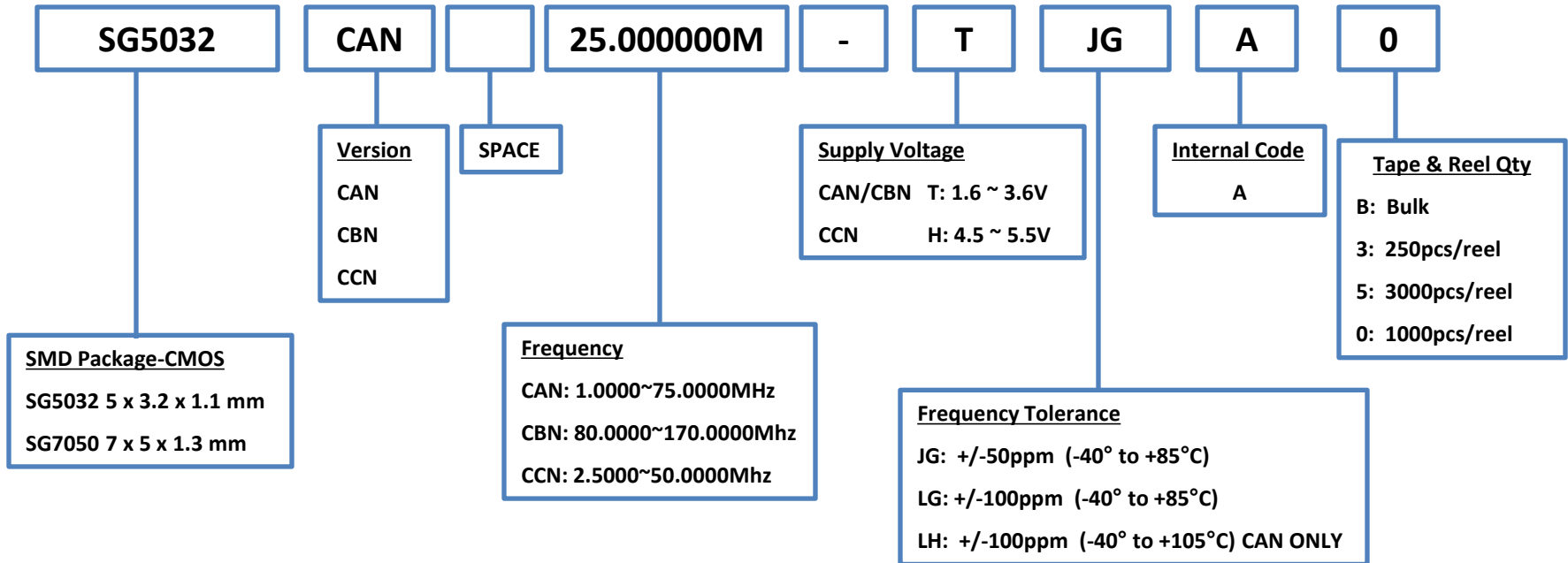


Replaces TCO-7116H1A



# Product Configuration System

## Crystal Oscillators - SPXO



Example: SG5032CAN 25.0000M-TJGA

JH is not available  
Please contact us about available frequencies



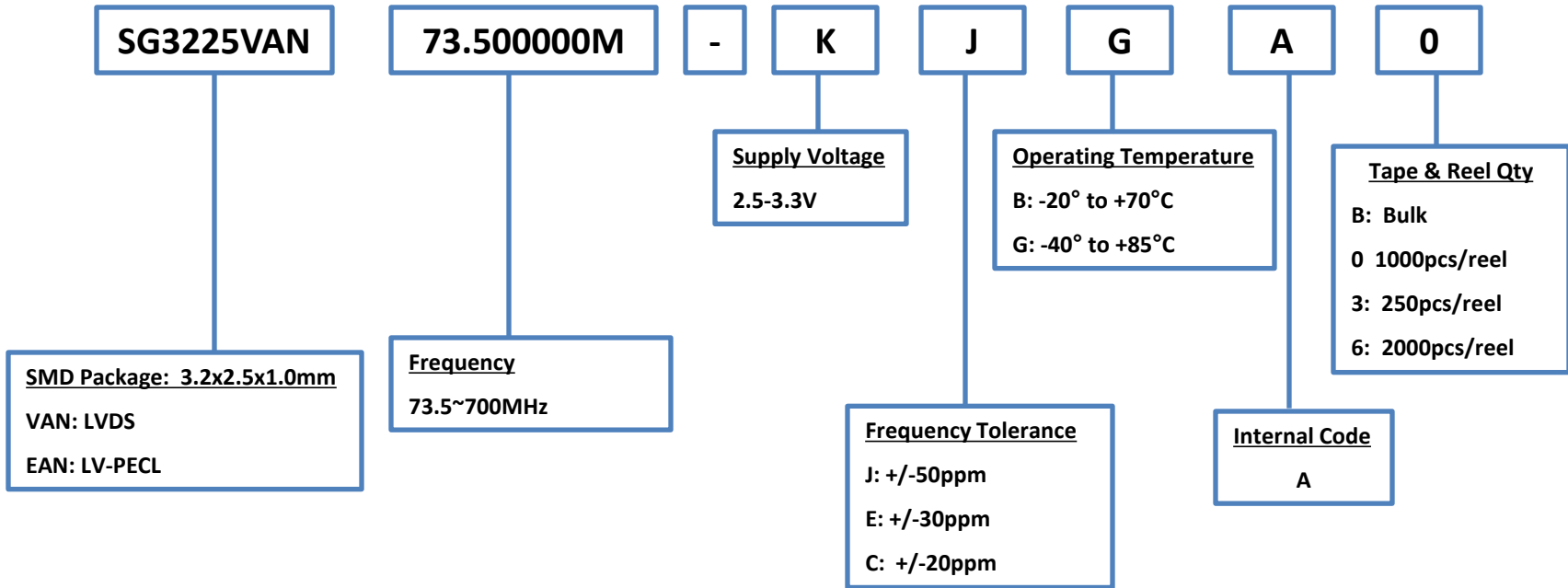




# Product Configuration System

## Crystal Oscillators – SPXO

Output : LV-PECL, LVDS



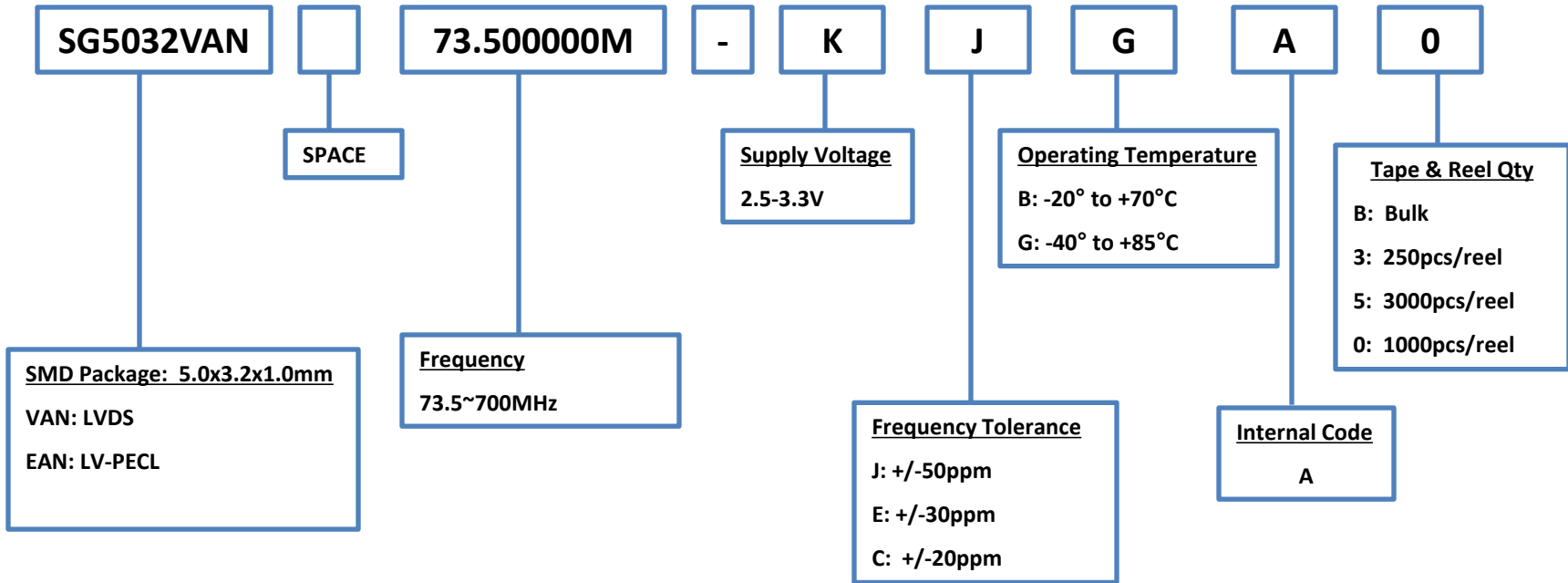
Example: SG3225VAN 73.500000M-KJGA  
CG is not available



# Product Configuration System

## Crystal Oscillators – SPXO

Output : LV-PECL, LVDS

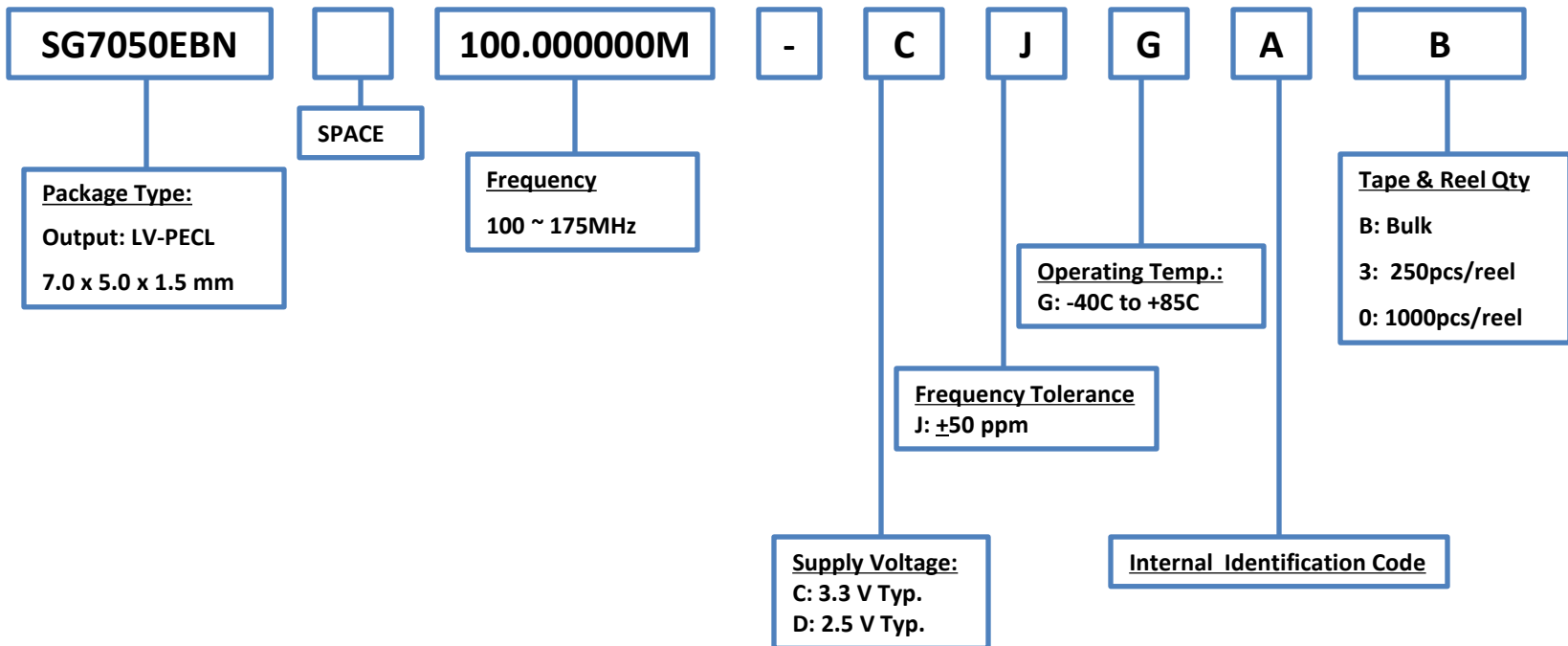


Example: SG5032VAN 73.500000M-KJGA  
CG is not available

# Product Configuration System



## Crystal Oscillator - SPXO



### NOTE:

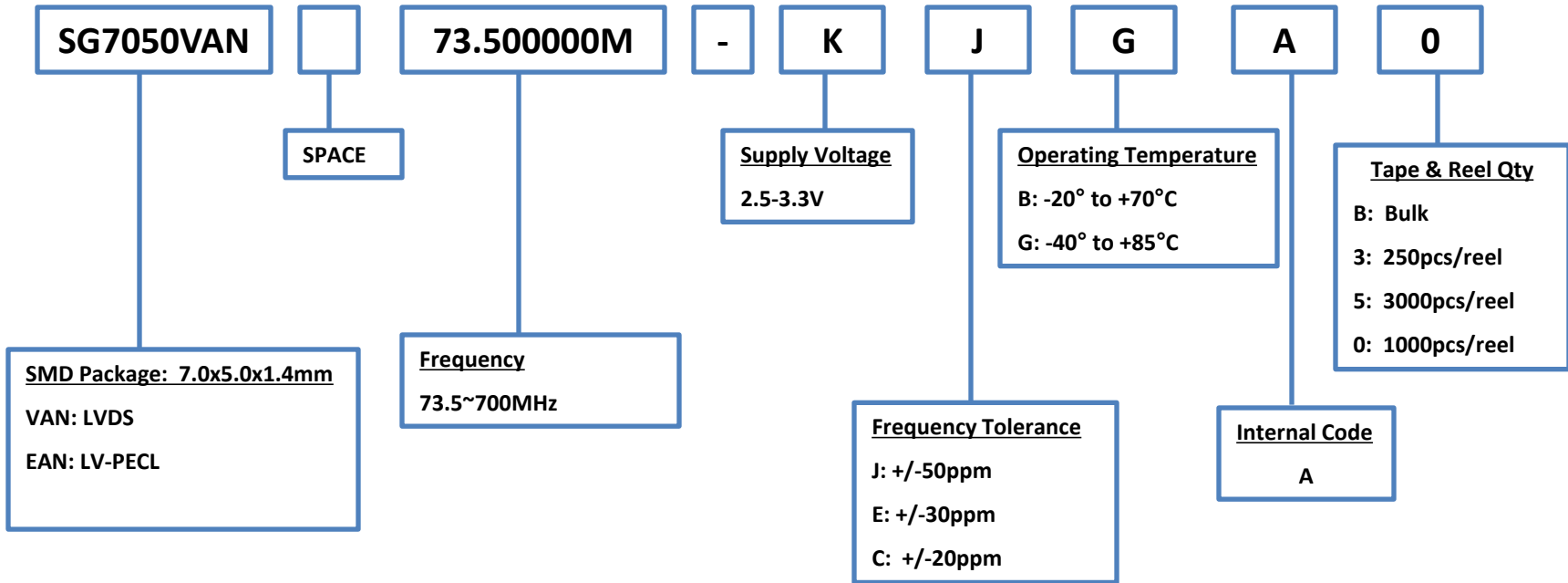
Please contact us for requirements not listed in this specification.



# Product Configuration System

## Crystal Oscillators – SPXO

Output : LV-PECL, LVDS

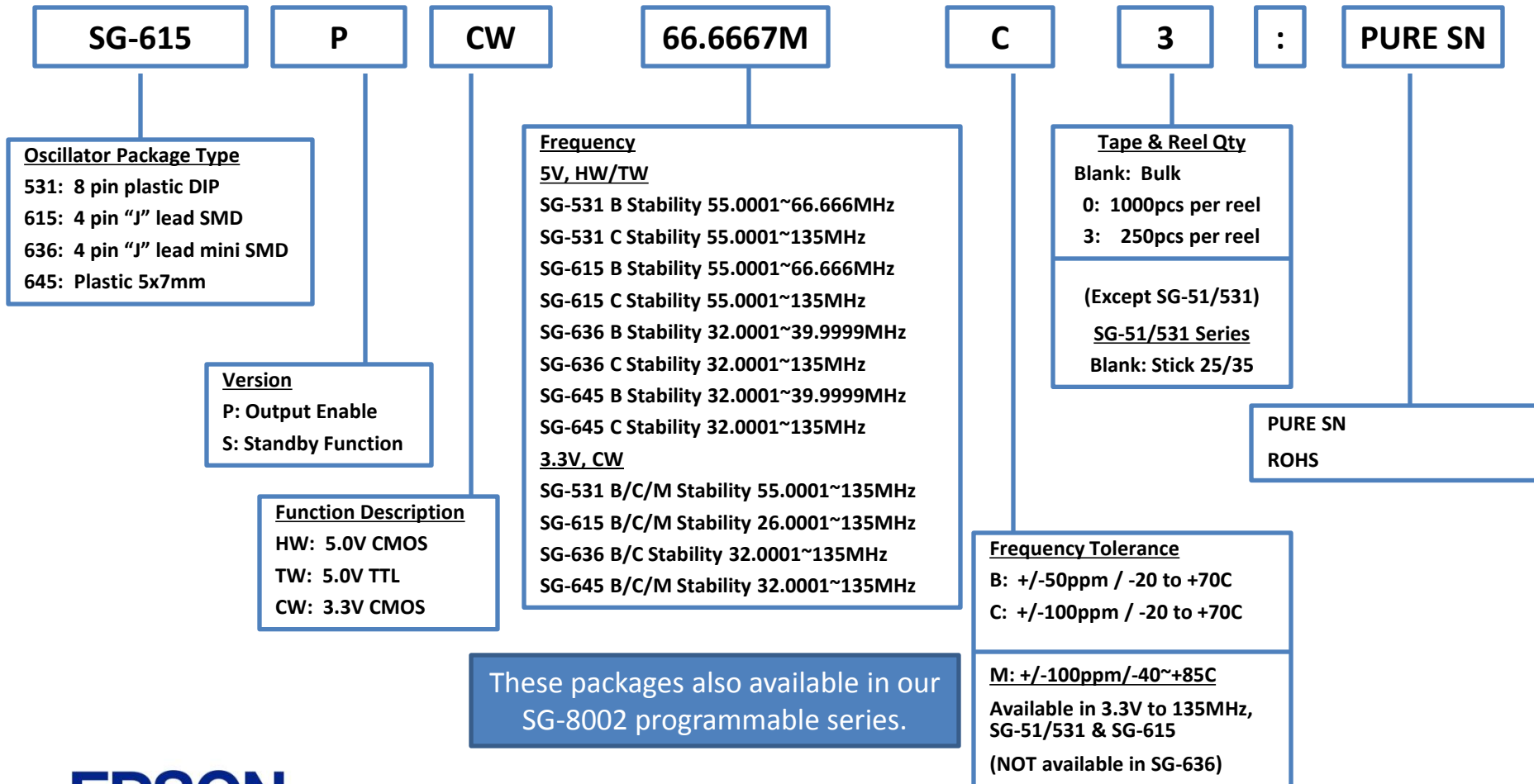


Example: SG7050VAN 73.500000M-KJGA  
CG is not available

# Product Configuration System



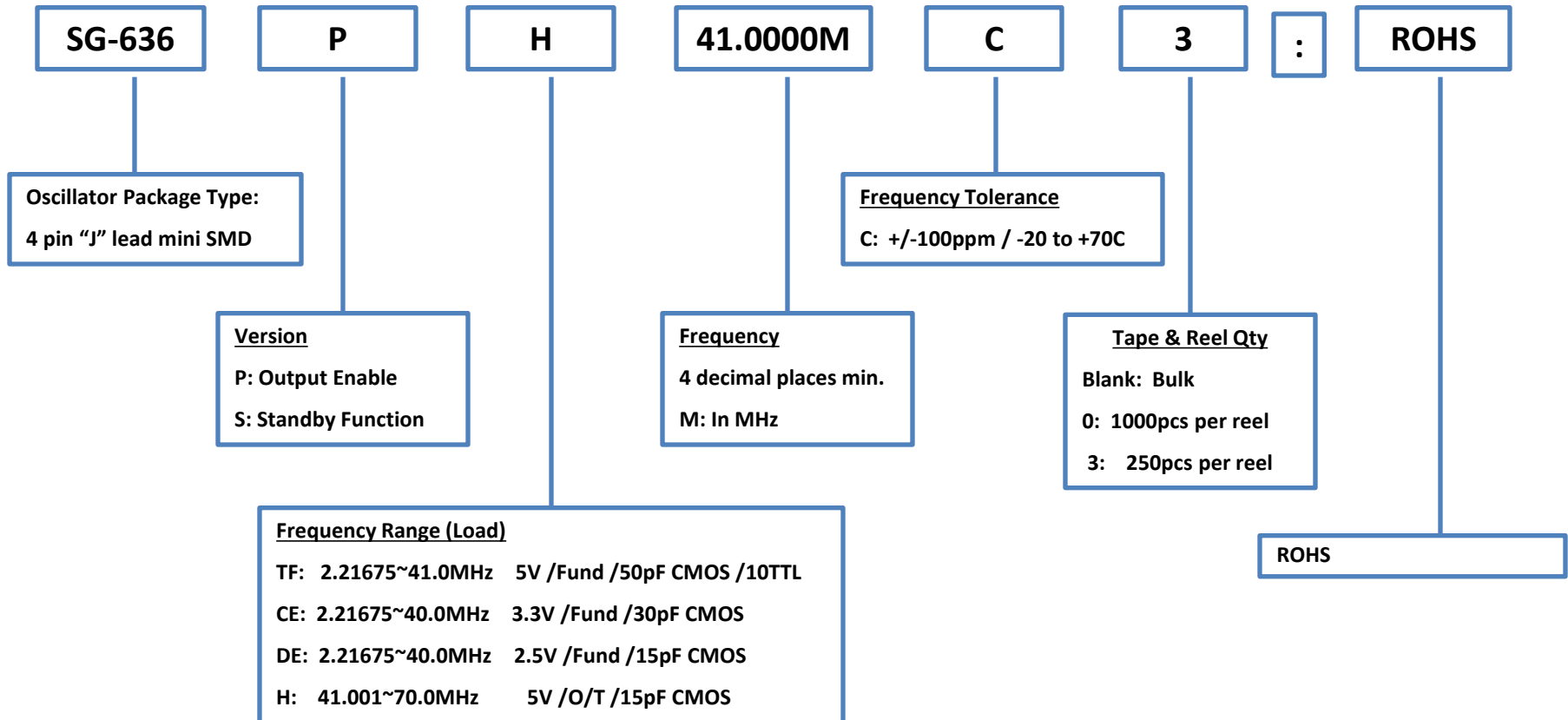
## Crystal Oscillators - SPXO



# Product Configuration System



## Crystal Oscillators - SPXO

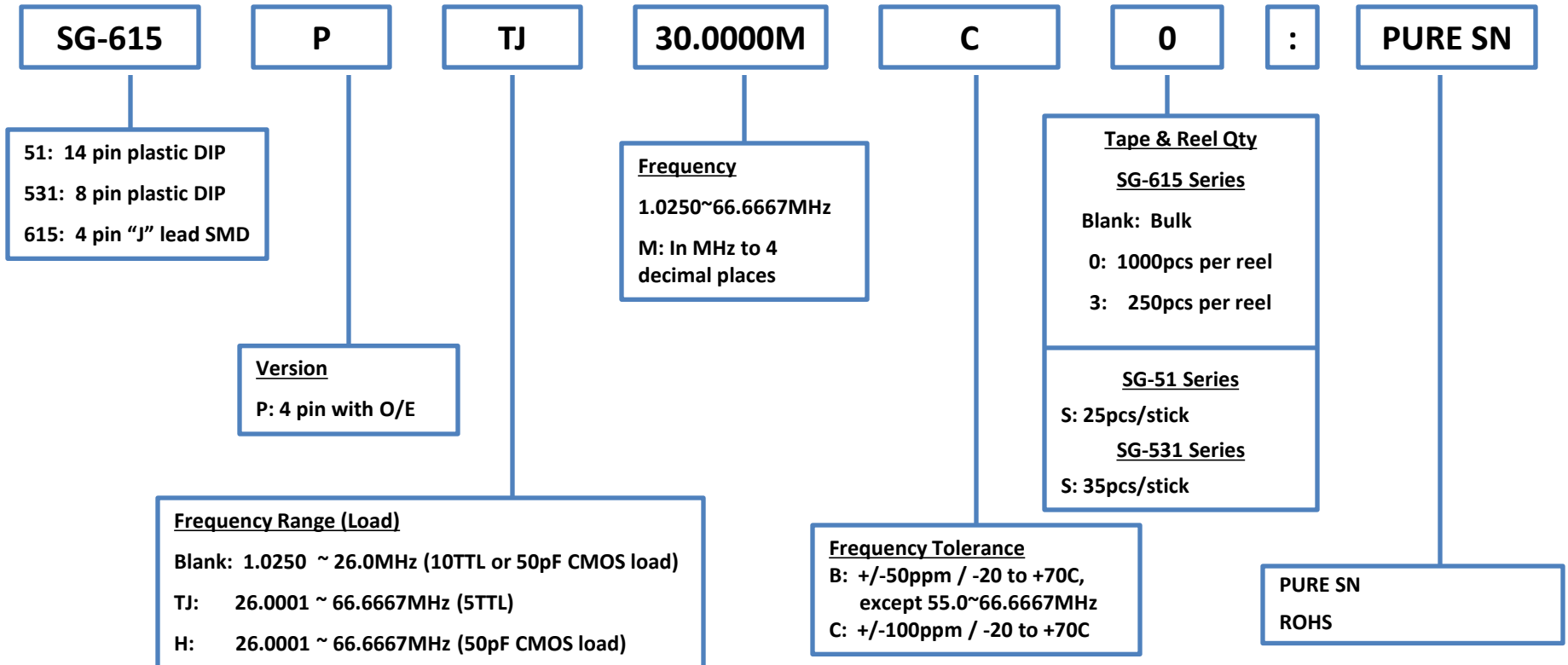


These packages also available in our SG-8002 programmable series.

# Product Configuration System



## Crystal Oscillators - SPXO

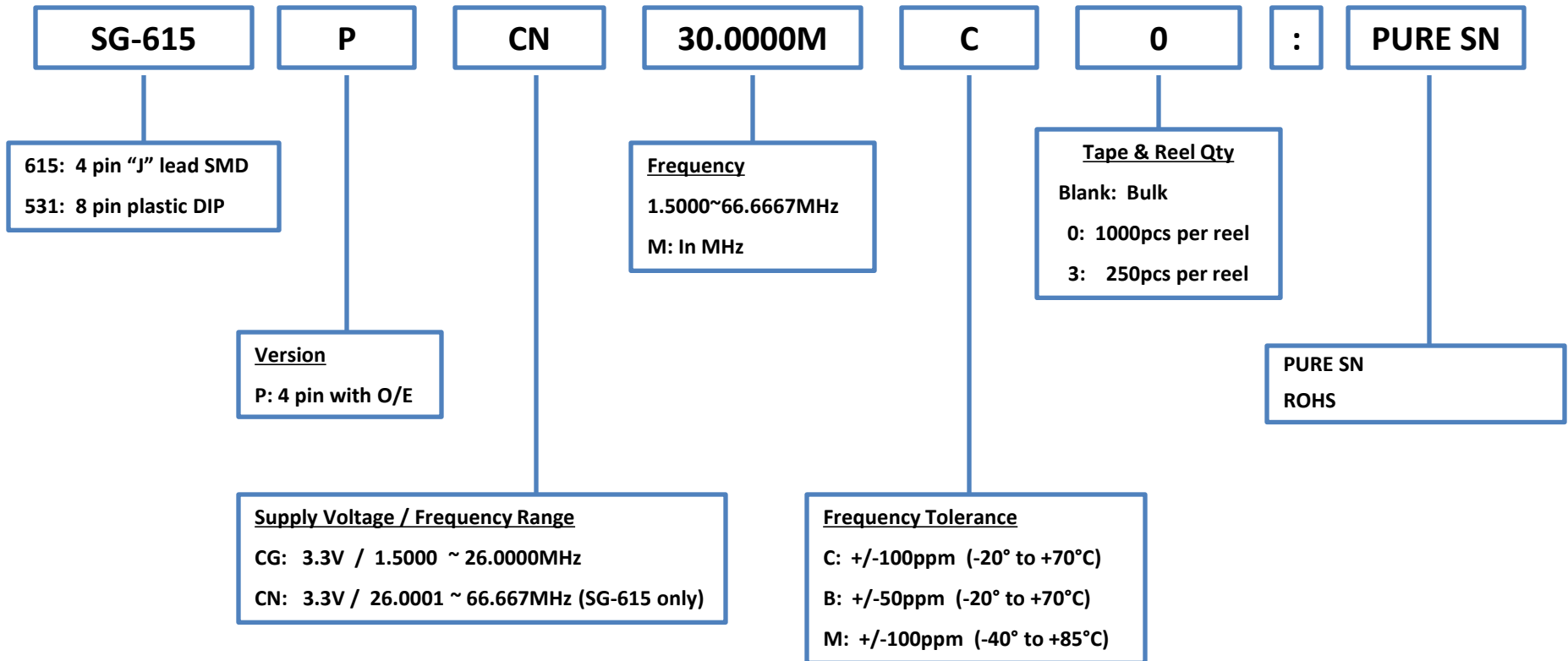


These packages also available in our SG-8002 programmable series.

# Product Configuration System



## Crystal Oscillators - SPXO



These packages also available in our SG-8002 programmable series.

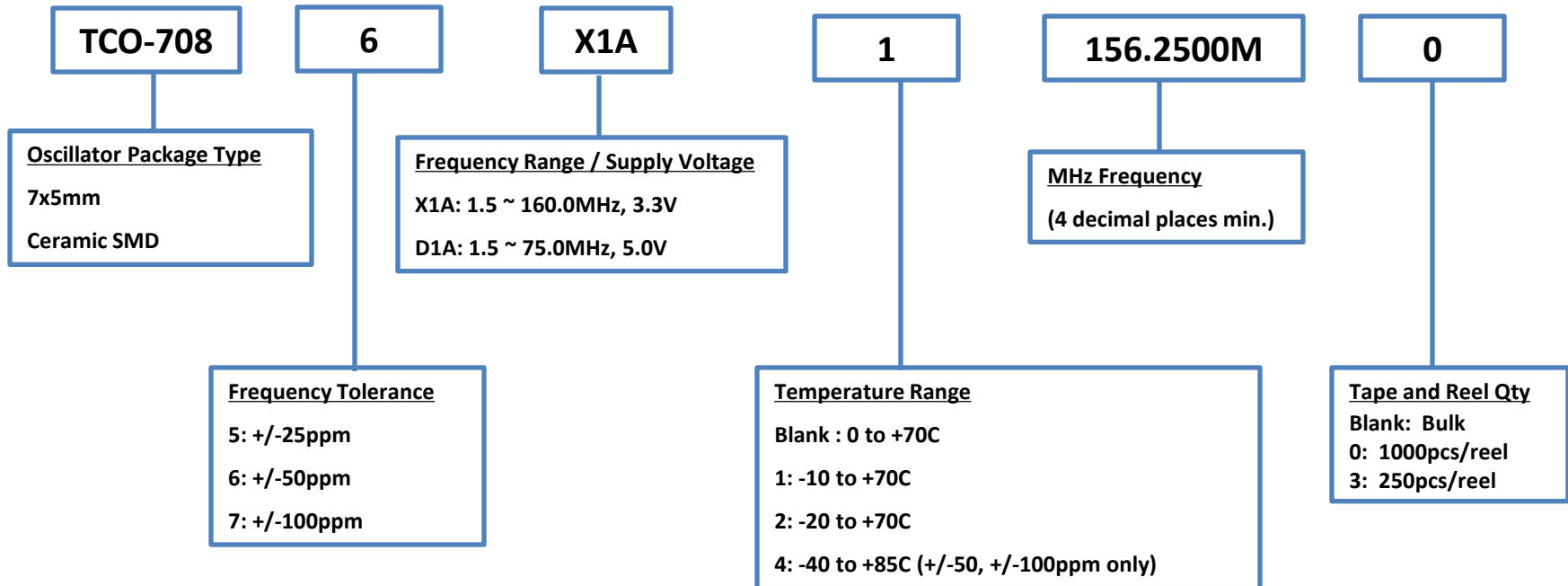




# Product Configuration System



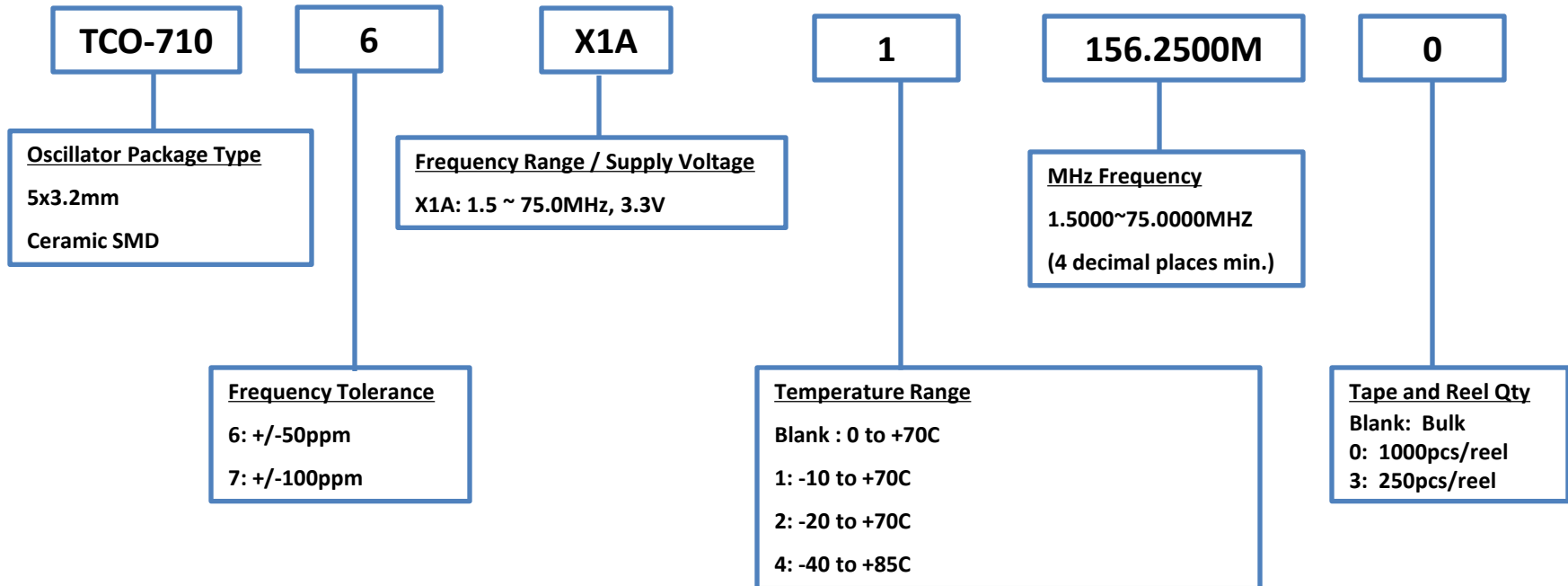
## Crystal Oscillators - SPXO



# Product Configuration System



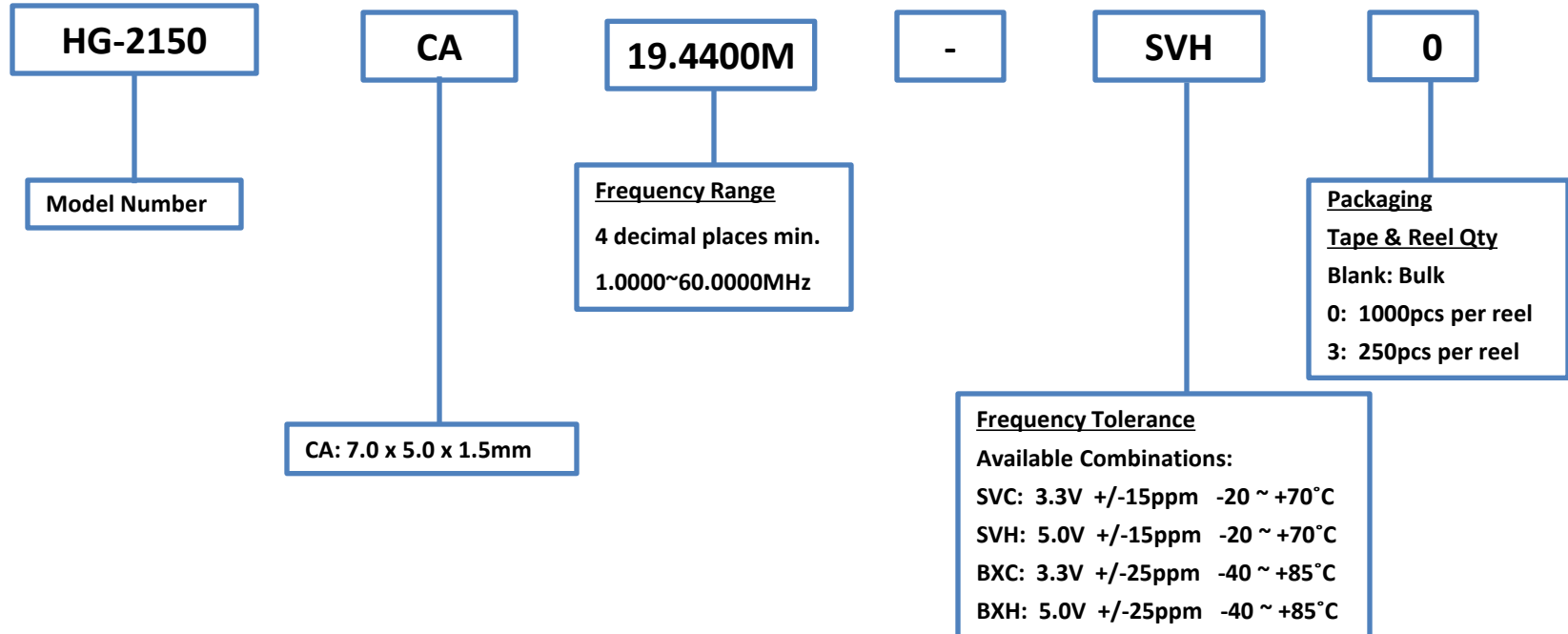
## Crystal Oscillators - SPXO



# Product Configuration System



## Crystal Oscillators - High Stability



# Product Configuration Guide

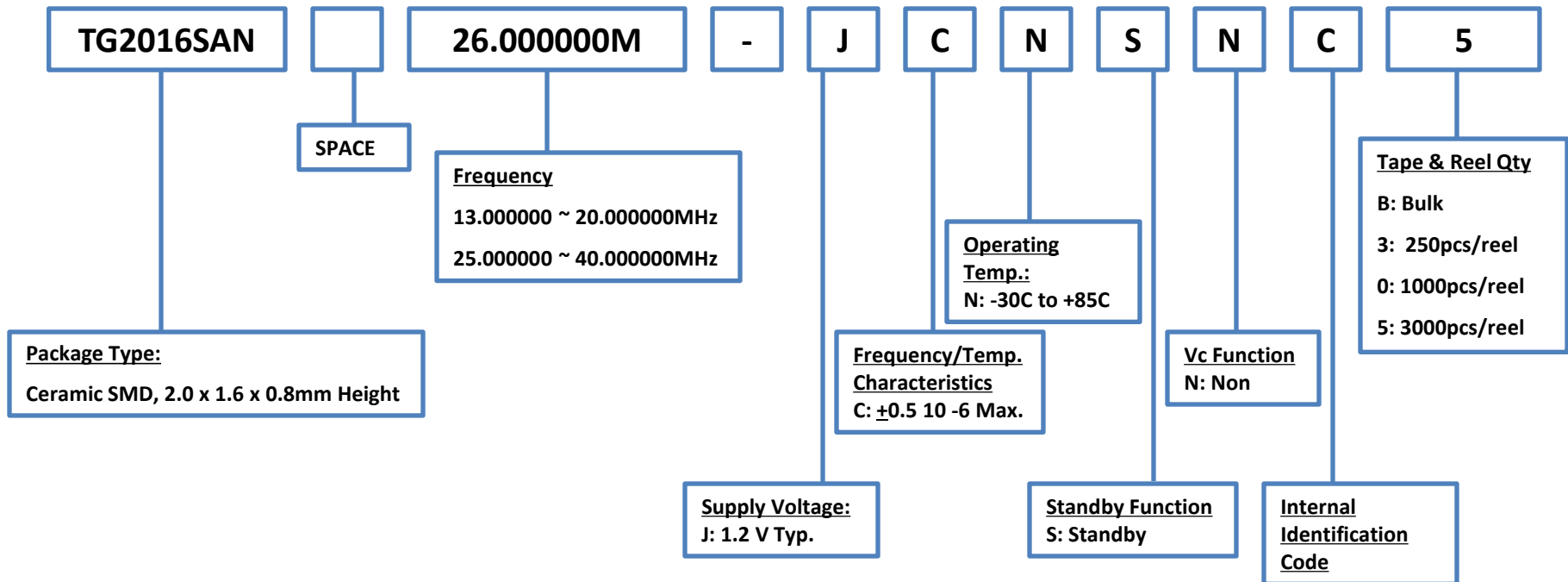
## TCXO



# Product Configuration System



## TCXO



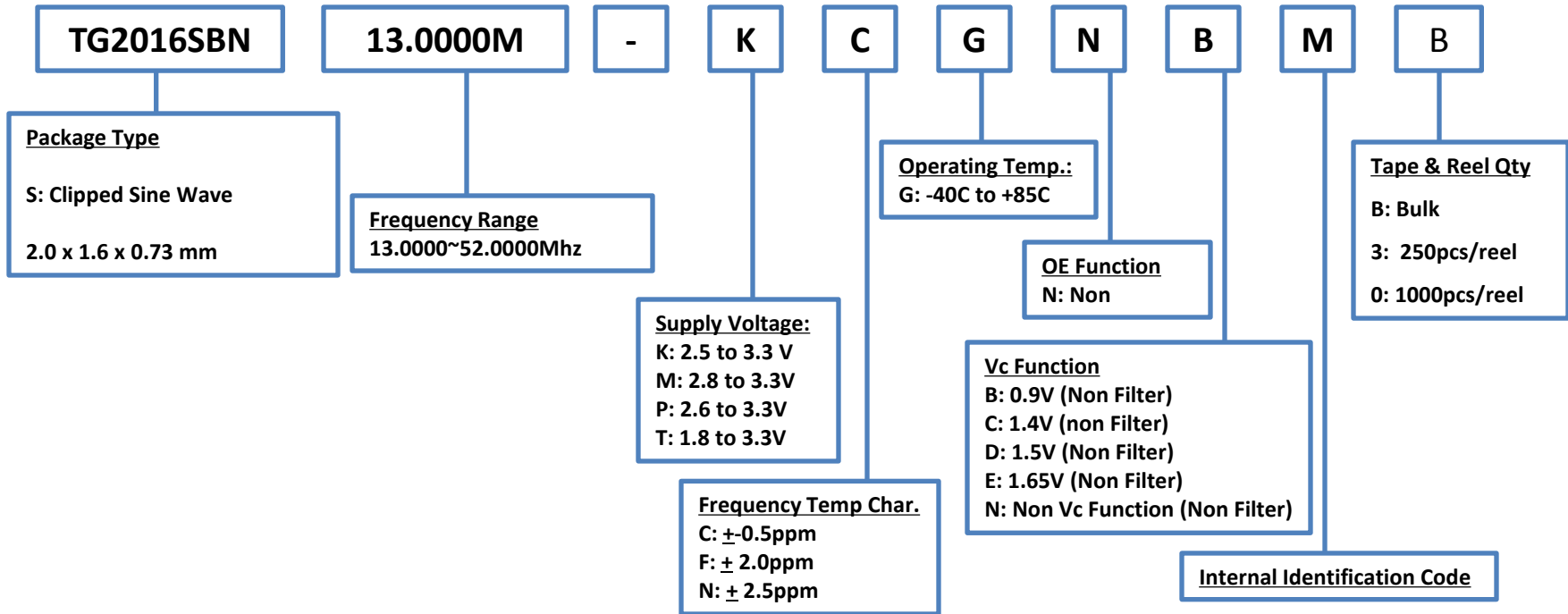
**NOTE:**

Please contact us for requirements not listed in this specification.

# Product Configuration System



## TCXO/VC-TCXO High Stability



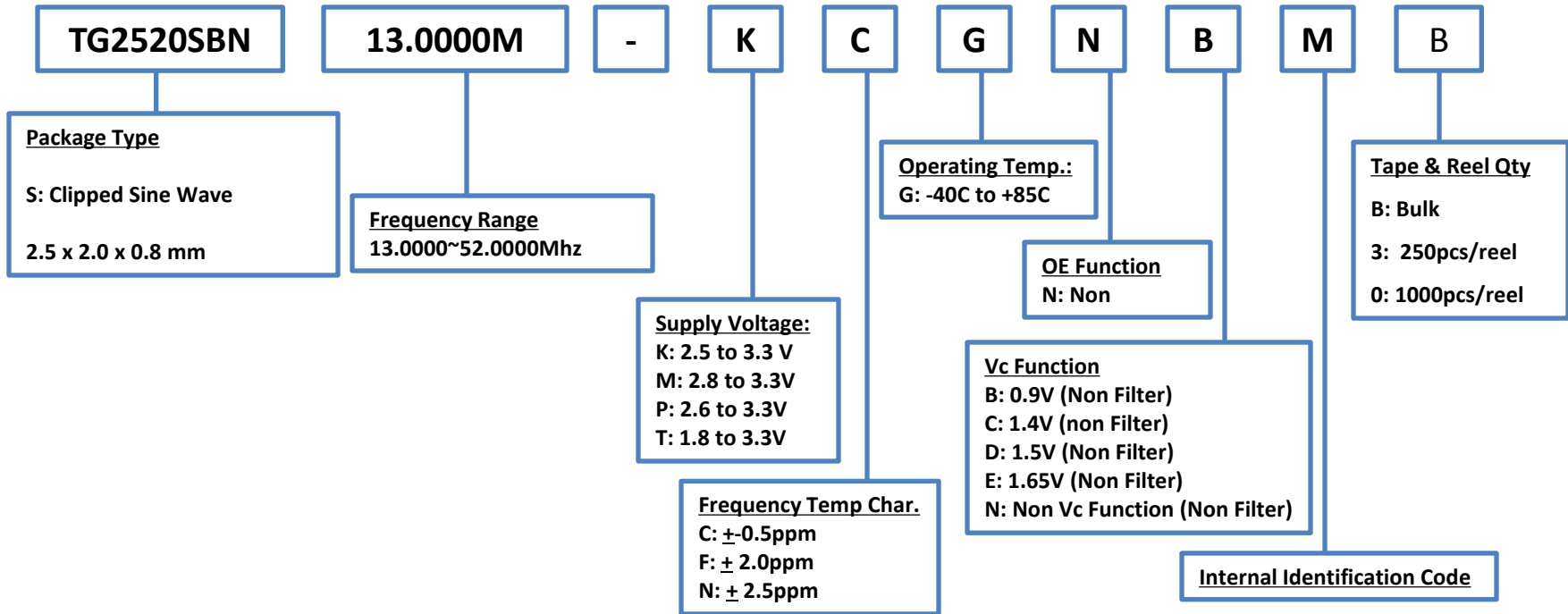
**NOTE:**

Please contact us for requirements not listed in this specification.

# Product Configuration System



## TCXO/VC-TCXO High Stability



**NOTE:**  
Please contact us for requirements not listed in this specification.



# Product Configuration System



## TCXO

TG-5006CJ

-

xxx

19.2000MHz

### Package Type:

TG-5006CJ - 2.0 X 1.6 X 0.8 mm  
TG-5006CG - 2.5 X 2.0 X 0.9 mm  
TG-5006CE - 3.2 X 2.5 X 1.0 mm

TG-5035CJ - 2.0 X 1.6 X 0.8 mm  
TG-5035CG - 2.5 X 2.0 X 0.9 mm  
TG-5035CE - 3.2 X 2.5 X 1.0 mm

TG-5031CJ - 2.0 X 1.6 X 0.8 mm  
TG-5021CG - 2.5 X 2.0 X 0.9 mm  
TG-5021CE - 3.2 X 2.5 X 1.0 mm

### Specification Code:

Issued by Epson after reviewing customer requirements

### Frequency

TG-5006CJ/CG/CE: 13 ~ 52MHz  
STD Freqs: 16.367667, 16.368, 16.369, 19.2, 26, 38.4MHz

TG-5035CE: 10 ~ 40 MHz  
TG-5035CJ/CG/: 13 ~ 52MHz  
STD Freqs: 13, 16.368, 16.369, 19.2, 26, 38.4MHz

TG-5031CJ/TG-5021CG: 13 ~ 52MHz  
TG-5021CE: 10 ~ 40MHz  
STD Freqs: 13, 19.2, 26, 38.4MHz

# EPSON

February 2017

### NOTE:

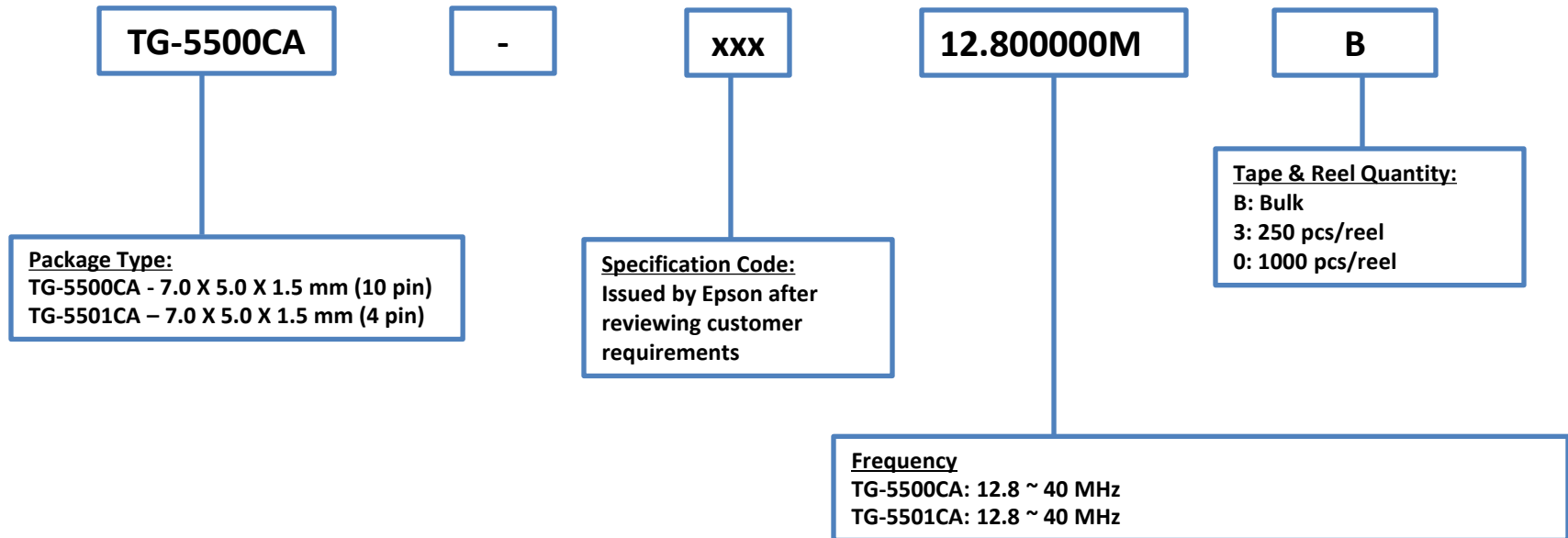
Please contact us for requirements not listed in this specification.



# Product Configuration System



## TCXO/VC-TCXO Ultra High Stability



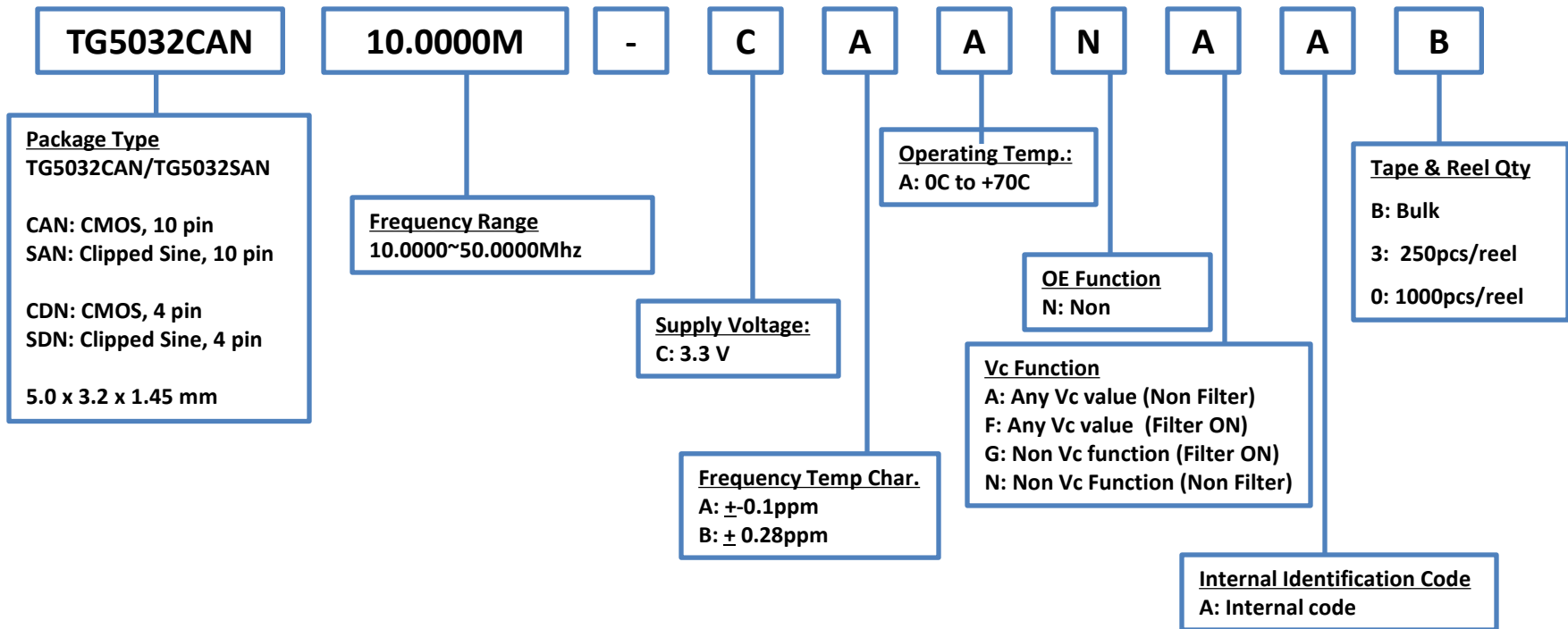
**NOTE:**

Please contact us for requirements not listed in this specification.

# Product Configuration System



## TCXO/VC-TCXO Ultra High Stability



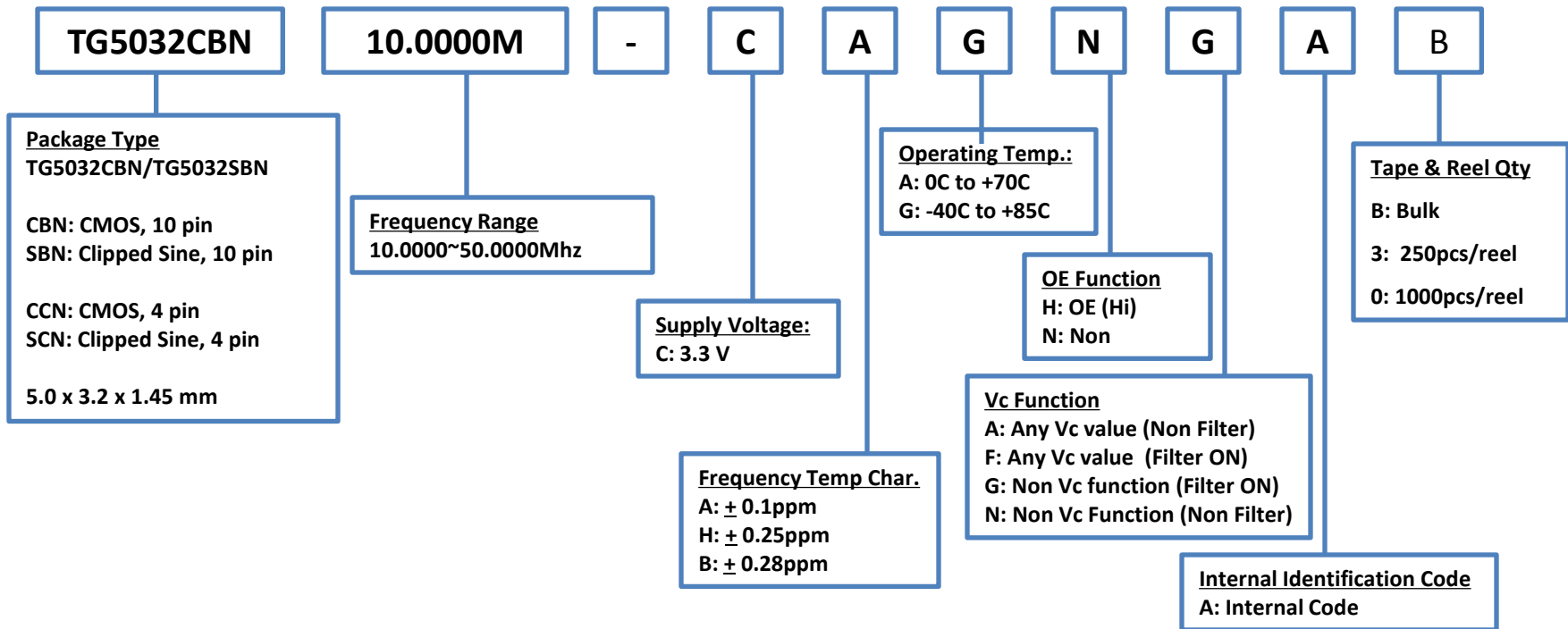
**NOTE:**

Please contact us for requirements not listed in this specification. 66

# Product Configuration System



## TCXO/VC-TCXO Ultra High Stability

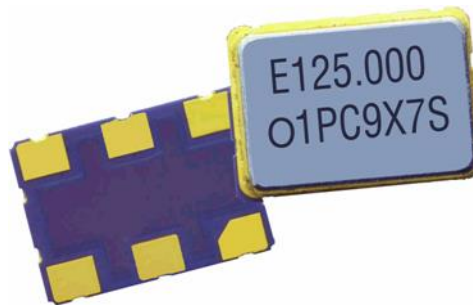


**NOTE:**

Please contact us for requirements not listed in this specification. 67

# Product Configuration Guide

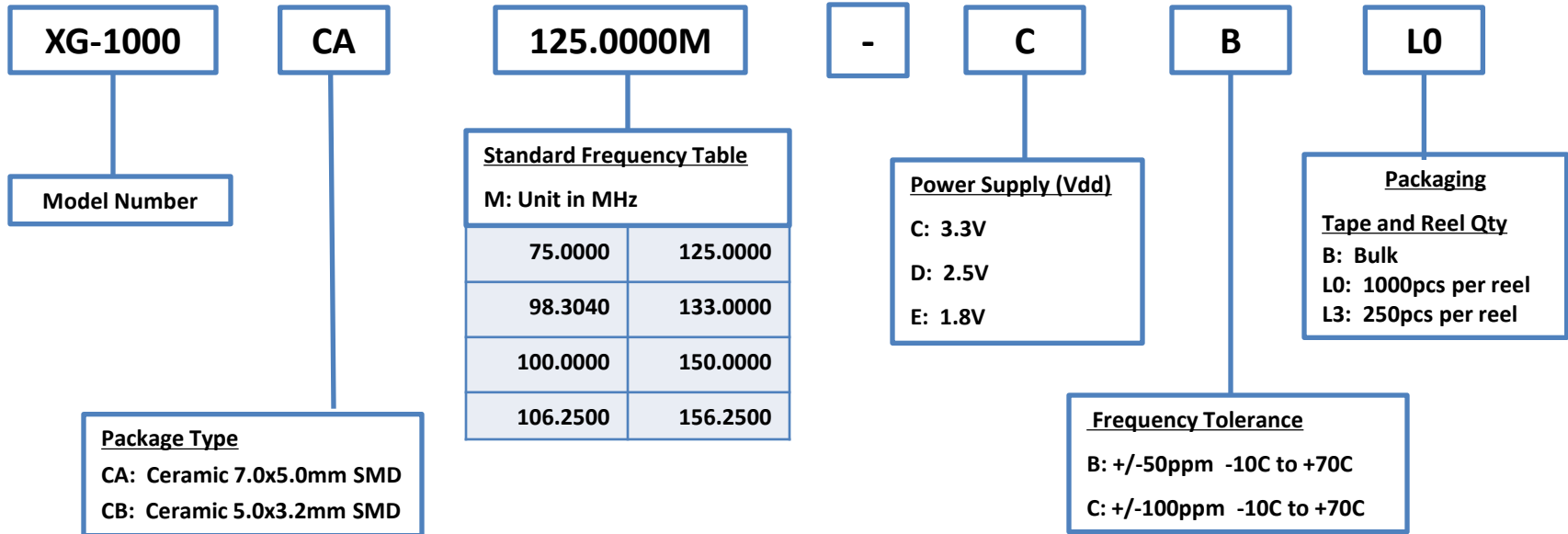
## SAW OSCILLATORS



# Product Configuration System

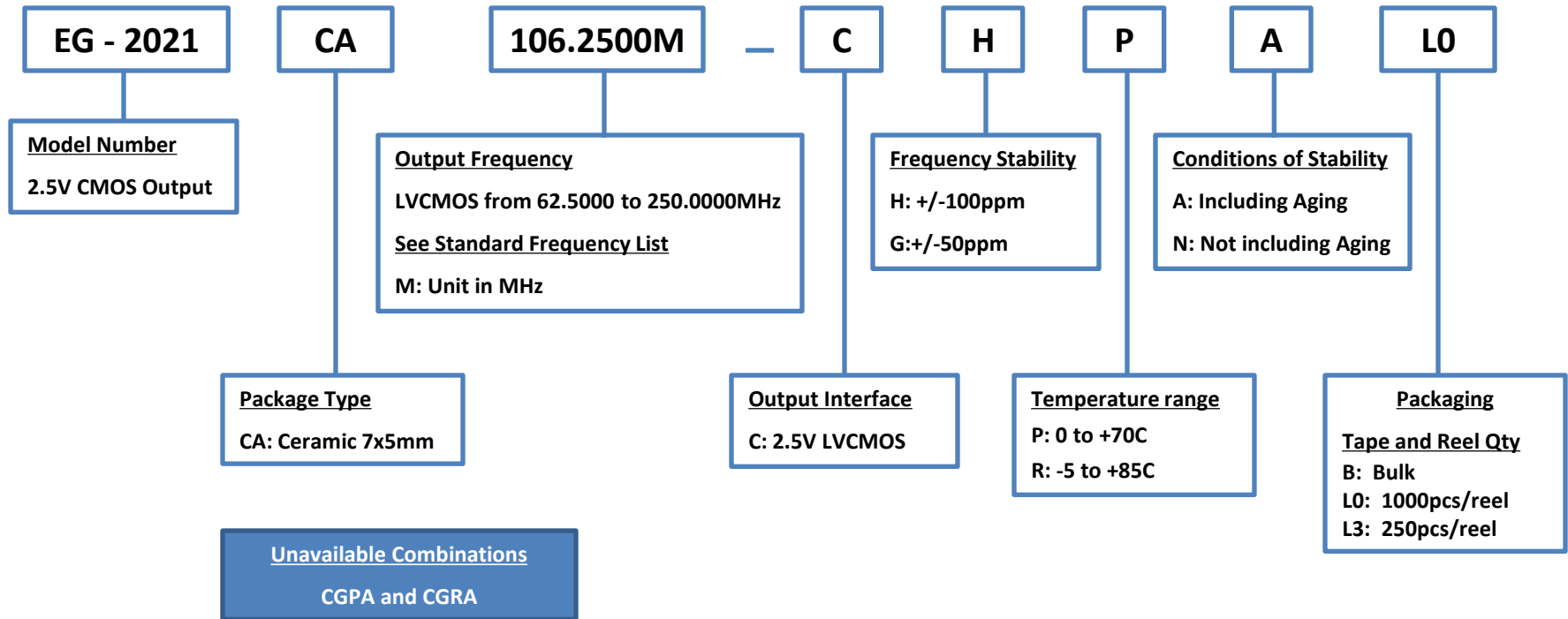


## Crystal Oscillators – Low Jitter (SAW)



# Product Configuration System

## Crystal Oscillators – Low Jitter (SAW)



# Standard Frequencies

---

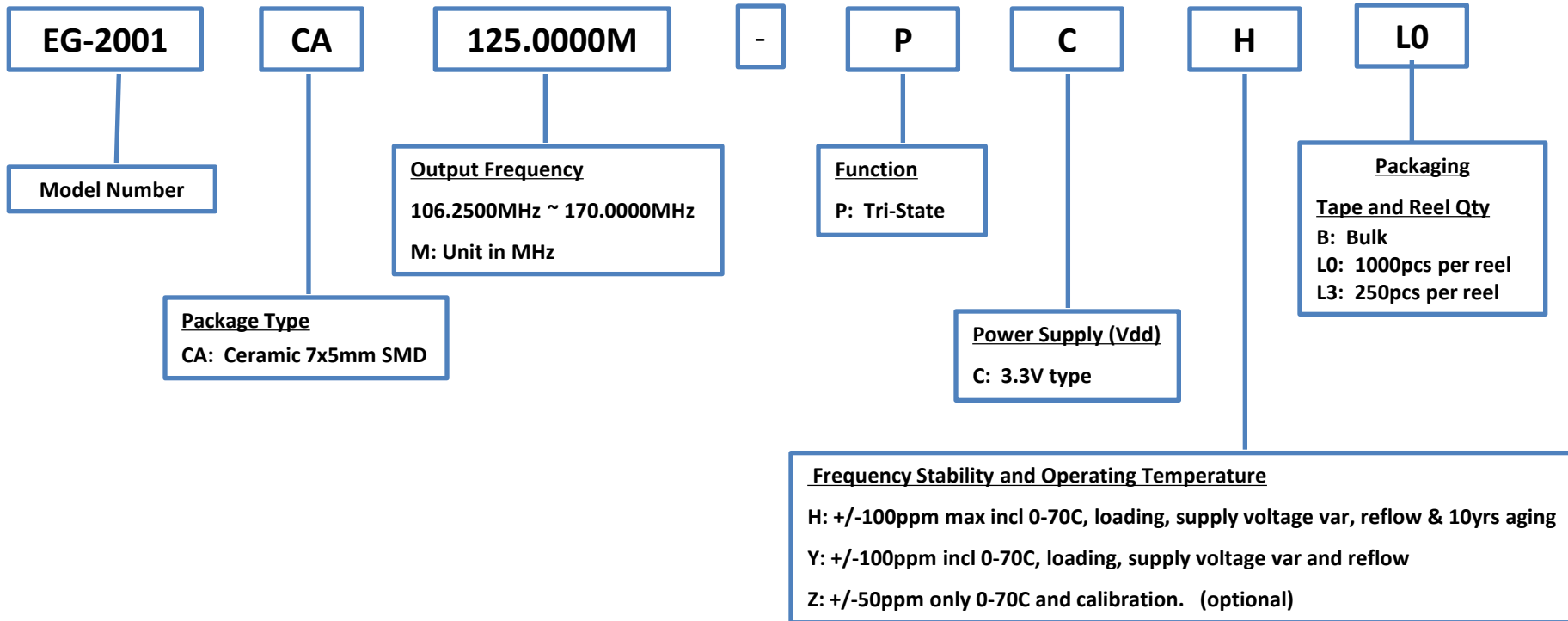
EG-2021CA (2.5V CMOS)

<b>62.5000</b>	<b>125.0000</b>
<b>66.5000</b>	<b>133.0000</b>
<b>75.0000</b>	<b>150.0000</b>
<b>78.1250</b>	<b>156.2500</b>
<b>90.0000</b>	<b>250.0000</b>
<b>98.3040</b>	
<b>100.0000</b>	
<b>106.2500</b>	
<b>108.0000</b>	
<b>124.4160</b>	

# Product Configuration System



## Crystal Oscillators – Low Jitter (SAW)





# Standard Frequencies

---

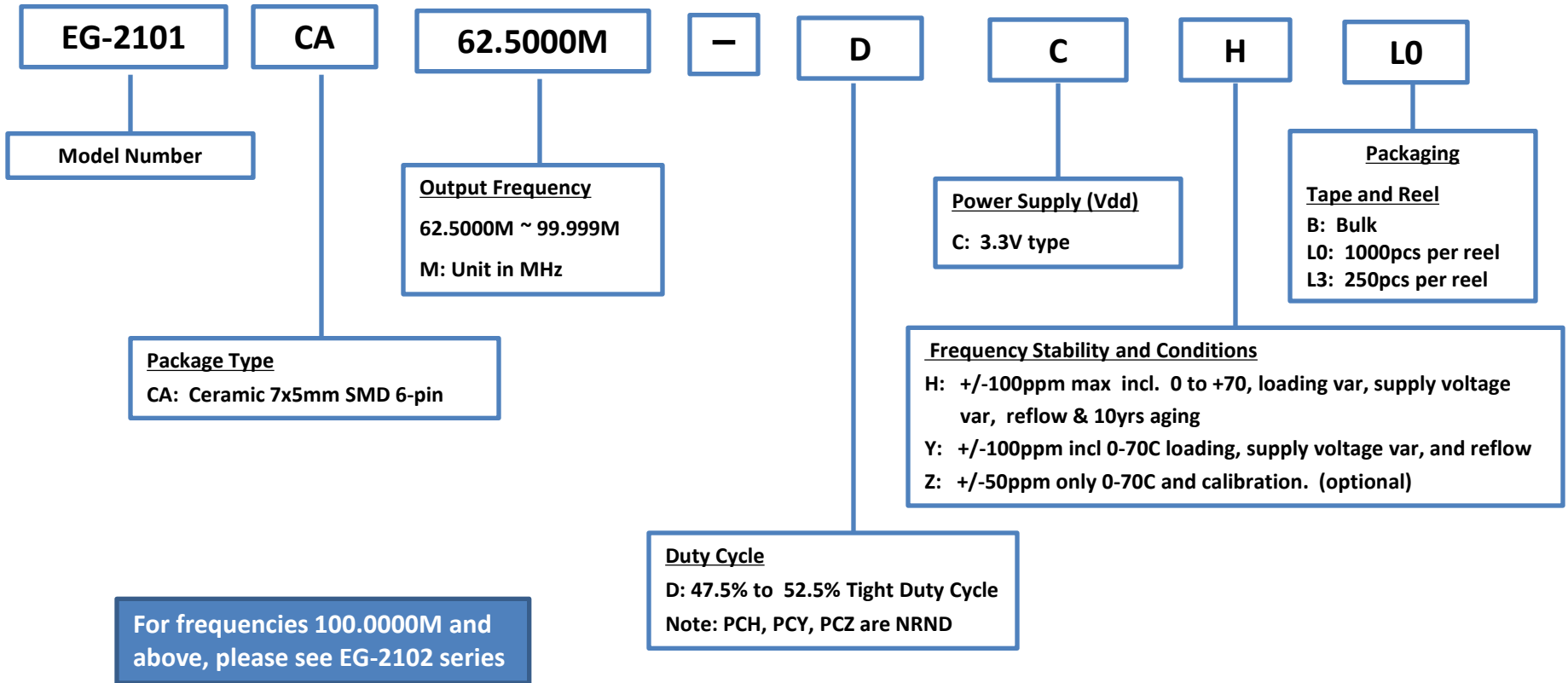
## EG-2001 (3.3V CMOS)

<b>106.2500</b>	<b>155.5200</b>
<b>108.0000</b>	<b>156.2500</b>
<b>125.0000</b>	<b>159.3750</b>
<b>128.0000</b>	<b>160.0000</b>
<b>132.8125</b>	<b>161.1328</b>
<b>133.0000</b>	<b>166.0000</b>
<b>133.3333</b>	<b>166.6285</b>
<b>135.0000</b>	<b>166.6667</b>
<b>143.0000</b>	<b>167.3316</b>
<b>150.0000</b>	

# Product Configuration System



## Crystal Oscillators – Low Jitter (SAW)



# Standard Frequencies

## EG-2101

EG-2101CA DCx	
62.5000	79.6875
64.0000	80.0000
66.4063	80.5664
66.5000	83.0000
66.6667	83.3143
67.5000	83.3333
71.5000	83.6658
75.0000	87.5000
77.7600	90.0000
78.1250	

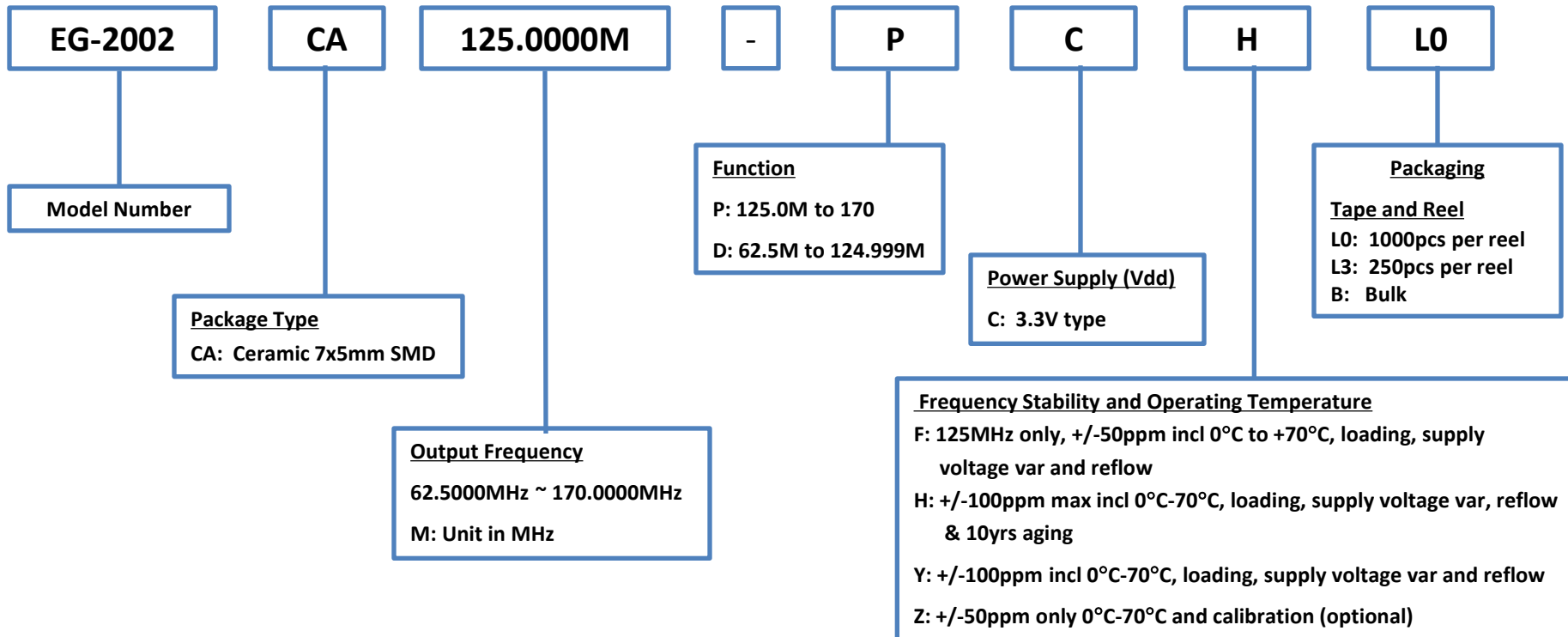
For frequencies 100.0000M and above, please see EG-2102 series



# Product Configuration System



## Crystal Oscillators – Low Jitter (SAW)



# Standard Frequencies

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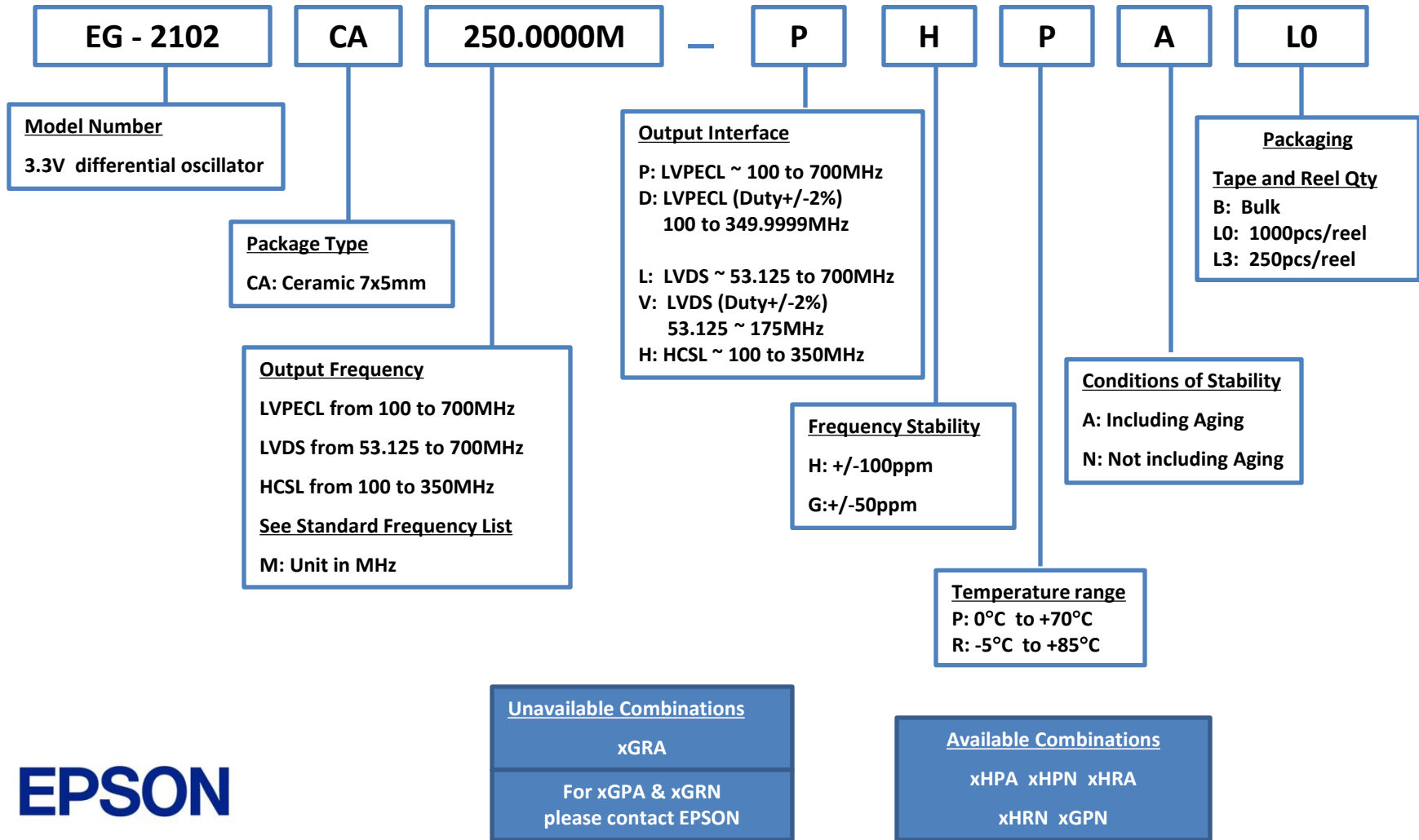
## EG-2002 (LVTTL)

EG-2002CA DCx		EG-2002CA PCx	
62.5000	80.5664	125.0000	161.1328
64.0000	83.0000	128.0000	166.0000
66.4063	83.3143	132.8125	166.6286
66.5000	83.3333	133.0000	166.6667
66.6667	83.6658	133.3333	167.3316
67.5000	87.5000	135.0000	
71.5000	90.0000	143.0000	
75.0000	100.0000	150.0000	
77.7600	106.2500	155.5200	
78.1250		156.2500	
79.6875		159.3750	
80.0000		160.0000	

# Product Configuration System



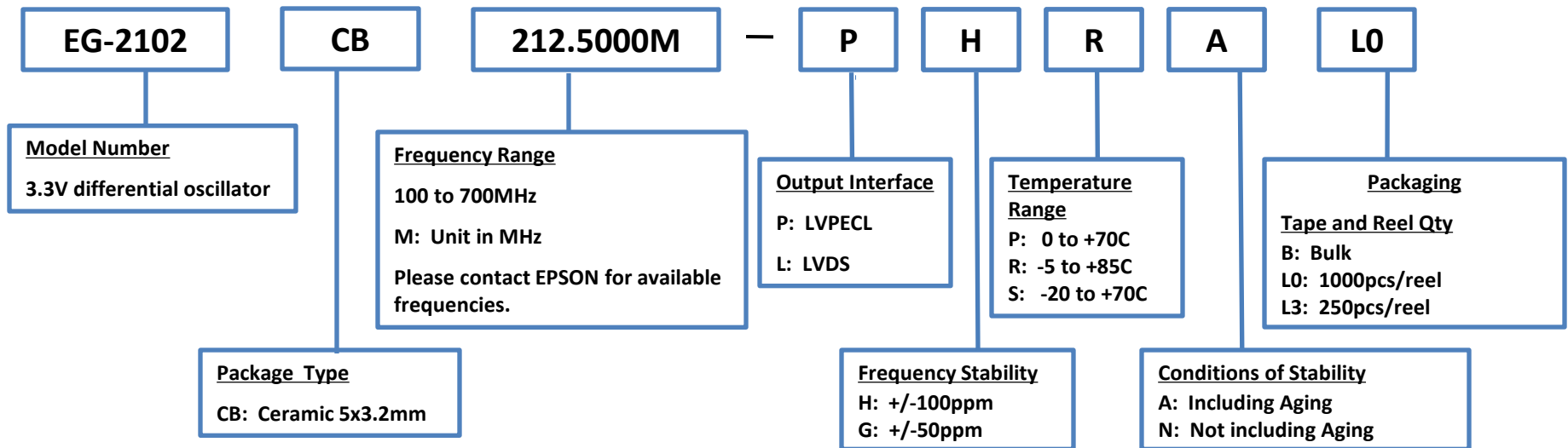
## Crystal Oscillators – Low Jitter (SAW)



# Product Configuration System



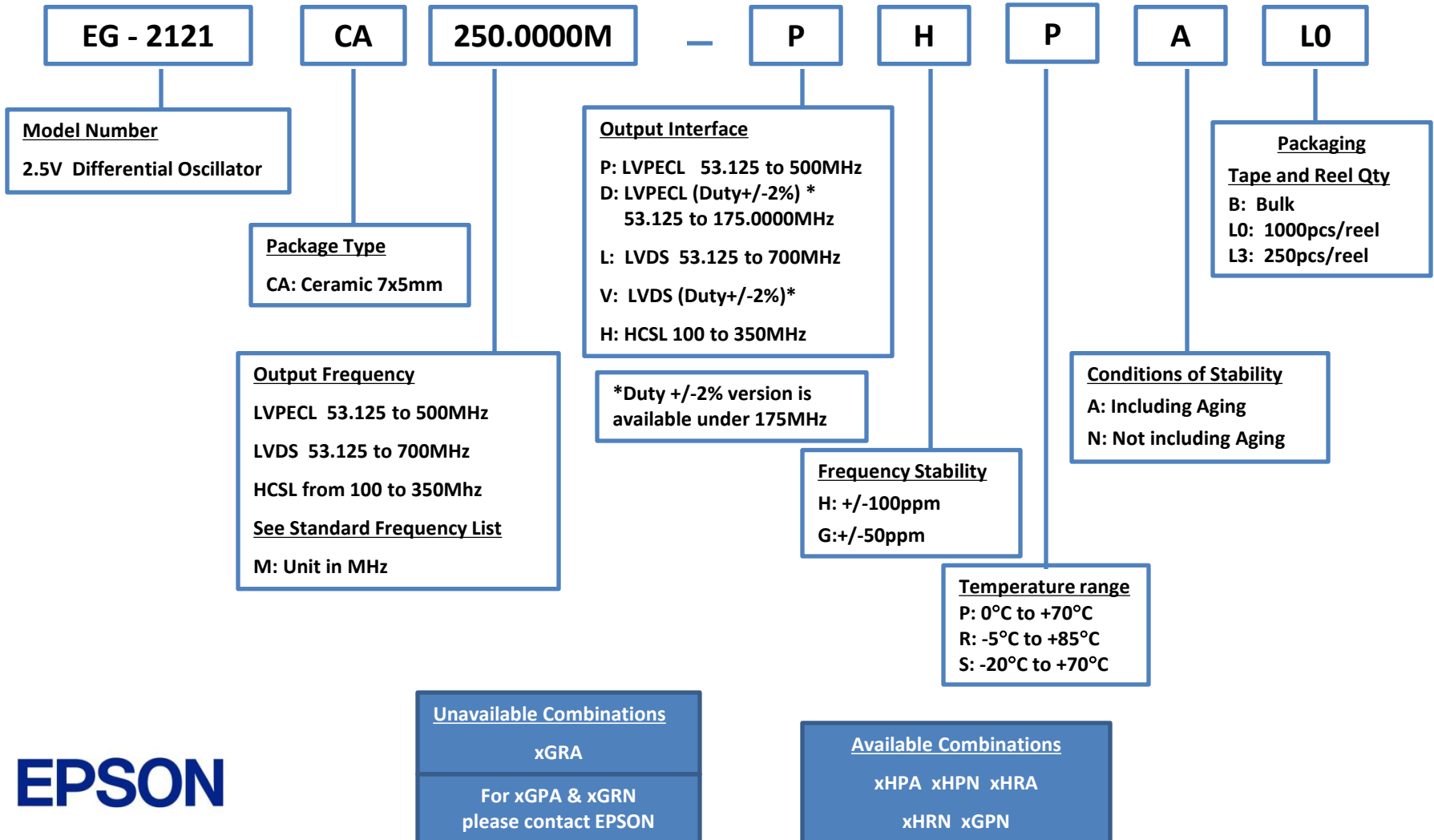
## Crystal Oscillators – Low Jitter (SAW)



# Product Configuration System



## Crystal Oscillators – Low Jitter (SAW)





# Standard Frequencies

## EG-2121 P (LVPECL)

<b>53.1250 *</b>	<b>97.6563</b>	<b>195.3125</b>	<b>390.6250</b>
<b>62.5000 *</b>	<b>98.3040</b>	<b>196.6080</b>	<b>393.2160</b>
<b>66.6667 *</b>	<b>100.0000</b>	<b>200.0000</b>	<b>400.0000</b>
<b>75.0000 *</b>	<b>106.2500</b>	<b>212.5000</b>	<b>425.0000</b>
<b>78.1250 *</b>	<b>124.4160</b>	<b>248.8320</b>	<b>497.6640</b>
<b>79.6875 *</b>	<b>125.0000</b>	<b>250.0000</b>	<b>500.0000</b>
<b>80.0000 *</b>	<b>132.8125</b>	<b>265.6250</b>	
<b>87.5000 *</b>	<b>133.0000</b>	<b>266.0000</b>	
	<b>148.3517</b>	<b>296.7033</b>	
	<b>150.0000</b>	<b>300.0000</b>	
	<b>150.8072</b>	<b>301.6144</b>	
	<b>155.5200</b>	<b>311.0400</b>	
	<b>156.2500</b>	<b>312.5000</b>	
	<b>159.3750</b>	<b>318.7500</b>	
	<b>161.1328</b>	<b>322.2657</b>	
	<b>164.3555</b>	<b>328.7110</b>	
	<b>166.6286</b>	<b>333.2572</b>	
	<b>167.3317</b>	<b>334.6633</b>	
	<b>173.3708</b>	<b>346.7415</b>	
	<b>175.0000</b>	<b>350.0000</b>	
<b>* Frequency only available for xHPA and xHPN</b>			

# Standard Frequencies

## EG-2121 L (LVDS)

53.1250 *	97.6563	195.3125	390.6250
62.5000 *	98.3040	196.6080	393.2160
66.6667 *	100.0000	200.0000	400.0000
75.0000 *	106.2500	212.5000	425.0000
78.1250 *	124.4160	248.8320	497.6640
79.6875 *	125.0000	250.0000	500.0000
80.0000 *	132.8125	265.6250	531.2500
87.5000 *	133.0000	266.0000	532.0000
	148.3517	296.7033	593.4066
	150.0000	300.0000	600.0000
	150.8072	301.6144	603.2288
	156.2500	312.5000	625.0000
	159.3750	318.7500	637.5000
	161.1328	322.2656	644.5313
	164.3555	328.7109	657.4219
	166.6286	333.2571	666.5143
	167.3316	334.6633	669.3266
	173.3707	346.7415	693.4830
	175.0000	350.0000	700.0000
* Frequency only available for xHPA and xHPN			

# Standard Frequencies

---

## EG-2121 (HCSL)

-	195.3125
-	196.6080
100.0000	200.0000
106.2500	212.5000
124.4160	248.8320
125.0000	250.0000
132.8125	265.6250
133.0000	266.0000
148.3517	296.7033
150.0000	300.0000
150.8072	301.6144
155.5200	311.0400
156.2500	312.5000
159.3750	318.7500
161.1328	322.2656
164.3555	328.7109
166.6286	333.2571
167.3316	334.6633
173.3707	346.7415
175.0000	350.0000

# Standard Frequencies

---

## EG-2102P (LVPECL)

-	195.3125	390.6250
-	196.6080	393.2160
100.0000	200.0000	400.0000
106.2500	212.5000	425.0000
124.4160	248.8320	497.6640
125.0000	250.0000	500.0000
132.8125	265.6250	531.2500
133.0000	266.0000	532.0000
148.3517	296.7033	593.4066
150.0000	300.0000	600.0000
150.8072	301.6144	603.2288
155.5200	311.0400	622.0800
156.2500	312.5000	625.0000
159.3750	318.7500	637.5000
161.1328	322.2656	644.5313
164.3555	328.7109	657.4219
166.6286	333.2571	666.5143
167.3316	334.6633	669.3266
173.3707	346.7415	693.4830
175.0000	350.0000	700.0000

# Standard Frequencies

## EG-2102 L (LVDS)

53.1250 *	97.6563	195.3125	390.6250
62.5000 *	98.3040	196.6080	393.2160
66.6667 *	100.0000	200.0000	400.0000
75.0000 *	106.2500	212.5000	425.0000
78.1250 *	124.4160	248.8320	497.6640
79.6875 *	125.0000	250.0000	500.0000
80.0000 *	132.8125	265.6250	531.2500
87.5000 *	133.0000	266.0000	532.0000
	148.3517	296.7033	593.4066
	150.0000	300.0000	600.0000
	150.8072	301.6144	603.2288
	155.5200	311.0400	622.0800
	156.2500	312.5000	625.0000
	159.3750	318.7500	637.5000
	161.1328	322.2656	644.5313
	164.3555	328.7109	657.4219
	166.6286	333.2571	666.5143
	167.3316	334.6633	669.3266
	173.3707	346.7415	693.4830
	175.0000	350.0000	700.0000
* Frequency only available for xHPA and xHPN			

# Standard Frequencies

---

## EG-2102P (HCSL)

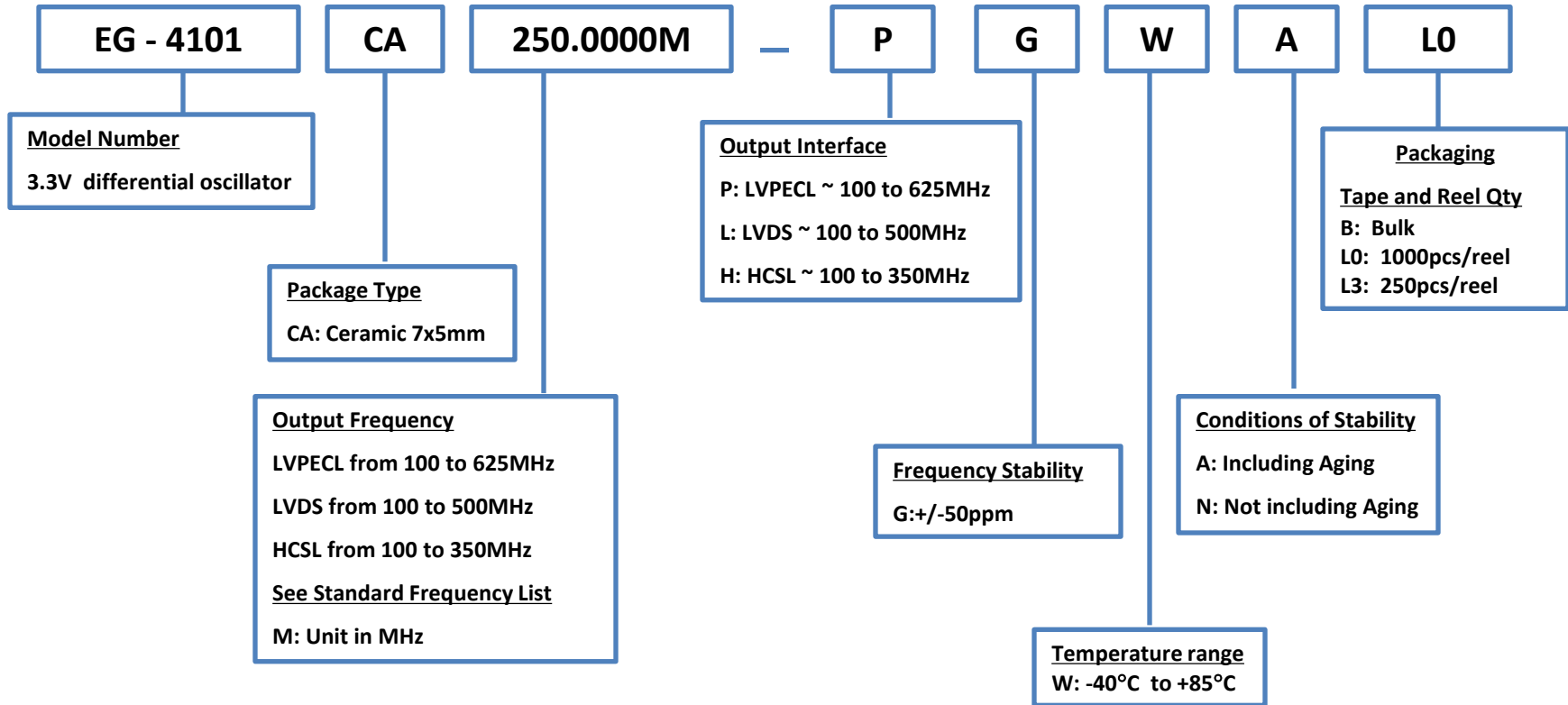
-	195.3125
-	196.6080
100.0000	200.0000
106.2500	212.5000
124.4160	248.8320
125.0000	250.0000
132.8125	265.6250
133.0000	266.0000
148.3517	296.7033
150.0000	300.0000
150.8072	301.6144
155.5200	311.0400
156.2500	312.5000
159.3750	318.7500
161.1328	322.2656
164.3555	328.7109
166.6286	333.2571
167.3316	334.6633
173.3707	346.7415
175.0000	350.0000



# Product Configuration System



## Crystal Oscillators – Low Jitter (SAW)



# Standard Frequencies

## EG-4101 (LVPECL)

100.0000	400.0000	
106.2500	425.0000	
121.1090	484.4360	
133.0000	532.0000	
140.0000	560.0000	
140.6665	562.6660	
156.2500	625.0000	
161.1320		
168.0407		
170.0000		
200.0000		
212.5000		
242.2180		
266.0000		
280.0000		
281.3330		
312.5000		
322.2640		
336.0814		
340.0000		





# Standard Frequencies

---

## EG-4101 (LVDS)

100.0000	400.0000	
106.2500	425.0000	
121.1090	484.4360	
133.0000		
140.0000		
140.6665		
156.2500		
161.1320		
168.0407		
170.0000		
200.0000		
212.5000		
242.2180		
266.0000		
280.0000		
281.3330		
312.5000		
322.2640		
336.0814		
340.0000		



# Standard Frequencies

---

## EG-4101 (HC SL)

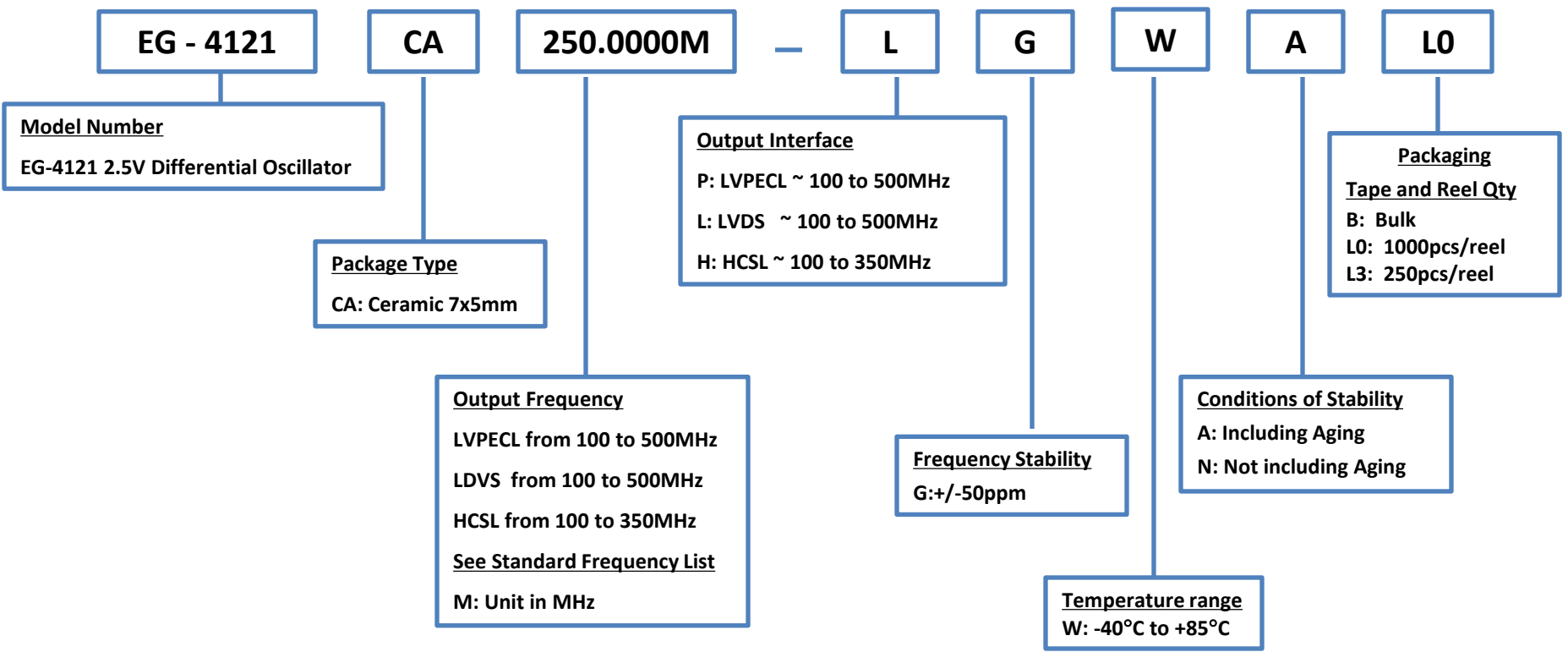
100.0000		
106.2500		
121.1090		
133.0000		
140.0000		
140.6665		
156.2500		
161.1320		
168.0407		
170.0000		
200.0000		
212.5000		
242.2180		
266.0000		
280.0000		
281.3330		
312.5000		
322.2640		
336.0814		
340.0000		



# Product Configuration System



## Crystal Oscillators – Low Jitter (SAW)



# Standard Frequencies

---

## EG-4101 (LVPECL)

100.0000	400.0000	
106.2500	425.0000	
121.1090	484.4360	
133.0000		
140.0000		
140.6665		
156.2500		
161.1320		
168.0407		
170.0000		
200.0000		
212.5000		
242.2180		
266.0000		
280.0000		
281.3330		
312.5000		
322.2640		
336.0814		
340.0000		



# Standard Frequencies

---

## EG-4101 (LVDS)

100.0000	400.0000	
106.2500	425.0000	
121.1090	484.4360	
133.0000		
140.0000		
140.6665		
156.2500		
161.1320		
168.0407		
170.0000		
200.0000		
212.5000		
242.2180		
266.0000		
280.0000		
281.3330		
312.5000		
322.2640		
336.0814		
340.0000		



# Standard Frequencies

---

## EG-4101 (HC SL)

100.0000		
106.2500		
121.1090		
133.0000		
140.0000		
140.6665		
156.2500		
161.1320		
168.0407		
170.0000		
200.0000		
212.5000		
242.2180		
266.0000		
280.0000		
281.3330		
312.5000		
322.2640		
336.0814		
340.0000		



## High-Frequency Applications for SAW Oscillators

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- 75.000M Serial ATA/SAS
- 98.304M 1394b
- 100.000M PCI-Express, Serial ATA
- 106.250M Fibre Channel
- 125.000M 1GbEthernet; iSCSI, Infiniband, Hypertransport, PCI-express
- 133.000M Bus/Mem Clock, CPU
- 133.333M FB DIMM
- 150.000M Serial ATA, Serial SCSI
- 155.520M SONET OC-48
- 156.250M 10GbEthernet XAUI
- 159.375M 10GbFibre Channel XAUI
- 161.132M 10GbEthernet SERDES
- 164.355M 10GbFibre Channel SERDES
- 166.000M Bus/Mem Clock
- 200.000M Bus/Mem Clock
- 212.500M 4G Fibre Channel, 8Gb Fibre Channel, FCoE
- 250.000M Infiniband, High Speed Bus
- 312.500M 10GbE
- 500.000M High Speed Bus
- 622.080M SONET OC-192
- 625.000M 10GbEthernet XAUI, High Speed Bus
- 644.531M 10GbEthernet SERDES
- 669.326M SONET OC-192 Digital Wrapper

# High Frequency Oscillator Applications

XO / SO (MHz)			VCXO / VCSO (MHz)		
Fibre Channel	FC-2	106.2	SONET	OC-3/12	19.44*
	FC-4/-8	212.5 / 425		OC-3/12	38.88*
	FC-10	159.375			
Ethernet	GigE	125			
	10 GigE/Infiniband	125 / 250			
	XAUI	156.25			
	XAUI2	312.5			
	10 GigE PHY	161.1328			
		322.2656			
PCI-Express	Phase 1	100		OC-6	311.04*
	Phase 2	200			
	Phase 3	400			
Storage	SATA 1	75 / 150	OC-12	622.08	
	SATA 2	150 / 300			
	SAS 1	75 / 150			
	SAS 2	150 / 300			
Computer	Bus / Mem Clock	100 / 125 / 133.33 /	OC-48	2488.32	
		166.66			
		200 / 266.67			

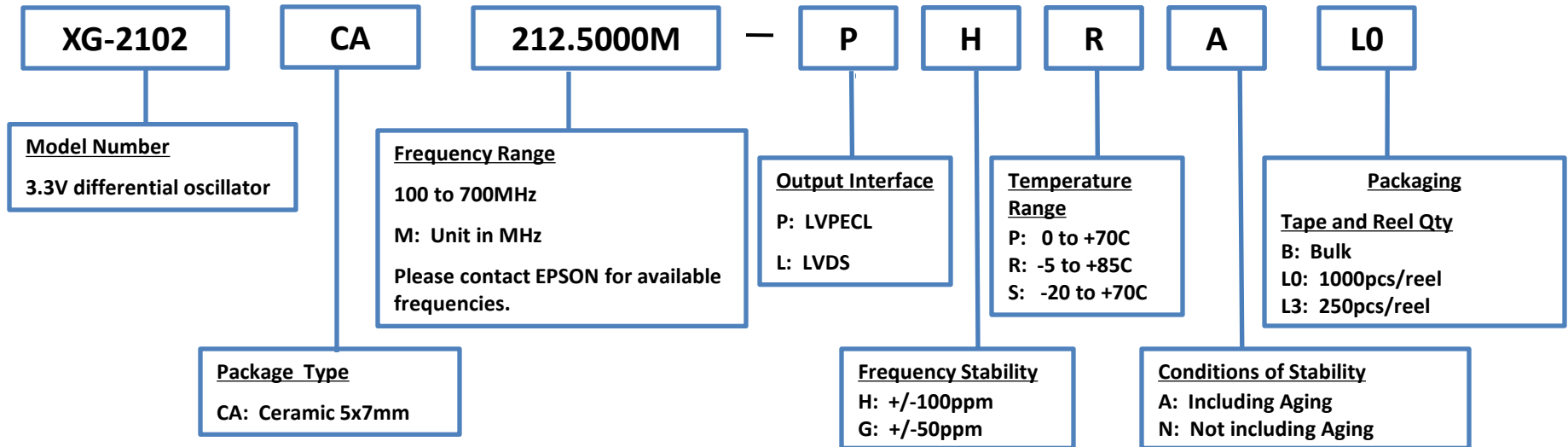
\* XO / SO also



# Product Configuration System



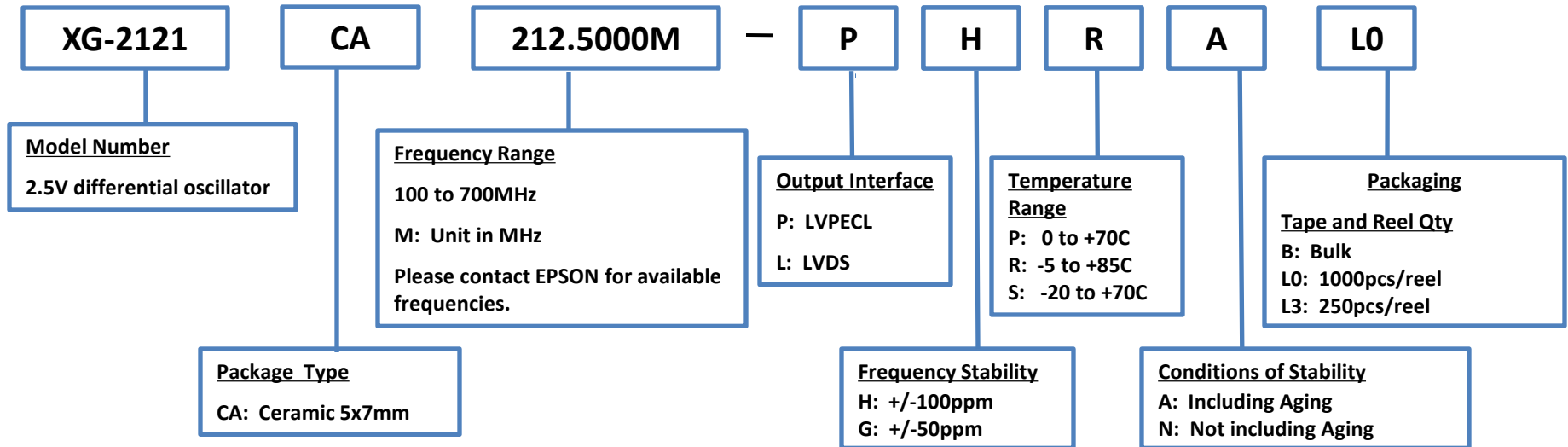
## Crystal Oscillators – Low Jitter (SAW)



# Product Configuration System



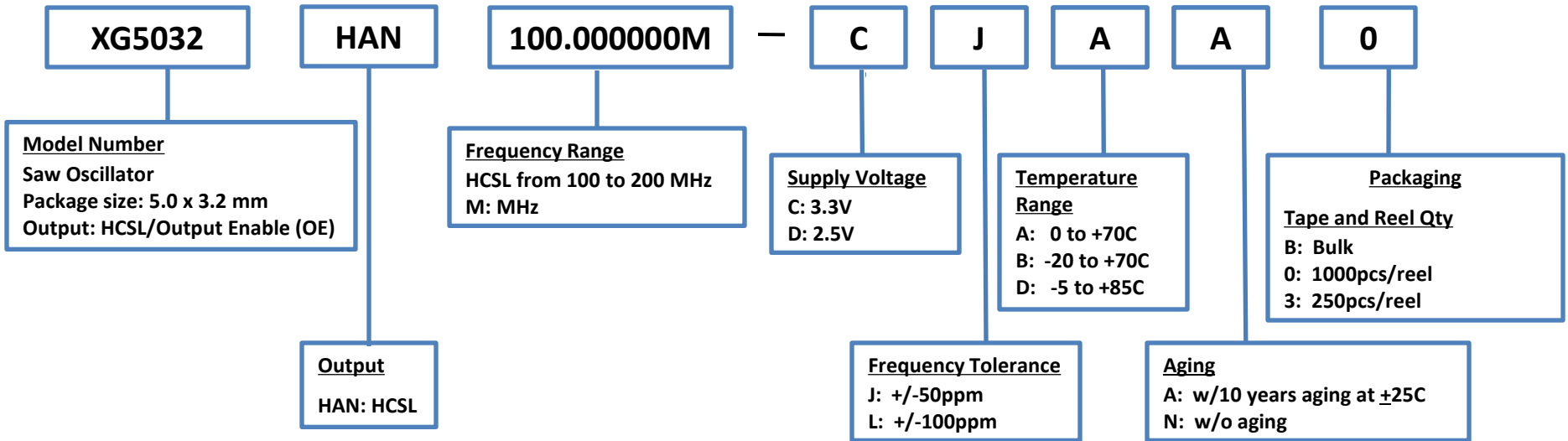
## Crystal Oscillators – Low Jitter (SAW)



# Product Configuration System



## Low-Jitter SAW Oscillator (SPSO)



**Unavailable Combinations**  
JDA and JBA

# Product Configuration Guide

# Programmable Oscillators



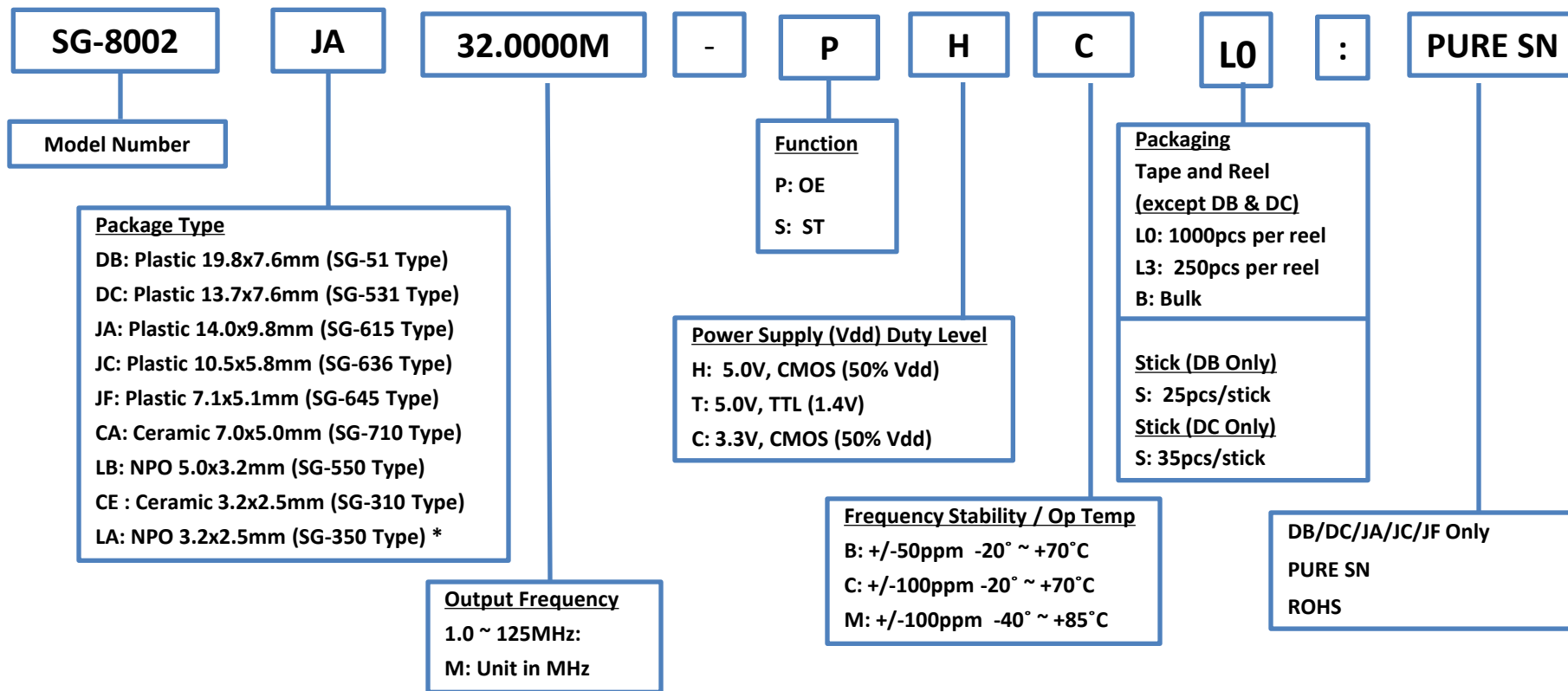
**EPSON**

February 2017

# Product Configuration System



## Crystal Oscillators - Programmable



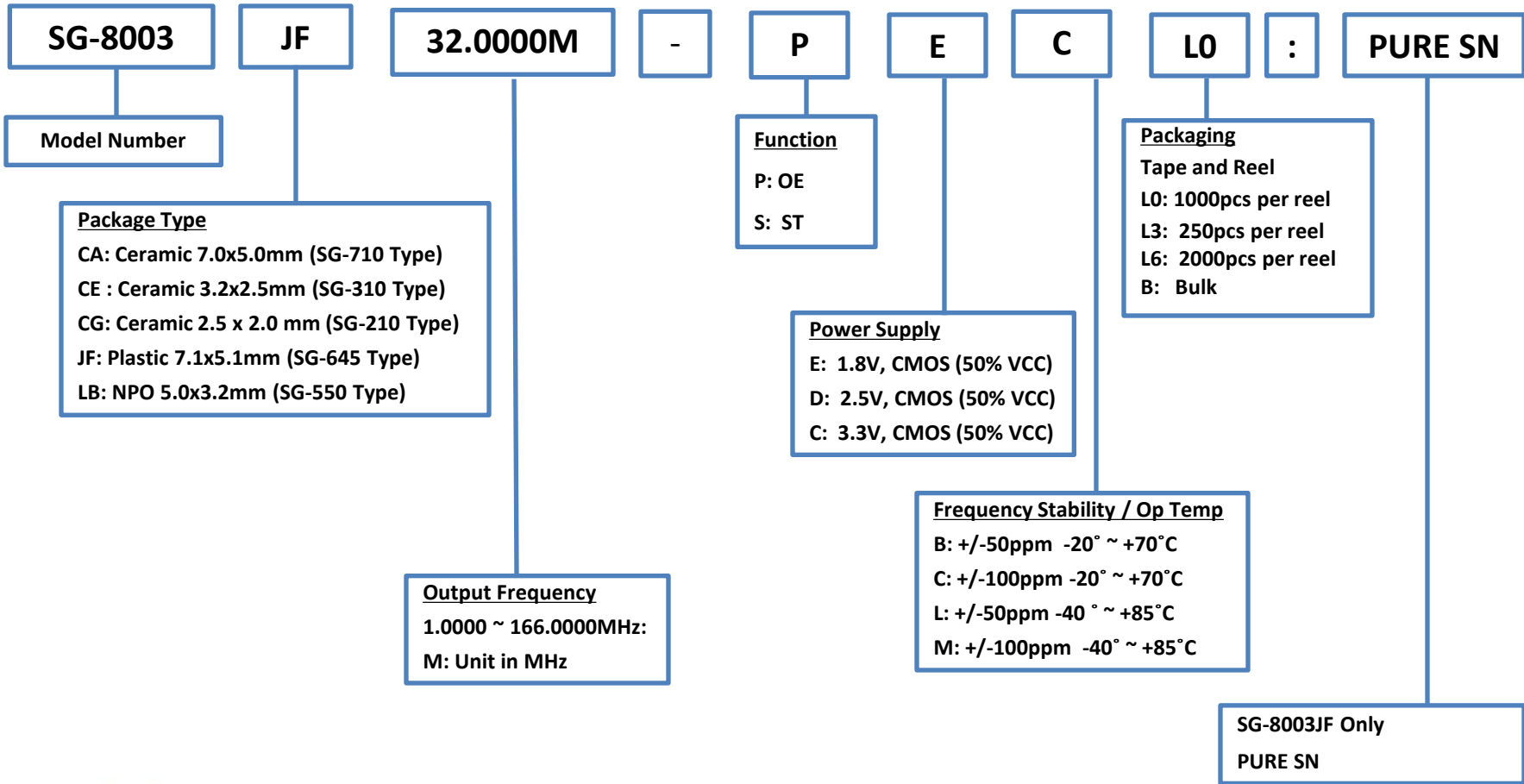
**\*SG-8002LA & SG-8002DB:  
 Not Recommended for New Designs**

**NOTE:**  
 Complete Pb Free:  
 SG-8002CA/CE  
 SG-8002LA/LB

# Product Configuration System



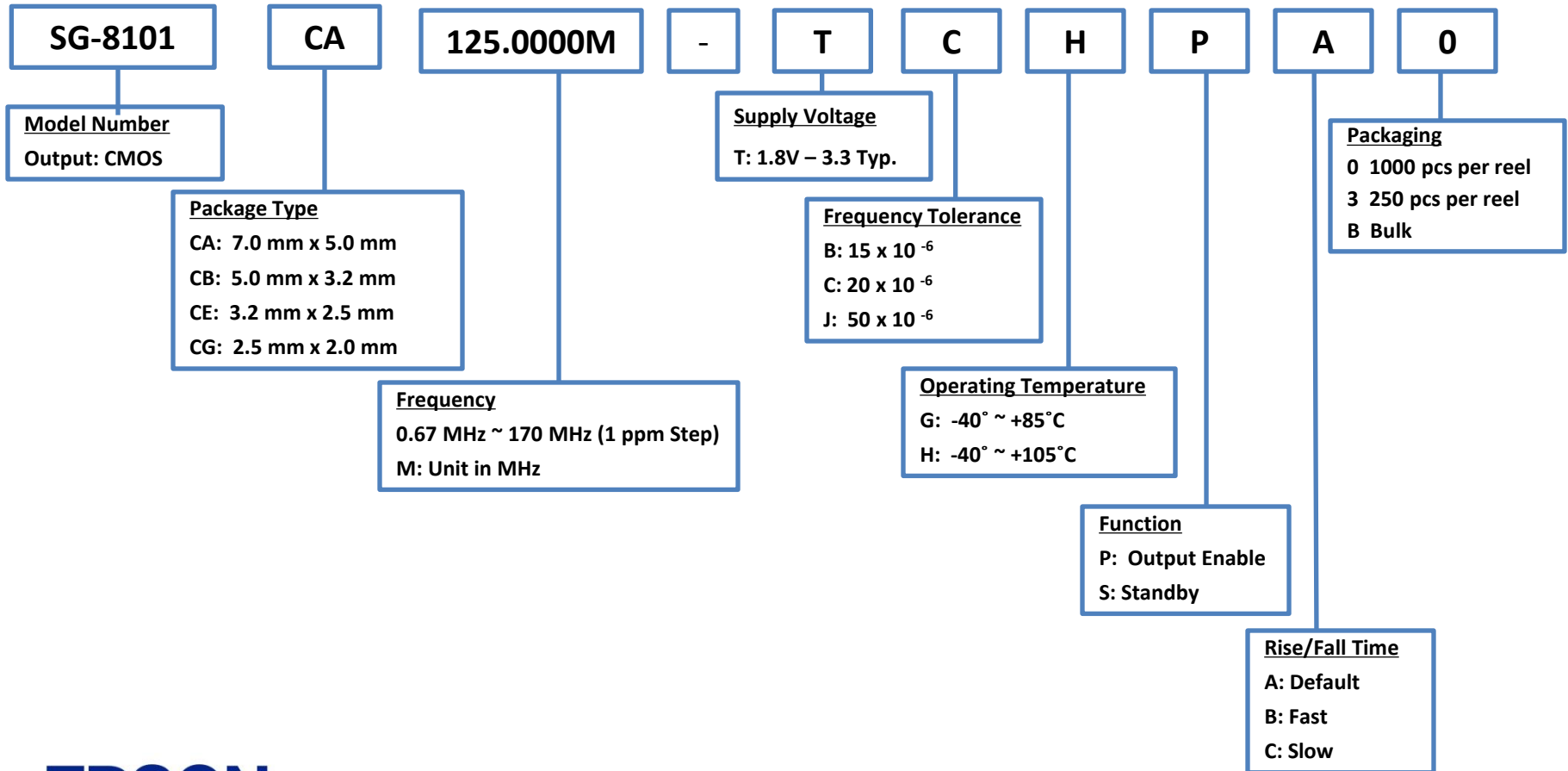
## Crystal Oscillators - Programmable



# Product Configuration System



## Crystal Oscillator (SPXO) – Programmable, High Performance



# Product Configuration System



## Crystal Oscillator (SPXO) – Programmable, High Performance

### SG-8101 Available Combinations

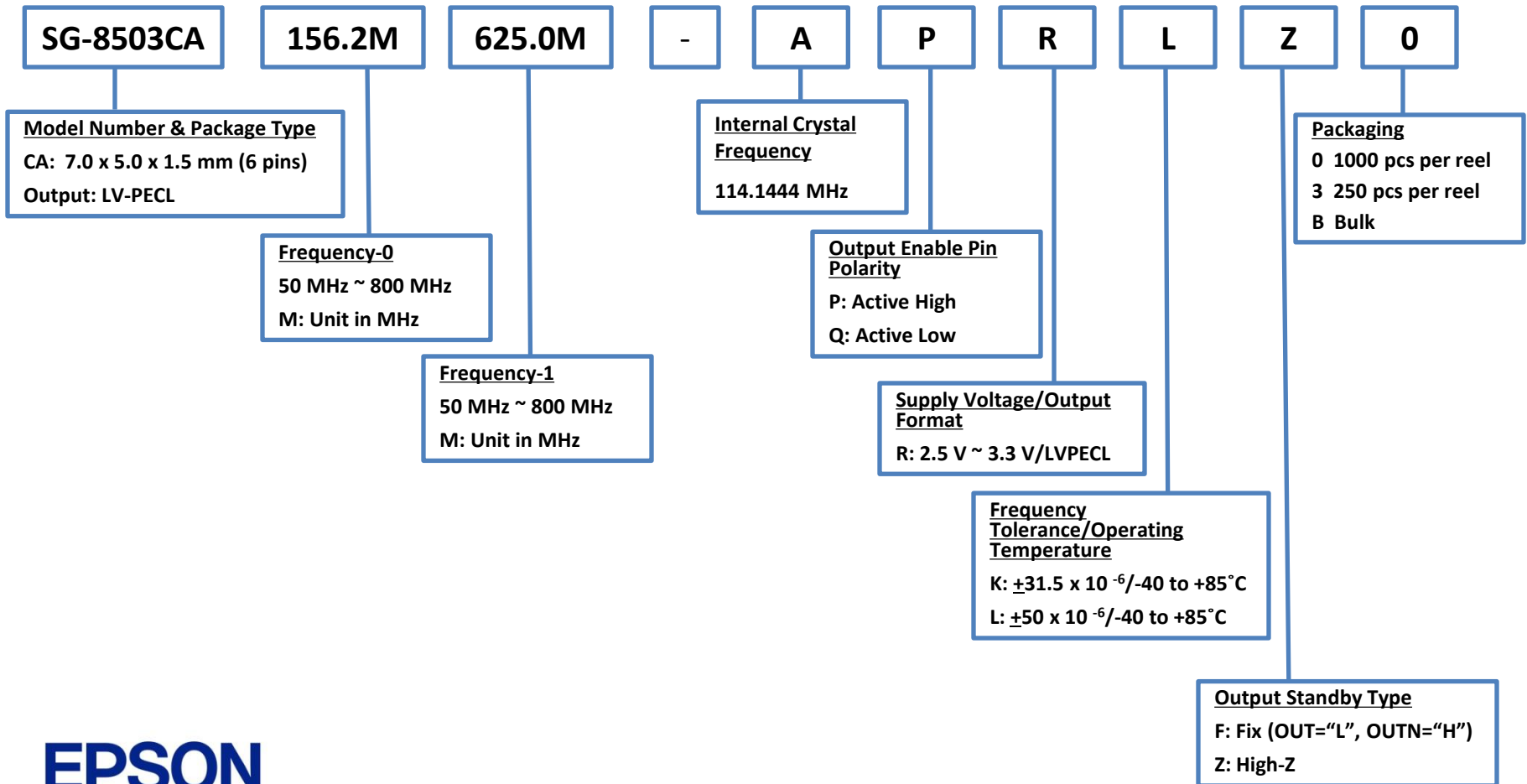
Available combination		CA: 7.0 mm x 5.0 mm			CB: 5.0 mm x 3.2 mm			CE: 3.2 mm x 2.5 mm			CG: 2.5 mm x 2.0 mm		
Frequency tolerance		B: 15 x 10 <sup>-6</sup>	C: 20 x 10 <sup>-6</sup>	J: 50 x 10 <sup>-6</sup>	B: 15 x 10 <sup>-6</sup>	C: 20 x 10 <sup>-6</sup>	J: 50 x 10 <sup>-6</sup>	B: 15 x 10 <sup>-6</sup>	C: 20 x 10 <sup>-6</sup>	J: 50 x 10 <sup>-6</sup>	B: 15 x 10 <sup>-6</sup>	C: 20 x 10 <sup>-6</sup>	J: 50 x 10 <sup>-6</sup>
Operating temperature	G: -40 °C ~ +85 °C	✓			✓			✓			✓		
	H: -40 °C ~ +105 °C		✓	✓		✓	✓		✓	✓		✓	✓



# Product Configuration System



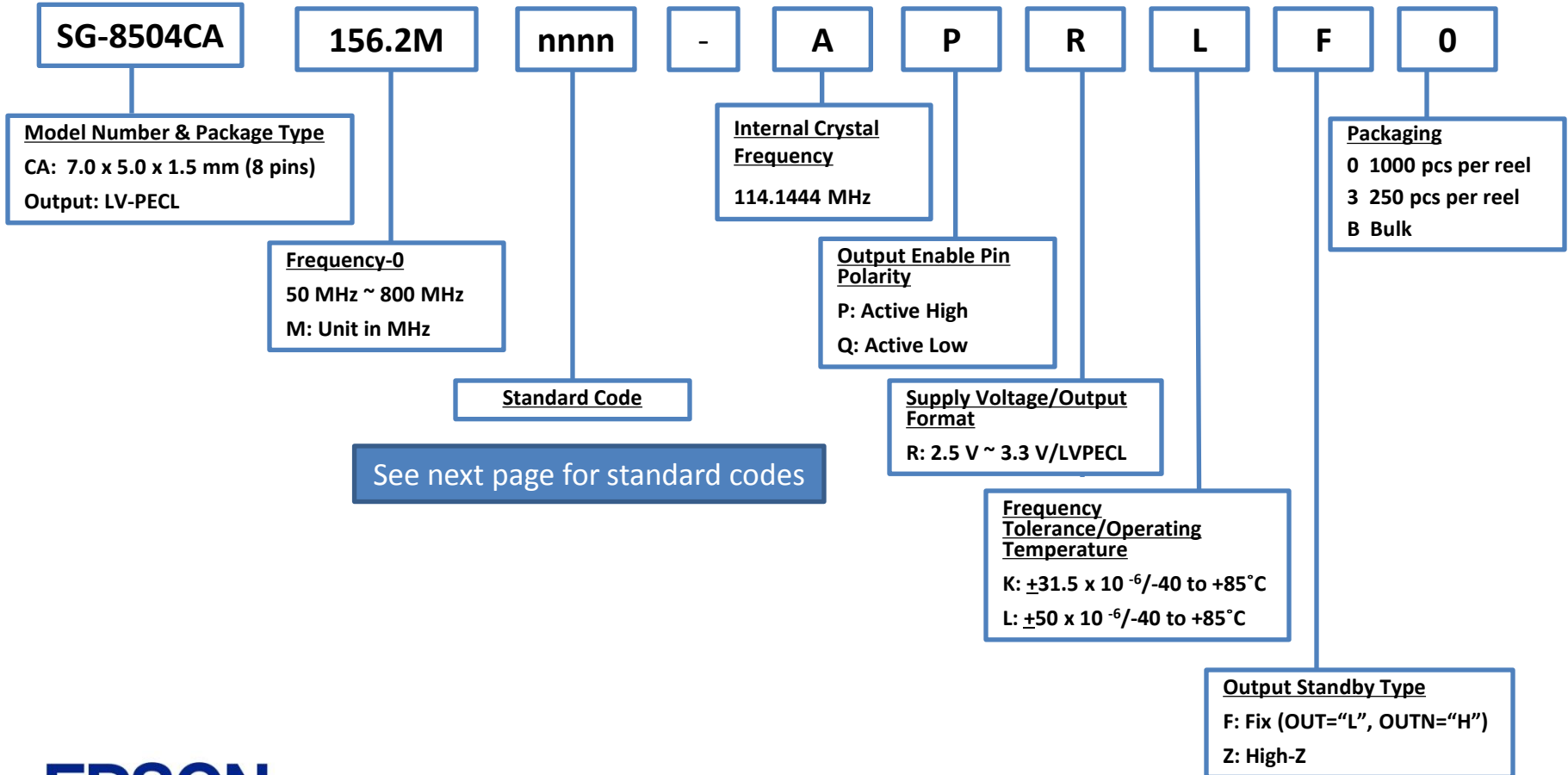
## Dual Selectable Crystal Oscillator (SPXO) Programmable (Dual Frequencies Available)



# Product Configuration System



## Quad Selectable Crystal Oscillator (SPXO) Programmable (Quad Frequencies Available)



# Product Configuration System



## Quad Selectable Crystal Oscillator (SPXO) Programmable (Quad Frequencies Available)

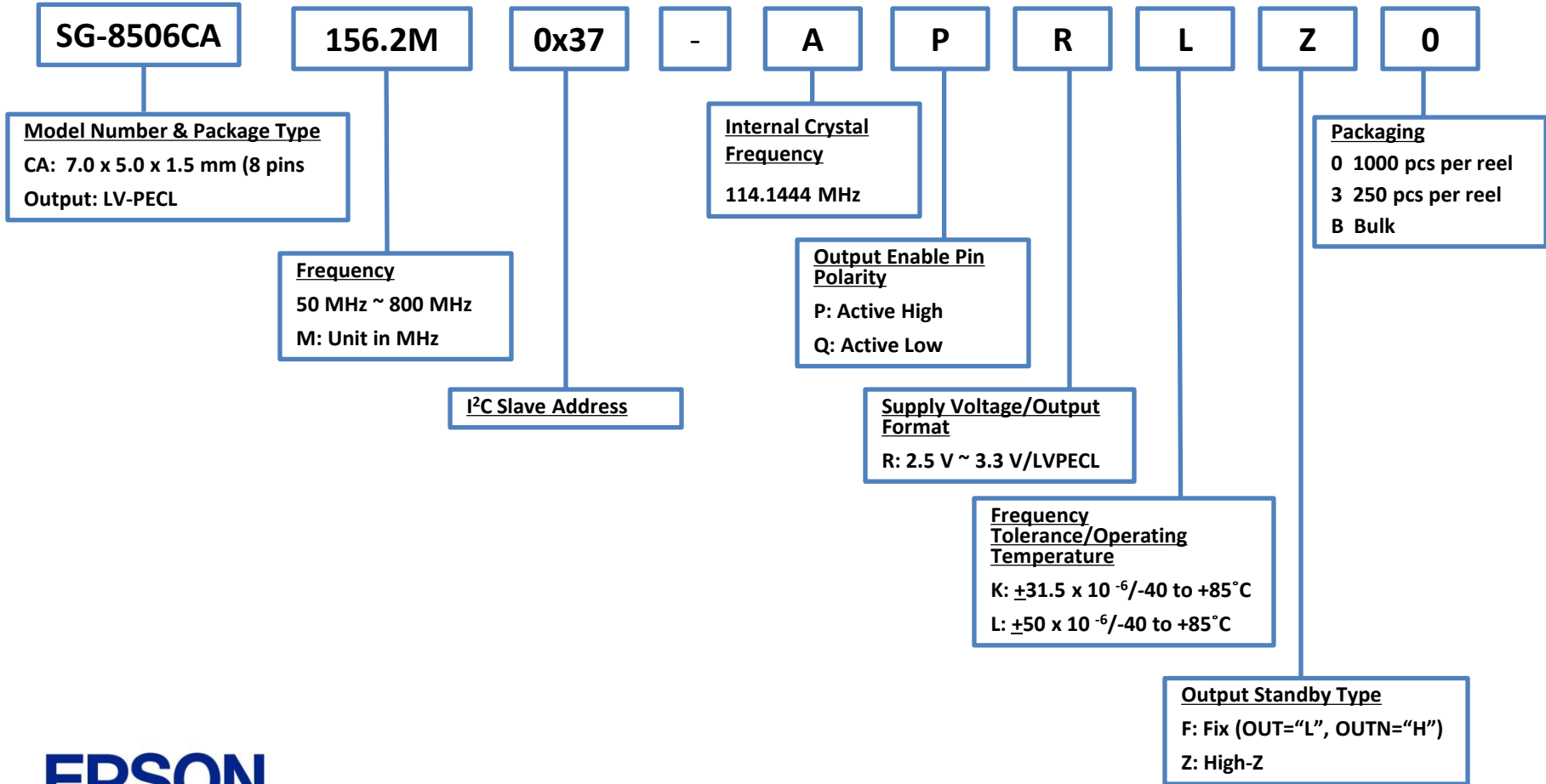
### SG-8504 Standard Codes

<b>Standard Code (‘nnnn’)</b>	<b>Frequency 0</b>	<b>Frequency 1</b>	<b>Frequency 2</b>	<b>Frequency 3</b>
<b>0007</b>	<b>75.00000</b>	<b>100.00000</b>	<b>150.00000</b>	<b>250.00000</b>
<b>0008</b>	<b>62.50000</b>	<b>125.00000</b>	<b>156.25000</b>	<b>250.00000</b>
<b>0009</b>	<b>106.25000</b>	<b>159.37500</b>	<b>212.50000</b>	<b>425.00000</b>
<b>0010</b>	<b>100.00000</b>	<b>133.33333</b>	<b>166.66666</b>	<b>200.00000</b>
<b>0011</b>	<b>100.00000</b>	<b>125.00000</b>	<b>156.25000</b>	<b>312.50000</b>

# Product Configuration System



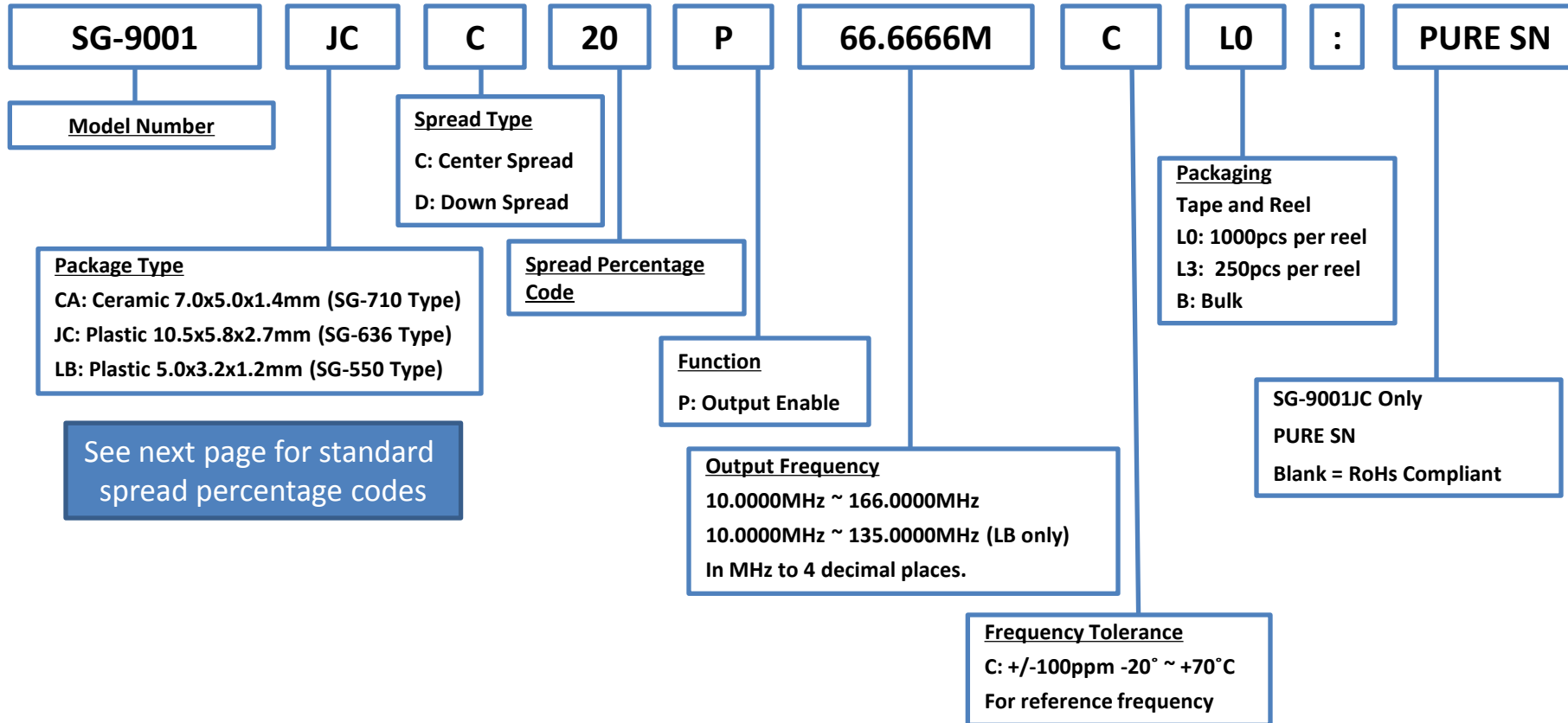
## User Programmable I<sup>2</sup>C Crystal Oscillator (SPXO)



# Product Configuration System



## Crystal Oscillators - Spread Spectrum



**NOTES:**

SG-9001CA & SG-9001LB: Complete PB FREE  
SG-9001JC: RoHS COMPLIANT

# Spread Rate Options

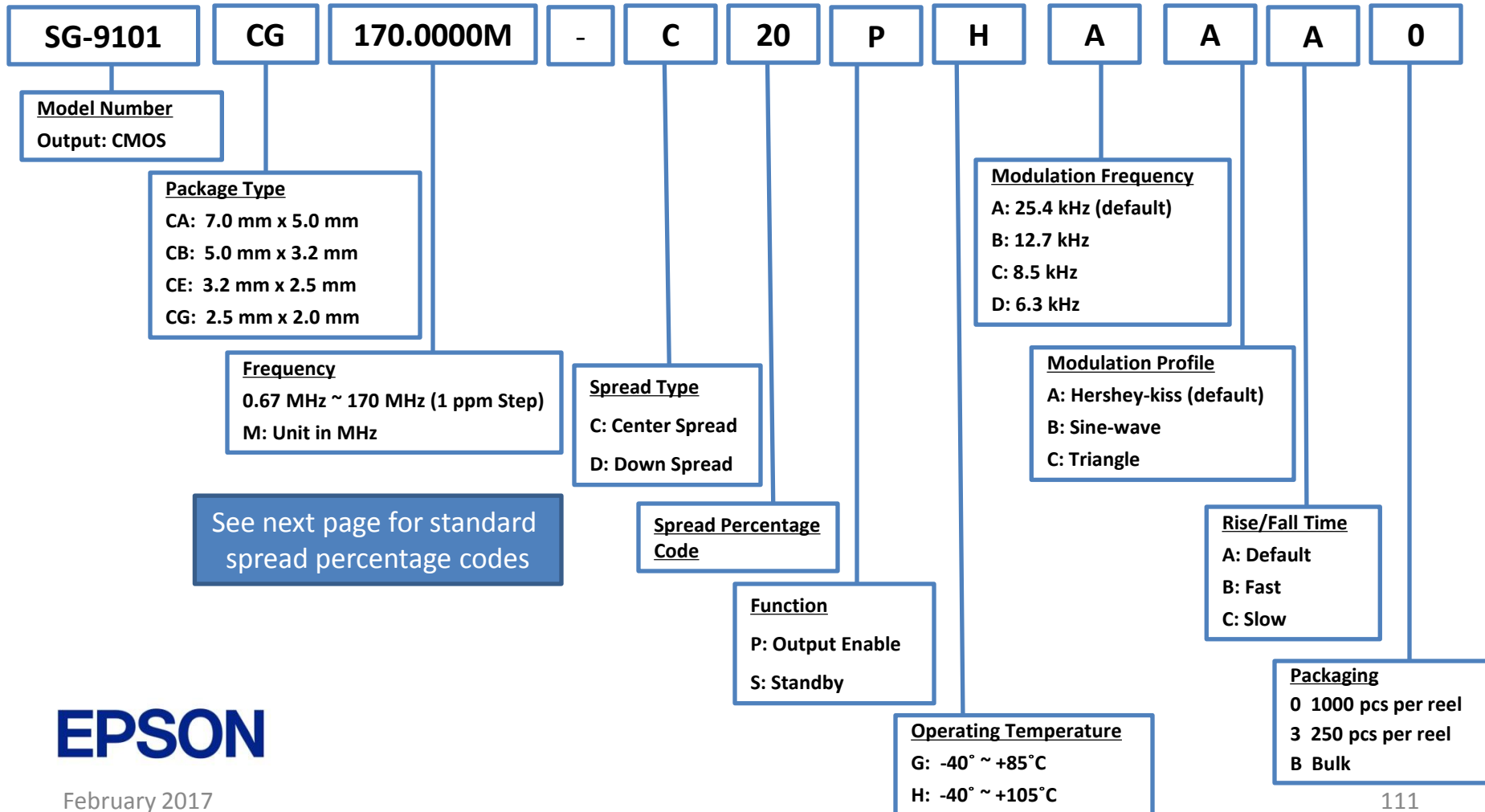
## SG-9001

Center Spread		Down Spread	
Product Configuration Code	Spread Rate %	Product Configuration Code	Spread Rate %
C02	+/- 0.25	D05	- 0.5
C05	+/- 0.5	D10	- 1.0
C07	+/- 0.75	D15	- 1.5
C10	+/- 1.0	D20	- 2.0
C15	+/- 1.5	D30	- 3.0
C20	+/- 2.0	D40	- 4.0

# Product Configuration System



## Crystal Oscillator (SPXO) – Programmable, Spread Spectrum



# Spread Rate Options

## SG-9101

Center Spread		Down Spread	
Product Configuration Code	Spread Rate %	Product Configuration Code	Spread Rate %
C02	+/- 0.25	D05	- 0.5
C05	+/- 0.5	D10	- 1.0
C07	+/- 0.75	D15	- 1.5
C10	+/- 1.0	D20	- 2.0
C15	+/- 1.5	D30	- 3.0
C20	+/- 2.0	D40	- 4.0



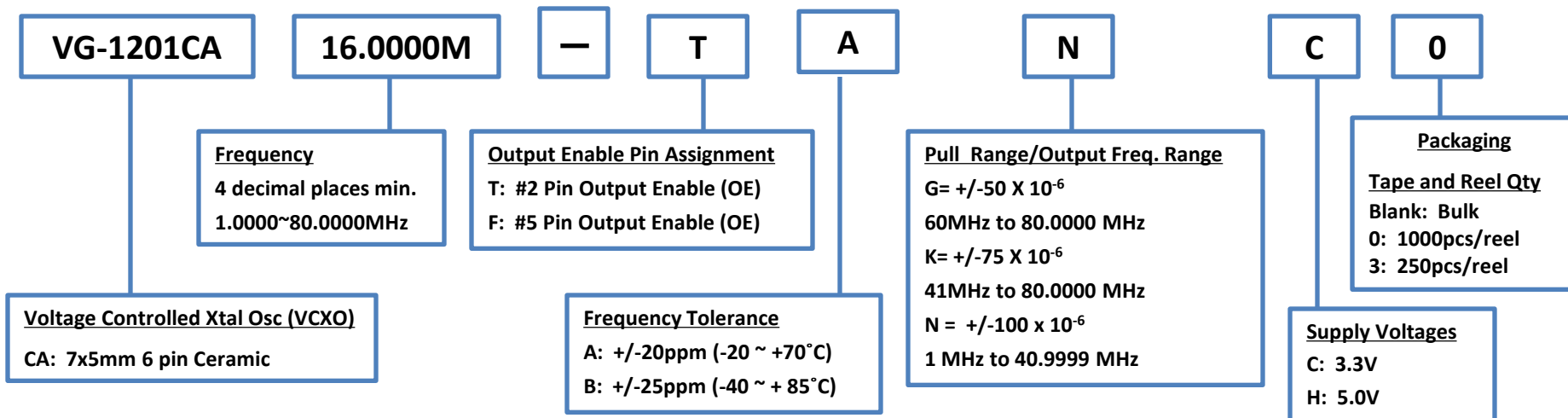
# Product Configuration Guide

## VOLTAGE CONTROLLED OSCILLATORS



# Product Configuration System

## Oscillators - VCXO

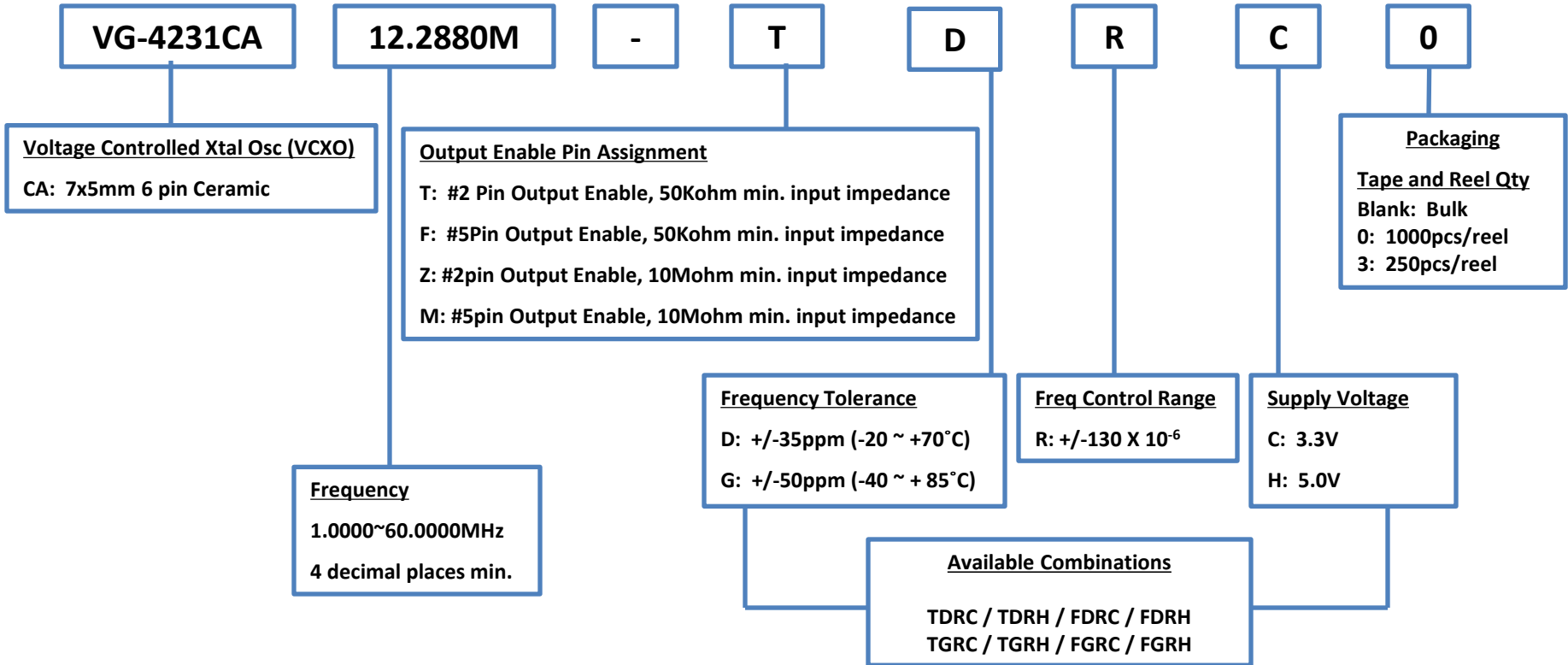


CODE	STABILITY	OPERATING TEMP.	PULL RANGE	OUTPUT FREQ.
ANC / ANH	+/-20PPM	-20C to +70°C	+/-100PPM	1MHz to 40.9999MHz
AKC / AKH	+/-20PPM	-20C to +70°C	+/-75PPM	41MHz to 80.0000MHz
BNC / BNH	+/-25PPM	-40C to +85°C	+/-100PPM	1MHz to 40.9999MHz
BKC / BKH	+/-25PPM	-40C to +85°C	+/-75PPM	41MHz to 80.0000MHz

# Product Configuration System



## Oscillators - VCXO

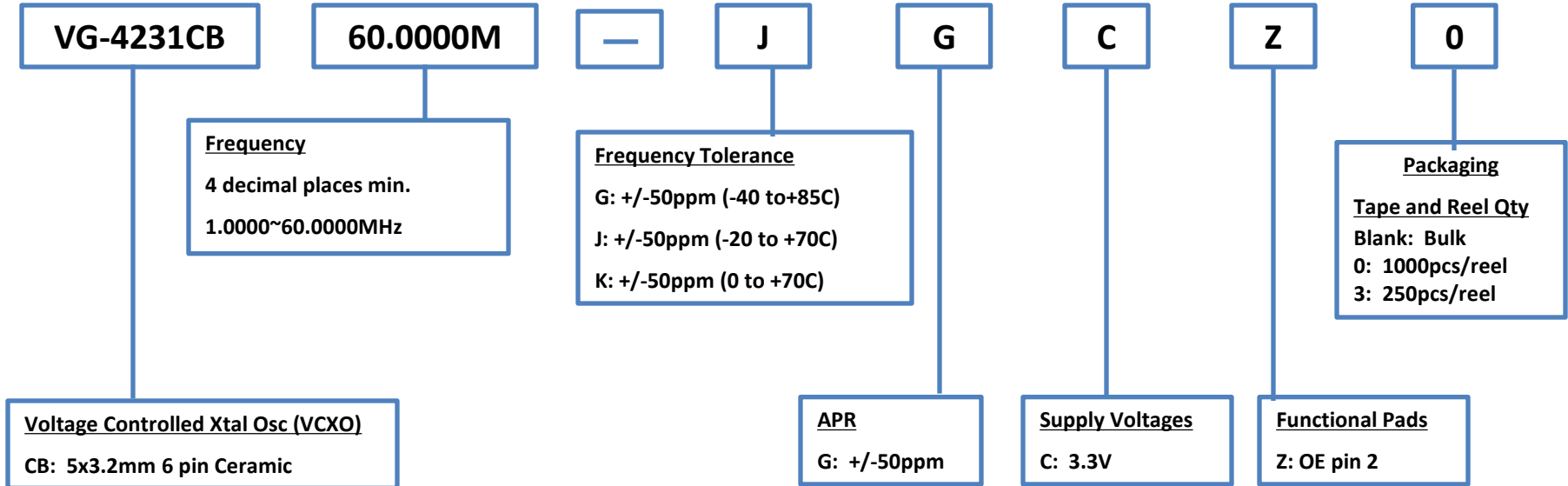


### NOTE:

Output Enable Pin Assignment Z and M are not available with Supply Voltage H (5.0V)

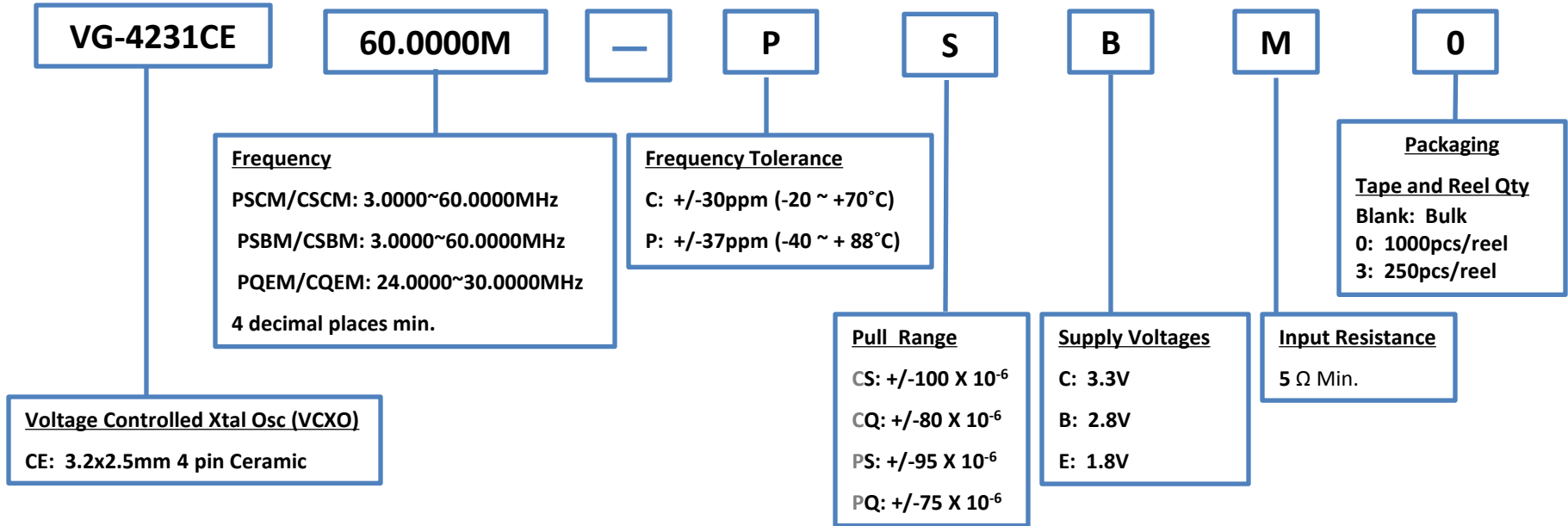
# Product Configuration System

## Oscillators - VCXO



# Product Configuration System

## Oscillators - VCXO



CODE		Frequency Tolerance	Temperature Range	Absolute Pull Range
CSCM / CSBM/CQEM	C	+/-30 x 10 <sup>-6</sup>	-20 °C to +70 °C	S : +/-100 x 10 <sup>-6</sup> / Q : +/-80 x 10 <sup>-6</sup>
PSCM/PSBM/PQEM	P	+/-37 X 10 <sup>-6</sup>	-40°C to +85 °C	S : +/-95 x 10 <sup>-6</sup> / Q : +/-75 x 10 <sup>-6</sup>

# Product Configuration System



## Oscillators - VCXO

VG-4232CA

Voltage Controlled Xtal Osc (VCXO)  
CA: 7x5mm 6 pin Ceramic

61.4400M

Frequency  
60.0001~80.0000MHz  
4 decimal places min.

-

T

Output Enable Pin Assignment  
T: #2 Pin Output Enable, 50Kohm min. input impedance  
F: #5Pin Output Enable, 50Kohm min. input impedance  
Z: #2pin Output Enable, 10Mohm min. input impedance  
M: #5pin Output Enable, 10Mohm min. input impedance

G

Frequency Tolerance  
G: +/-50ppm (-40 ~ +85°C)  
J: +/-50ppm (-20 ~ +70°C)  
K: +/-50ppm (-0 ~ +70°C)

G

Absolute Pull Range  
G: +/-50 X 10<sup>-6</sup>

C

Supply Voltage  
C: 3.3V  
H: 5.0V

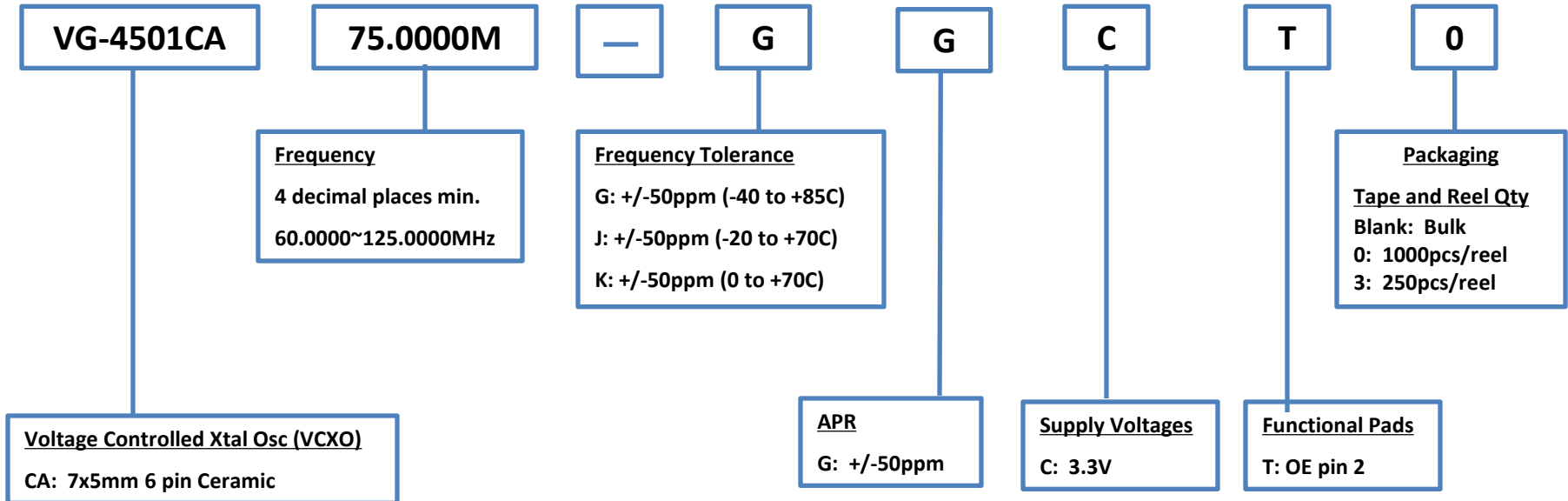
0

Packaging  
Tape and Reel Qty  
Blank: Bulk  
0: 1000pcs/reel  
3: 250pcs/reel



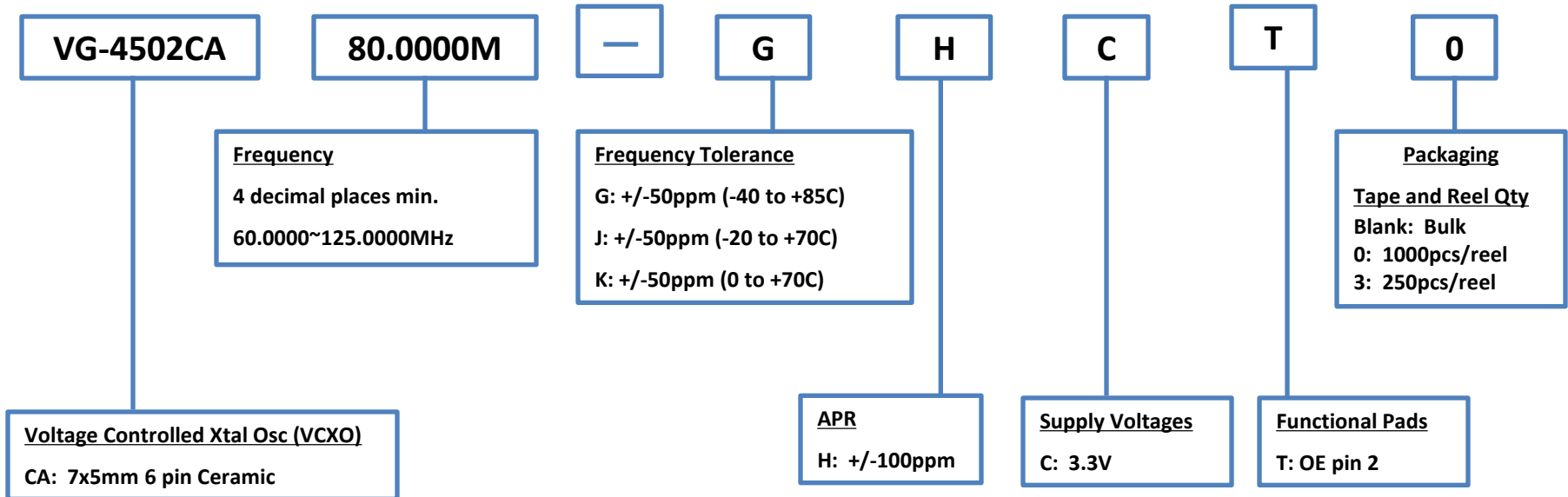
# Product Configuration System

## Oscillators - VCXO



# Product Configuration System

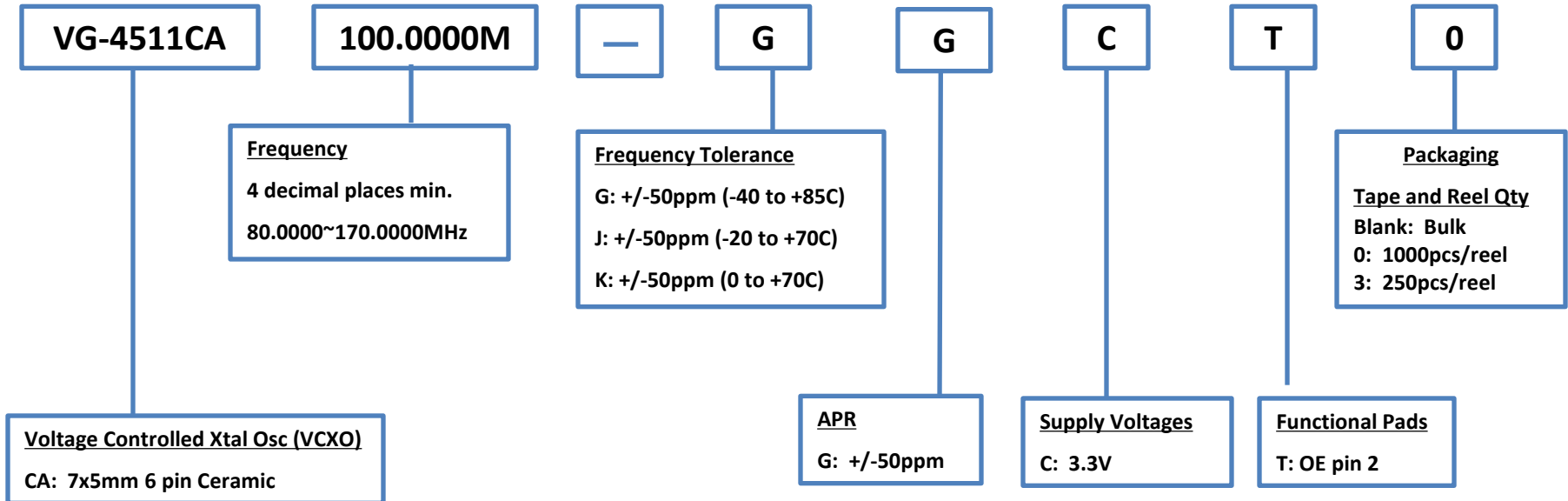
## Oscillators - VCXO





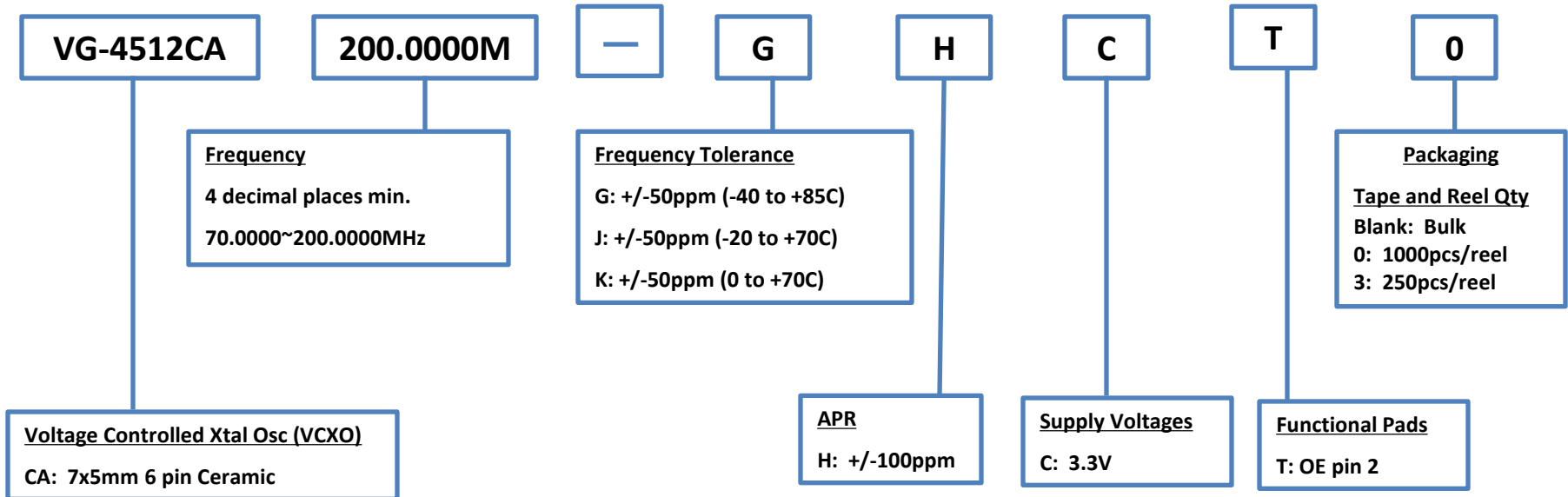
# Product Configuration System

## Oscillators - VCXO



# Product Configuration System

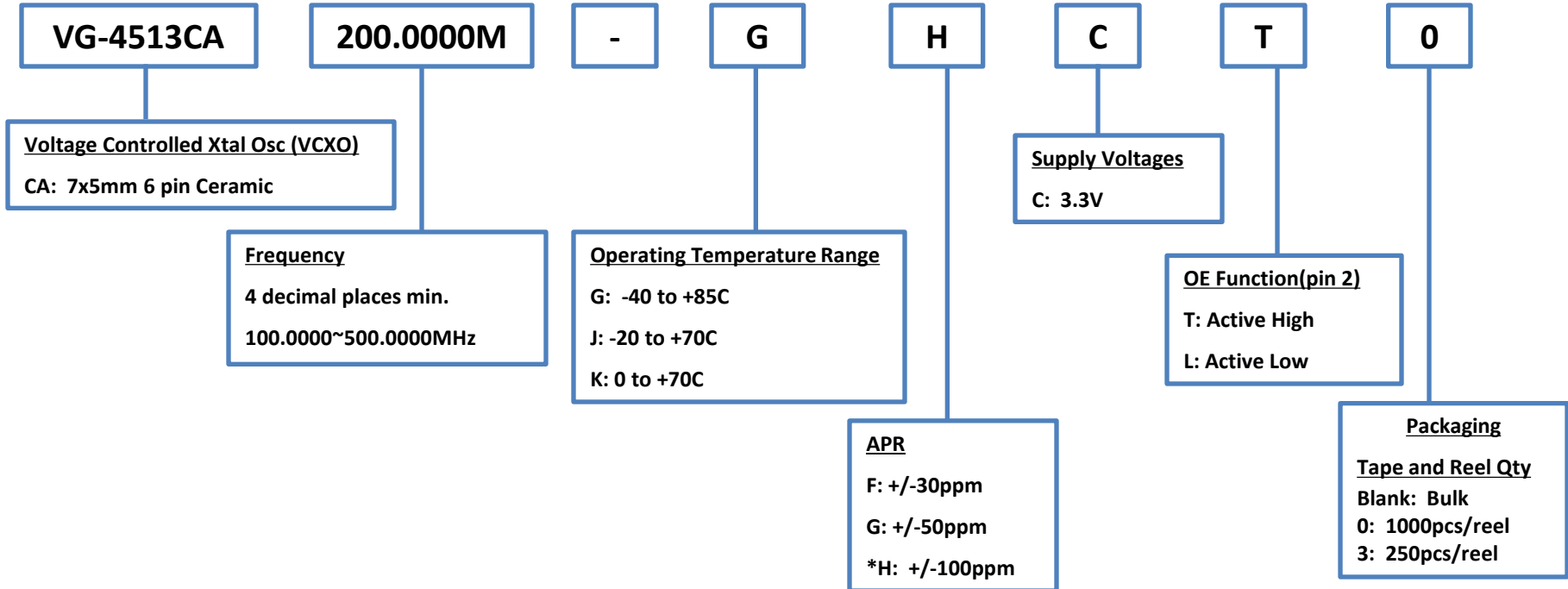
## Oscillators - VCXO





# Product Configuration System

## Oscillators - VCXO



\*Only 120MHz ≤ f<sub>0</sub> ≤ 200MHz are available

### NOTE:

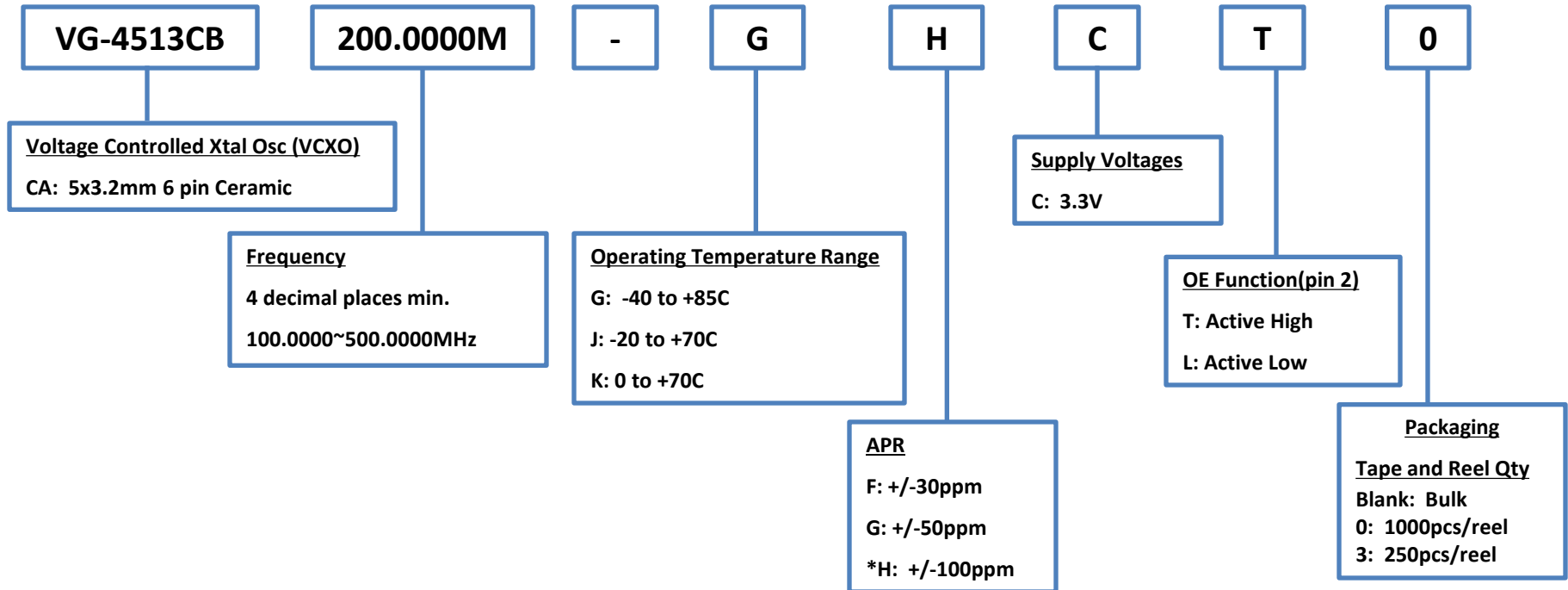
Standard Frequencies Offered: 100M, 122.88M, 125M, 148.351M, 148.5M, 153.6M, 155.52M, 156.25M, 200M

Please contact us for requirements not listed in this specification.



# Product Configuration System

## Oscillators - VCXO



\*Only 120MHz ≤  $f_0$  ≤ 200MHz are available

**NOTE:**

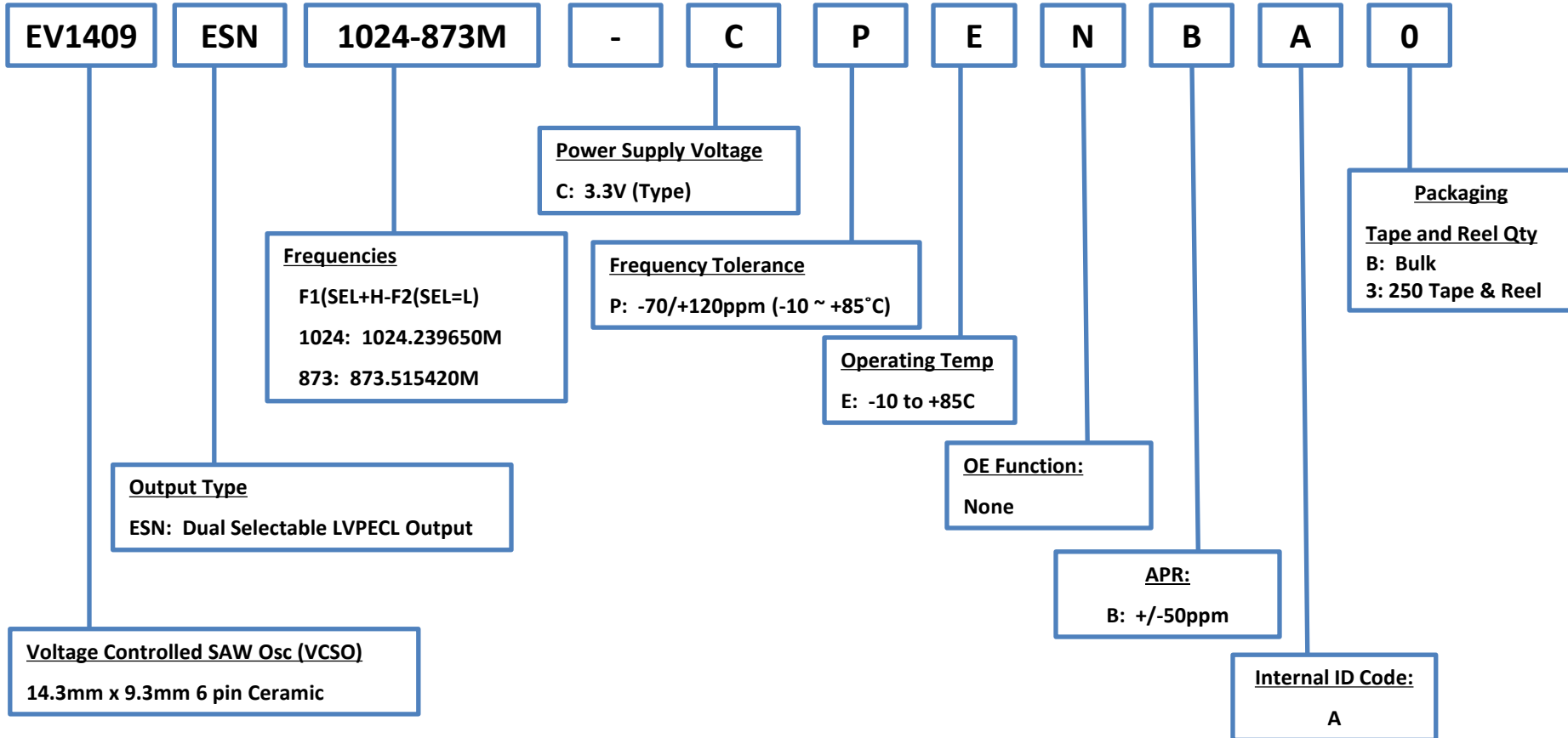
Standard Frequencies Offered: 122.88M, 153.6M

Please contact us for requirements not listed in this specification.

# Product Configuration System



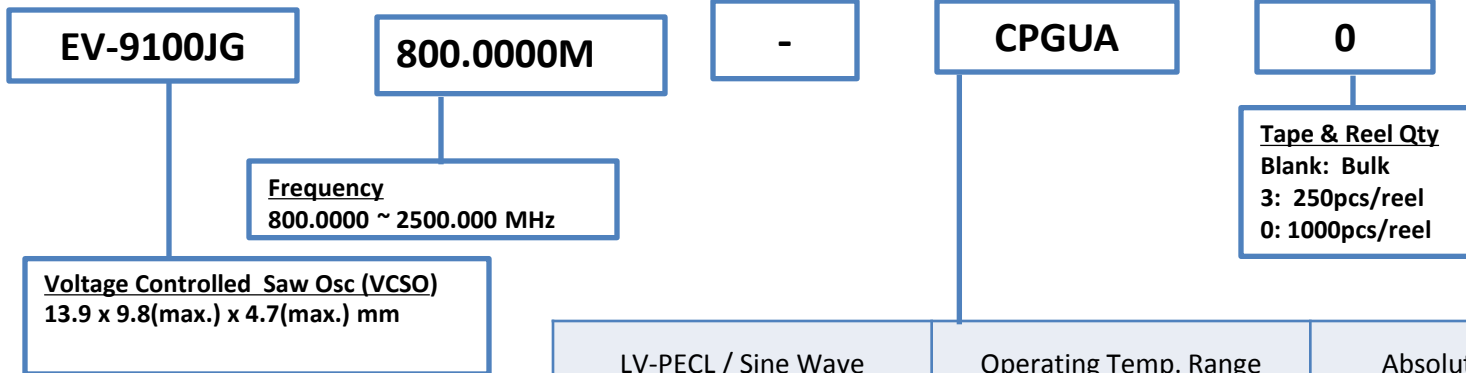
## Oscillators - VCSO



# Product Configuration System



## Oscillators - VCISO

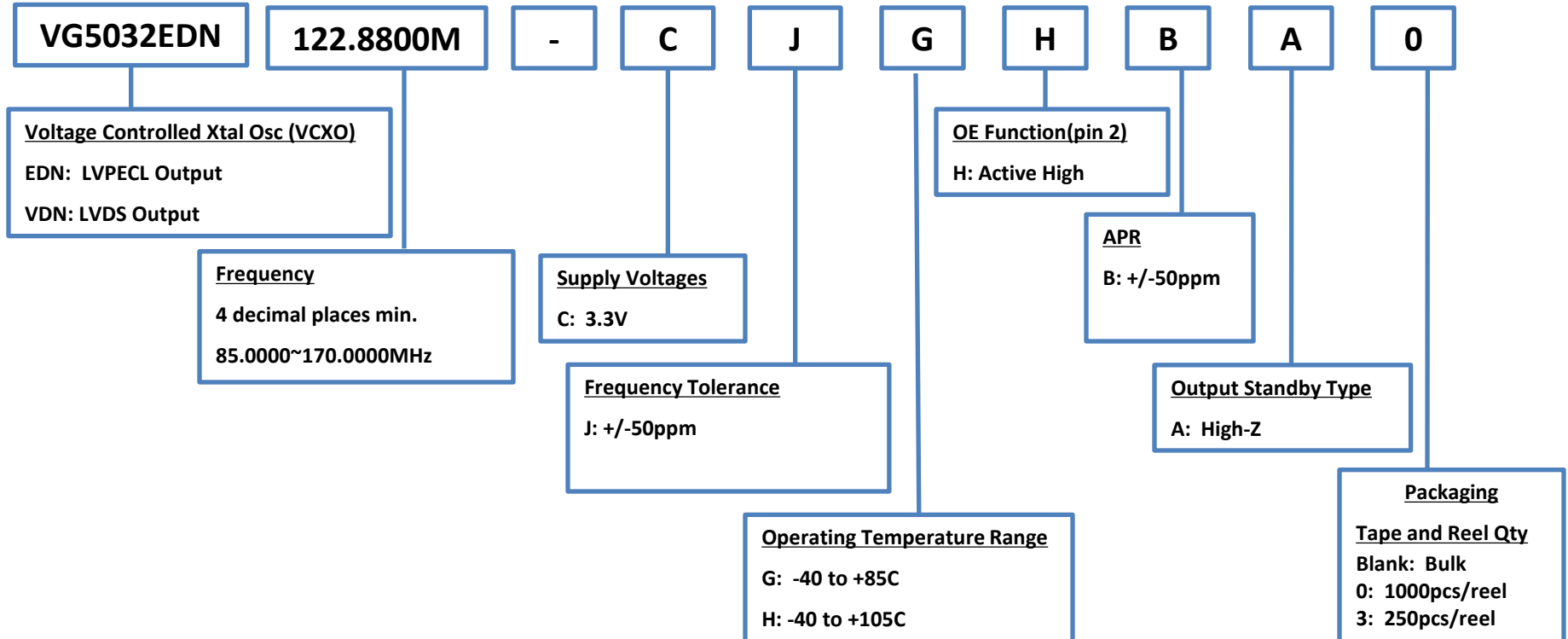


LV-PECL / Sine Wave	Operating Temp. Range	Absolute Pull Range
CPGUA / CSGUA	-10C to +85C	+/-50PPM Min. *1
CPGVA / CSGVA	-20C to +85C	
CPGMA / CSGMA	-40C to +85C	

**\*1 NOTE:** Absolute Pull Range = Frequency Control Range – Frequency Tolerance

# Product Configuration System

## Oscillators - VCXO



**NOTE:**

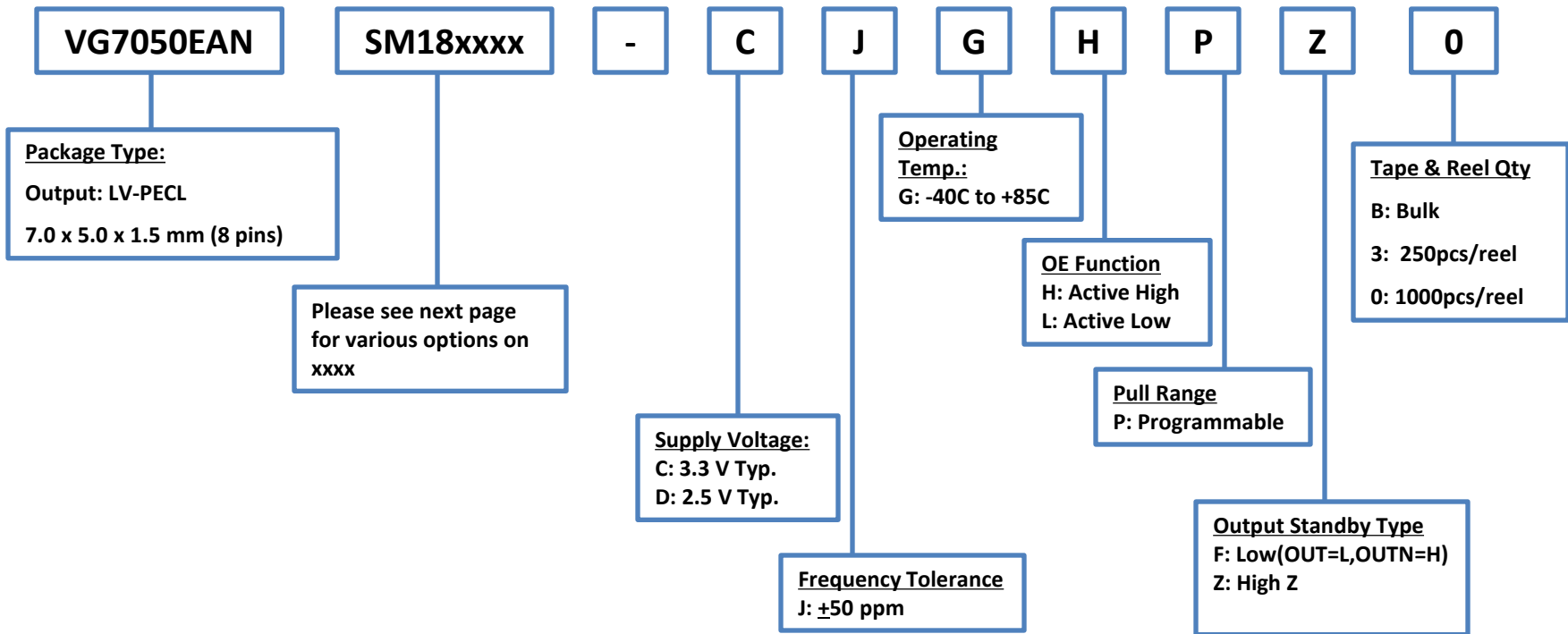
Standard Frequencies Offered: 122.88M

Please contact us for requirements not listed in this specification.

# Product Configuration System



## Programmable Voltage Controlled Oscillator (VCXO)



### NOTE:

Frequency Range: 50~800MHz

Please contact us for requirements not listed in this specification.



# Product Configuration System



## Programmable Voltage Controlled Oscillator (VCXO)

### VG7050EAN

Part Number	Start-up frequency [MHz]	APR			Supply Voltage	OE function	Output Standby Type	
		Max	Initial	Vc range				
VG7050EAN-SM18T001-CJGHPZ	622.080000	180	100	1.65+/-1.25	3.3V	Active high	Hi-Z	
VG7050EAN-SM18T002-DJGHPZ				1.25+/-1.00	2.5V			
VG7050EAN-SM18T003-CJGLPZ				1.65+/-1.35	3.3V	Active low		
VG7050EAN-SM18T004-DJGLPZ				1.25+/-1.00	2.5V			
VG7050EAN-SM18T005-CJGHPF				1.65+/-1.35	3.3V	Active high		Low (OUT=L,OUTN=H)
VG7050EAN-SM18T006-DJGHPF				1.25+/-1.00	2.5V			
VG7050EAN-SM18T007-CJGLPF				1.65+/-1.35	3.3V	Active low		
VG7050EAN-SM18T008-DJGLPF				1.25+/-1.00	2.5V			
VG7050EAN-SM18T009-CJGHPZ	156.250000	180	100	1.65+/-1.25	3.3V	Active high	Hi-Z	
VG7050EAN-SM18T010-DJGHPZ				1.25+/-1.00	2.5V			

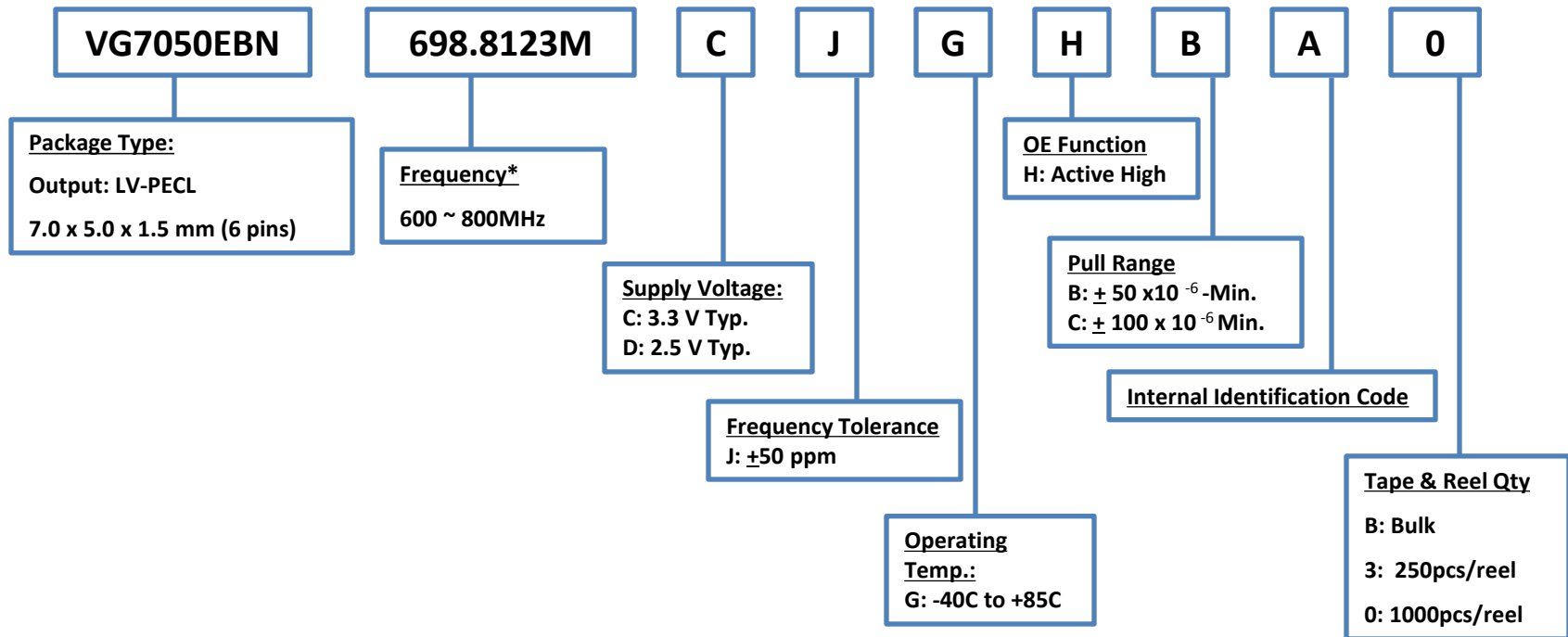
**-If customer wants startup frequency other than 622.08MHz or 156.25MHz, please contact us for a custom part.**

**-Customer can always change the output frequency with the I2C (from 50MHz to 800MHz)**

# Product Configuration System



## Programmable Voltage Controlled Oscillator (VCXO)



### NOTE:

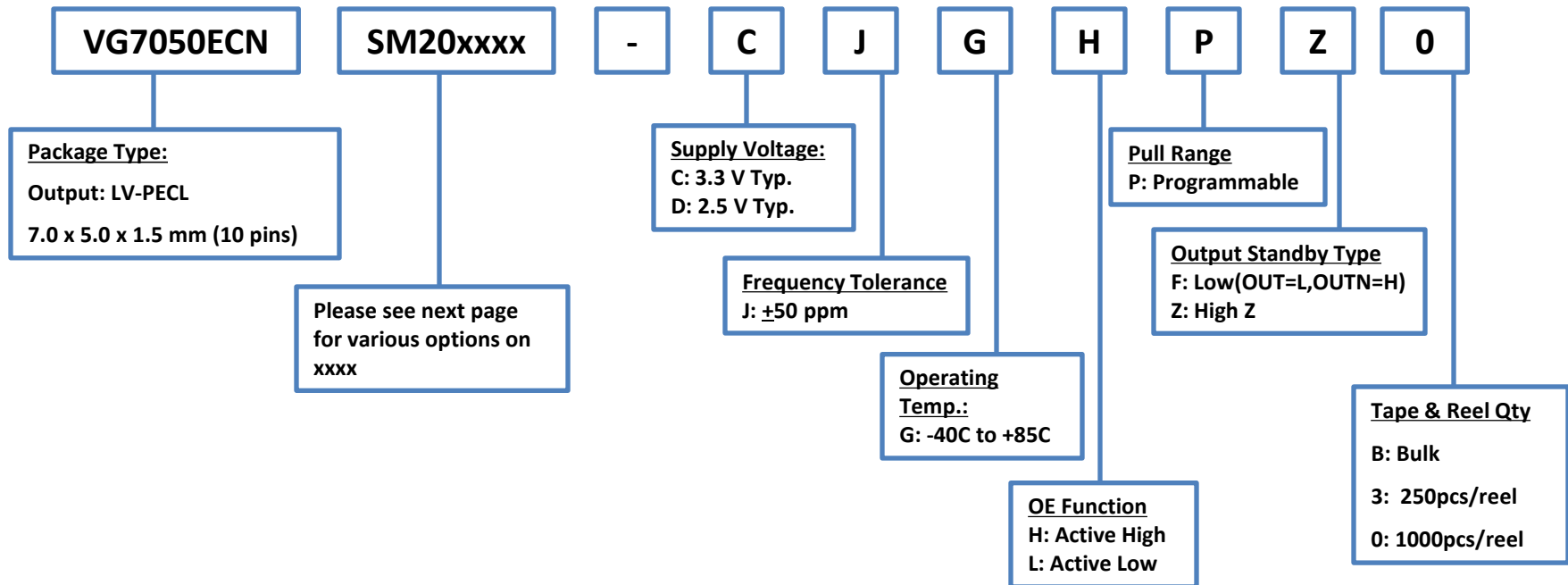
Standard Frequencies: 698.8123MHz, 753.6211MHz, 794.7278MHz

Please contact us for requirements not listed in this specification.

# Product Configuration System



## Programmable Voltage Controlled Oscillator (VCXO)



### NOTE:

Frequency Range: 50~800MHz

Please contact us for requirements not listed in this specification.

# Product Configuration System



## Programmable Voltage Controlled Oscillator (VCXO)

### VG7050ECN

Part Number	Start-up frequency [MHz]				APR			Supply Voltage	OE function	Output	
	frequency 1	frequency 2	frequency 3	frequency 4	Max	Initial	Vc range			Standby	Type
VG7050ECN-SM20T001-CJGHPZ	622.080000	644.531250	669.326582	693.482991	180	100	1.65+/-1.25	3.3V	Active high	Hi-Z	
VG7050ECN-SM20T002-DJGHPZ							1.25+/-1.00	2.5V			
VG7050ECN-SM20T003-CJGLPZ							1.65+/-1.35	3.3V	Active low		
VG7050ECN-SM20T004-DJGLPZ							1.25+/-1.00	2.5V			
VG7050ECN-SM20T005-CJGHPP							1.65+/-1.35	3.3V	Active high		Low (OUT=L,OUTN=H)
VG7050ECN-SM20T006-DJGHPP							1.25+/-1.00	2.5V			
VG7050ECN-SM20T007-CJGLPF							1.65+/-1.35	3.3V	Active low		
VG7050ECN-SM20T008-DJGLPF							1.25+/-1.00	2.5V			

**-If customer wants different startup frequencies, please contact us for a custom part.**

**-Customer can always change the output frequencies with the I2C (from 50MHz to 800MHz)**

# Product Configuration Guide

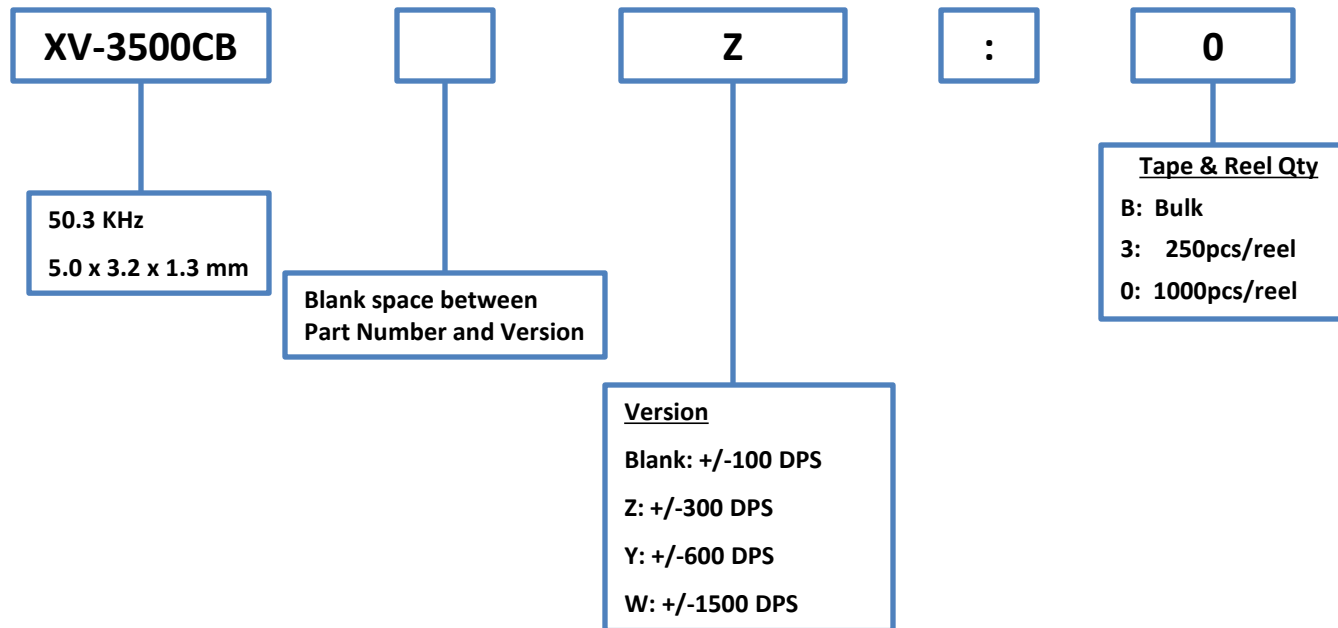
## SENSING DEVICES



# Product Configuration System

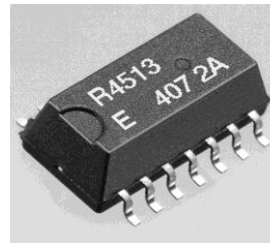
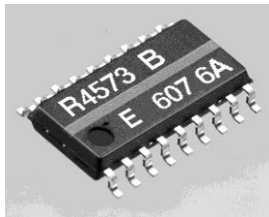


## Gyro Sensor



# Product Configuration Guide

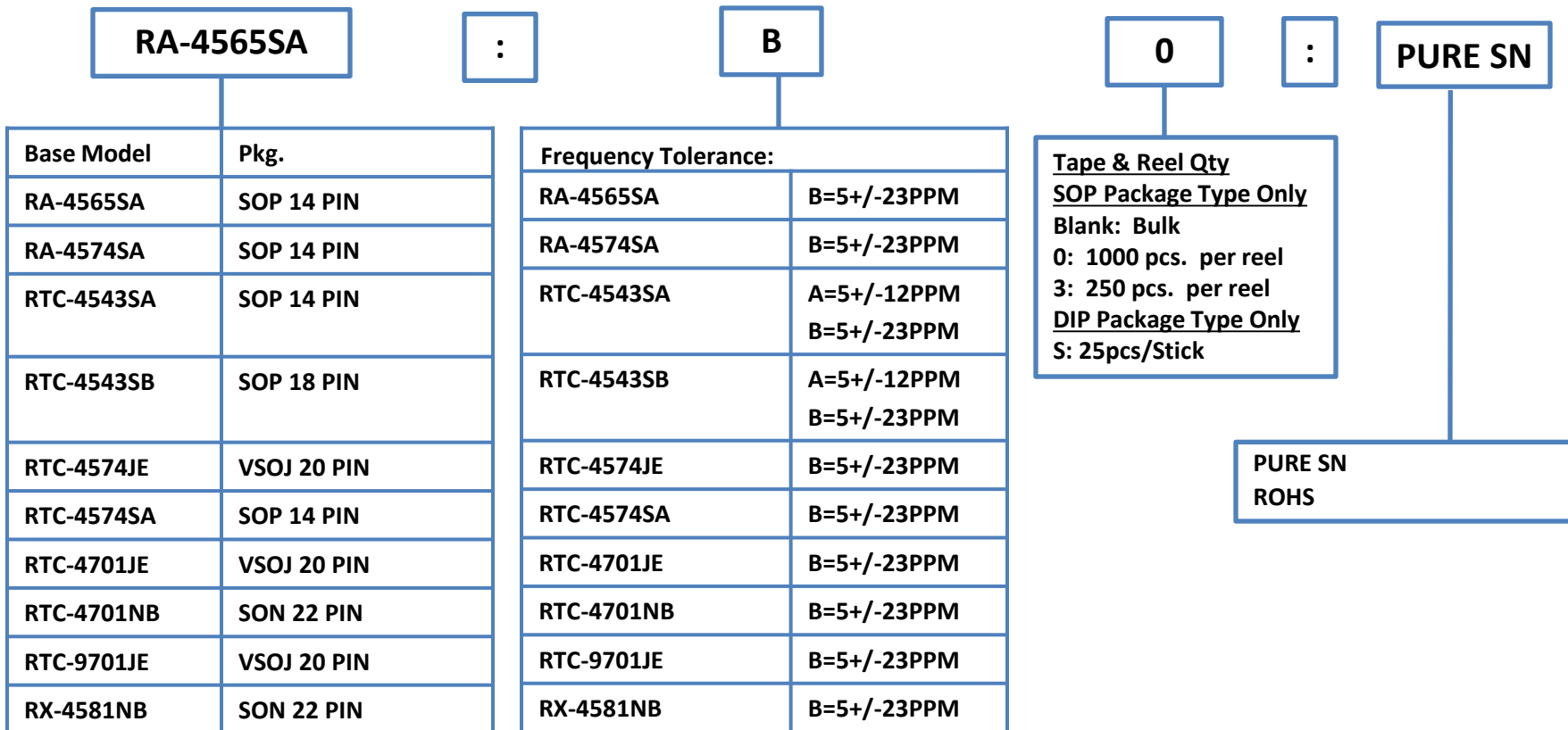
## REAL TIME CLOCKS



# Product Configuration System



## Real Time Clock Modules – Serial (3 Wire & 4 Wire)



**Note:**  
 SA, SB and NB packages are available as RoHS Compliant "ROHS" or PURE SN  
 JE packages are available as RoHS Compliant "ROHS" or PURE SN only





# Product Configuration System



## Real Time Clock Modules – Serial (3 Wire & 4 Wire)

RX-4571SA

:

B

0

:

PURE SN

Base Model	Pkg.
RTC-4574NB	SON 22 PIN
RX-4045NB	SON 22 PIN
RX-4045SA	SOP 14 PIN
RX-4574LC	VSOJ 12 PIN
RX-4575LC	VSOJ 12 PIN
RX-4571LC	VSOJ 12 PIN
RX-4571NB	SON 22 PIN
RX-4571SA	SOP 14 PIN
RX-4801SA	SOP 14 PIN
RX-4803SA	SOP 14 PIN
RX-4803LC	VSOJ 12 PIN

Frequency Tolerance (Ta =+25 °C):	
RTC-4574NB	B=5+/-23PPM
RX-4045NB, RX-4045SA	AA=5+/-5PPM AC=0+/-5PPM
RX-4574LC	B=5+/-23PPM
RX-4575LC	B=5+/-23PPM
RX-4571LC	B=5+/-23PPM
RX-4571NB	B=5+/-23PPM
RX-4571SA	B=5+/-23PPM
RX-4801SA	Over -40 to +85 °C UB=+/-5PPM
RX-4803SA, RX-4803LC	Over -40 to +85 °C UA=+/-3.4PPM UB=+/-5PPM

Tape & Reel Qty  
SOP Package Type Only  
 Blank: Bulk  
 0: 1000 pcs. per reel  
 3: 250 pcs. per reel  
DIP Package Type Only  
 S: 25pcs/Stick

PURE SN  
 Blank : Already RoHS Compliant

**EPSON**

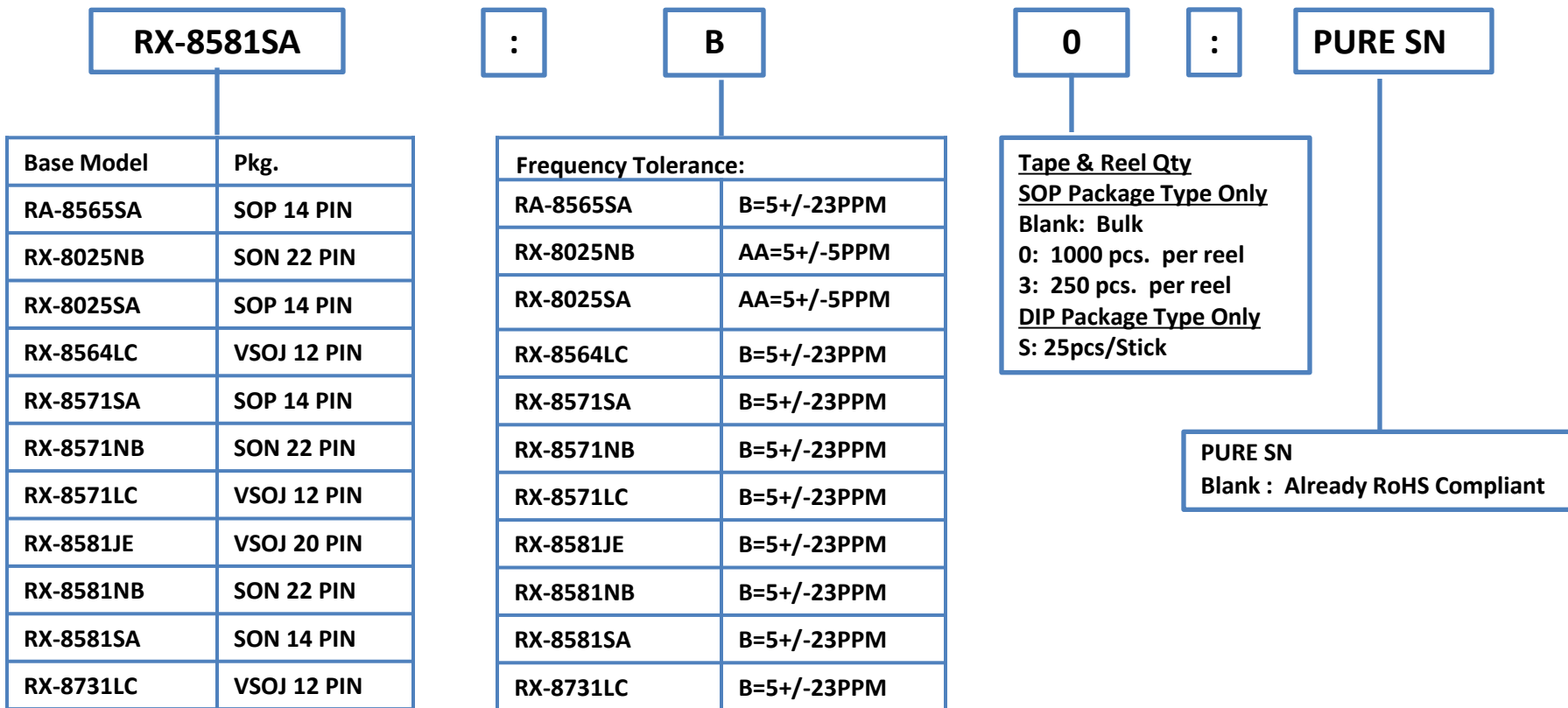
Note:

All LC packages are already RoHS Compliant with "PURE SN"  
 \*RX-4575LC - Sn-Ag Plating NOT PURE SN

# Product Configuration System



## Real Time Clock Modules – I<sup>2</sup>C-Bus



Note:  
All LC packages are already RoHS Compliant with "PURE SN"



# Product Configuration System



## Real Time Clock Modules – I<sup>2</sup>C-Bus

**RA-8581SA**

Base Model	Pkg.
RA-8581SA	SOP 14 PIN
RTC-8564JE	VSOJ 20 PIN
RTC-8564NB	SON 22 PIN
RX8010SJ	SOP 8 PIN
RA4803SA	SOP 14 PIN
RA8803SA	SOP 14 PIN
RX8900SA	SOP 14 PIN
RA8900SA	
RX8900CE	3.2x2.5mm
RA8900CE	10 PIN Ceramic

:

**B**

Frequency Tolerance:	
RA-8581SA	B=5+/-23PPM
RTC-8564JE	B=5+/-23PPM
RTC-8564NB	B=5+/-23PPM
RX8010SA	B=5+/-23PPM
RX4803SA and RX8803SA	UA= +/-3.4PPM -40°C to 85°C UB= +/-5.0PPM -40°C to 85°C UC= +/- 5PPM -30°C to 70°C AA=5+/-5PPM 25°C
RX8900SA RA8900SA and RX8900CE RX8900CE	UA= +/-3.4PPM -40°C to 85°C UB= +/-5PPM -40°C to 85°C UC= +/-5PPM -30°C to 70°C

**0**

:

**PURE SN**

**Tape & Reel Qty**  
**SOP Package Type Only**  
B: Bulk  
0: 1000 pcs. per reel  
3: 250 pcs. per reel

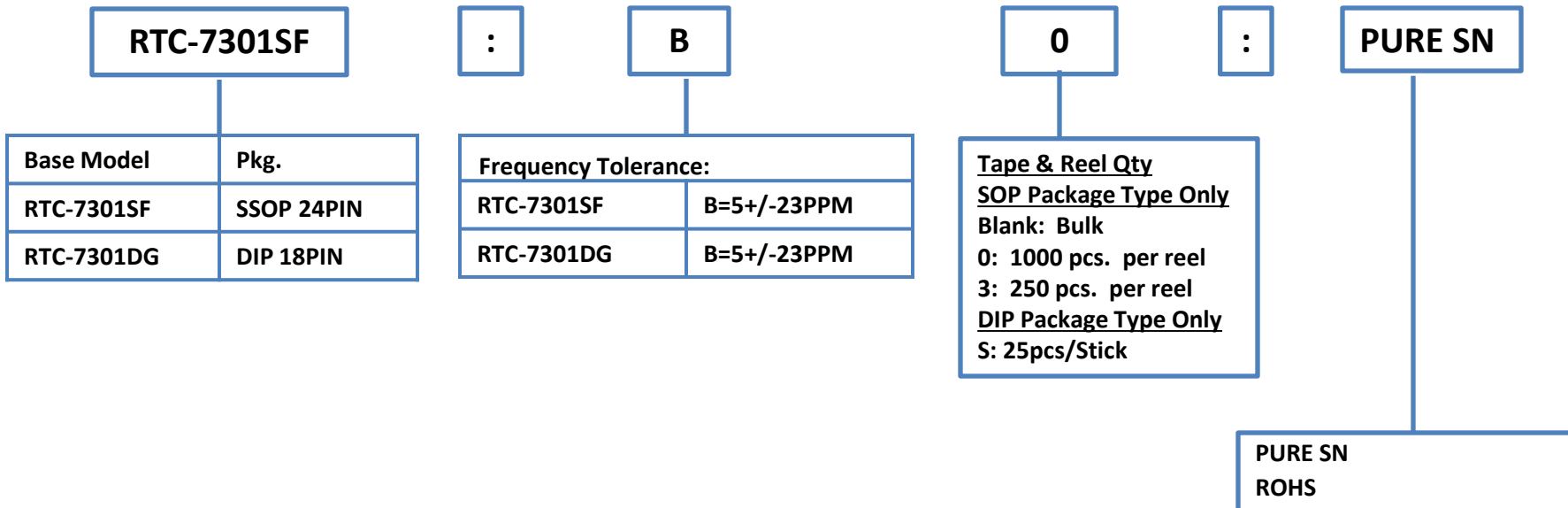
**Blank : CE Package**  
RX8010SJ: PURE SN  
RA4803SA: PURE SN  
RX8803SA: PURE SN  
RX8900SA: PURE SN  
RA-8581SA: ROHS or PURE SN  
RTC-8564JE: ROHS  
RTC-8564NB: ROHS or PURE SN



# Product Configuration System



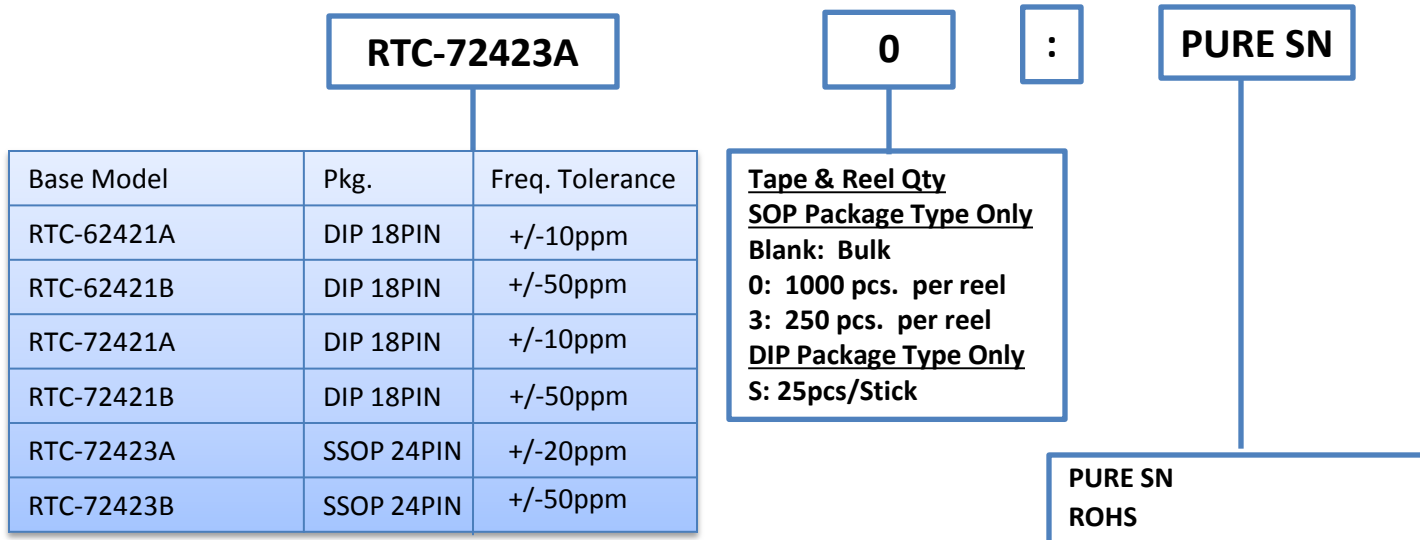
## Real Time Clocks – Parallel 4-bit



# Product Configuration System



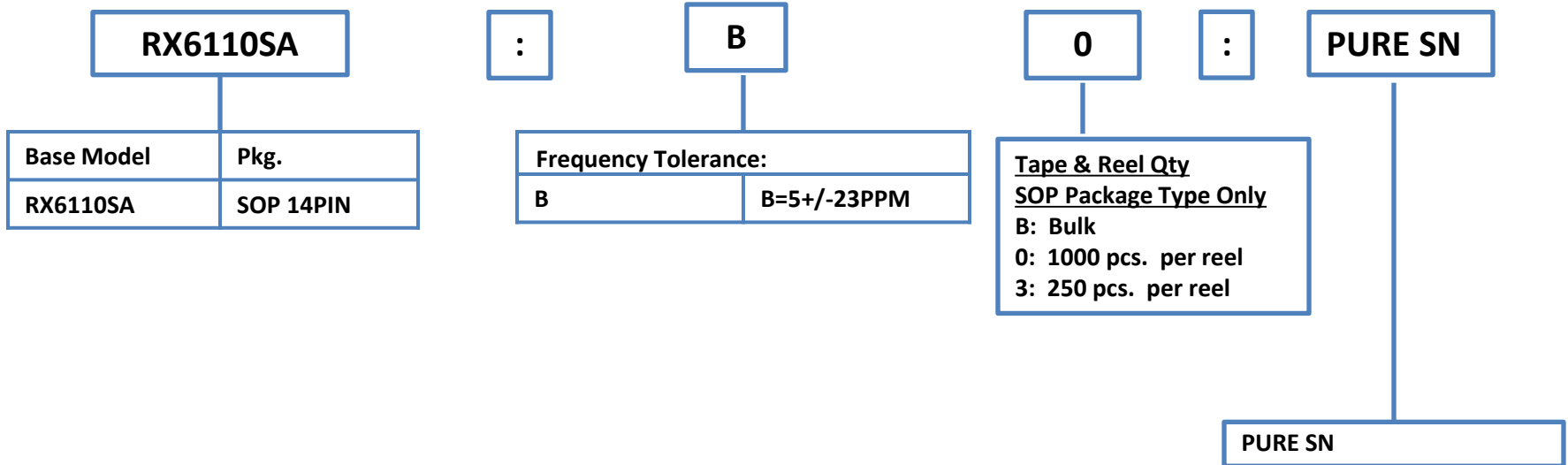
## Real Time Clocks – Parallel 4-bit



# Product Configuration System



## Real Time Clock Modules – I<sup>2</sup>C-Bus and SPI



# Product Configuration Guide

## Appendix

# Product Configuration System

## Crystal Units Load Cap Codes and Values

Load Cap Code	Load Cap Value
AZ	3.5
VJ	4.0
EE	4.4
AT	4.8
X	5.0
JJ	5.4
E	6.0
FF	6.4
DD	6.5
VC	6.7
AG	7.0
AR	7.1
JK	7.4
VB	7.6
AN	7.8
AJ	8.0
AS	8.5
CC	8.7
GG	8.8
AC	9.0
AM	9.2

Load Cap Code	Load Cap Value
AL	9.5
S	9.6
VF	9.8
K	10.0
HH	10.4
AK	10.5
AP	10.7
P	11.0
AY	11.2
AW	11.5
W	12.0
A	12.5
T	13.0
N	13.5
Y	14.0
VH	14.5
R	15.0
B	16.0
AV	17.0
C	18.0
L	18.3

Load Cap Code	Load Cap Value
J	18.5
AQ	19.0
G	20.0
AF	21.5
D	22.0
AU	22.5
AE	22.9
AH	23.0
V	24.0
AI	25.0
Z	26.0
AA	27.0
Q	28.0
AB	30.0
H	32.0
I	33.0
U	47.0
AD	50.0
M	100.0
F	Series