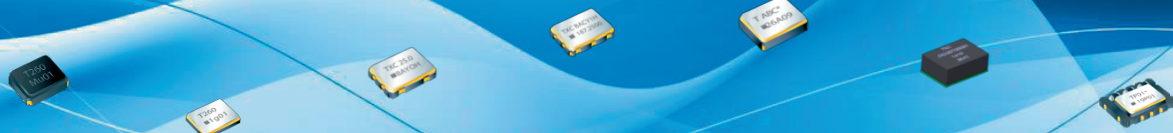


TXC Product Brochure

Making Every Connection Better

Precise Clock for Seamless Synchronization & Ultimate Data Transmission

Think of Frequency, Think of TXC



FEIN
elektronik
Group

Official European Distributor

www.fein-elektronik.de

Crystal Units



MHz Crystals – Seam Type (Green Products - RoHS Compliant)

Series	Dimension (mm)	Pad	Frequency Range (MHz)	Op Temp
7M	3.2 x 2.5 x 0.7	4 Pads	10 ~ 132	G1
DX	3.2 x 2.5 x 0.7	4 Pads	100 ~ 320	G1
8Z	2.5 x 2.0 x 0.55	4 Pads	12 ~ 66	G1
8Y	2.0 x 1.6 x 0.5	4 Pads	16 ~ 96	G1
9Q	1.6 x 1.2 x 0.33	4 Pads	30 ~ 152.6	G1



MHz Crystals – AuSn Type (Green Products - RoHS Compliant)

Series	Dimension (mm)	Pad	Frequency Range (MHz)	Op Temp
8Q	1.6 x 1.2 x 0.33	4 Pads	24 ~ 96	G1
8J	1.2 x 1.0 x 0.3	4 Pads	24 ~ 80	G1
8A	1.0 x 0.8 x 0.3	4 Pads	24 ~ 80	G1



MHz Crystals – Glass Type (Green Products - Exempted By RoHS Directive)

Series	Dimension (mm)	Pad	Frequency Range (MHz)	Op Temp
7V	3.2 x 2.5 x 0.8	4 Pads	8 ~ 54	G1
7R	2.0 x 1.6 x 0.6	4 Pads	16 ~ 96	G1



kHz Crystals (Green Products - RoHS Compliant)

Series	Dimension (mm)	Pad	Frequency Range	Op Temp
9H T10	3.2 x 1.5 x 0.75	2 Pads	32.768 kHz	G2
9H T11	2.0 x 1.2 x 0.6	2 Pads	32.768 kHz	G2
9H T12	1.6 x 1.0 x 0.5	2 Pads	32.768 kHz	G2
9H T13	1.2 x 1.0 x 0.35	2 Pads	32.768 kHz	G2



Temperature Sensing Crystals (TSX) (Green Products - RoHS Compliant)

Series	Dimension (mm)	Pad	Frequency Range (MHz)	Op Temp
OZ	2.5 x 2.0 x 1.0	4 Pads	19.2 ~ 38.4	G2
OY	2.0 x 1.6 x 0.8	4 Pads	19.2 ~ 52	G2
OW	1.6 x 1.2 x 0.65	4 Pads	26 ~ 76.8	G2
OV	1.2 x 1.0 x 0.6	4 Pads	52 ~ 76.8	G2

Crystal Oscillators



MHz Crystal Oscillators – CMOS Output

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
7C	5.0 x 3.2 x 1.2	CMOS	4 Pads	1 ~ 200	V	V	V	V	V	V	V	G2
7X	3.2 x 2.5 x 1.0	CMOS	4 Pads	1 ~ 200	V	V	V	V	V	V	V	G2
8W	2.5 x 2.0 x 0.8	CMOS	4 Pads	1 ~ 200	V	V	V	V	V	V	V	G2
8N	2.0 x 1.6 x 0.76	CMOS	4 Pads	1 ~ 200	V	V	V	V	V		V	G2
8R	1.6 x 1.25 x 0.6	CMOS	4 Pads	1 ~ 170	V	V	V	V	V			G2



kHz Crystal Oscillators – CMOS Output

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
7XZ	3.2 x 2.5 x 1.0	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G2
8WZ	2.5 x 2.0 x 0.8	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G2
8NZ	2.0 x 1.6 x 0.75	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G2
8RZ	1.6 x 1.2 x 0.6	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G2

Note: G3: -40 ~ 85 °C | G2: -40 ~ 105 °C | G1: -40 ~ 125 °C | G0: -40 ~ 150 °C

Crystal Oscillators



MHz Crystal Oscillators – Differential Output

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
BA	7.0 x 5.0 x 1.3	LVPECL	6 Pads	25 ~ 200		V		V	V			G2
BB	7.0 x 5.0 x 1.3	LVPECL	6 Pads	25 ~ 200		V		V		V		G2
BC	7.0 x 5.0 x 1.3	LVPECL	6 Pads	10 ~ 2.1 GHz		V		V			V	G2
BE	7.0 x 5.0 x 1.3	LVDS	6 Pads	25 ~ 200	V	V		V	V			G2
BF	7.0 x 5.0 x 1.3	LVDS	6 Pads	25 ~ 200	V	V		V		V		G2
BG	7.0 x 5.0 x 1.3	LVDS	6 Pads	10 ~ 2.1 GHz	V	V		V			V	G2
BX	7.0 x 5.0 x 1.3	HCSL	6 Pads	10 ~ 2.1 GHz	V	V		V	V	V	V	G2
CA	5.0 x 3.2 x 1.2	LVPECL	6 Pads	25 ~ 200		V		V	V			G2
CB	5.0 x 3.2 x 1.2	LVPECL	6 Pads	25 ~ 200		V		V		V		G2
CC	5.0 x 3.2 x 1.2	LVPECL	6 Pads	10 ~ 2.1 GHz		V		V			V	G2
CE	5.0 x 3.2 x 1.2	LVDS	6 Pads	25 ~ 200	V	V		V	V			G2
CF	5.0 x 3.2 x 1.2	LVDS	6 Pads	25 ~ 200	V	V		V		V		G2
CG	5.0 x 3.2 x 1.2	LVDS	6 Pads	10 ~ 2.1 GHz	V	V		V			V	G2
CX	5.0 x 3.2 x 1.2	HCSL	6 Pads	10 ~ 2.1 GHz	V	V		V	V	V	V	G2
DA	3.2 x 2.5 x 0.95	LVPECL	6 Pads	25 ~ 200		V		V	V			G2
DB	3.2 x 2.5 x 0.95	LVPECL	6 Pads	25 ~ 200		V		V		V		G2
DC	3.2 x 2.5 x 0.95	LVPECL	6 Pads	10 ~ 2.1 GHz		V		V			V	G2
DE	3.2 x 2.5 x 0.95	LVDS	6 Pads	25 ~ 200	V	V		V	V			G2
DF	3.2 x 2.5 x 0.95	LVDS	6 Pads	25 ~ 200	V	V		V		V		G2
DG	3.2 x 2.5 x 0.95	LVDS	6 Pads	25 ~ 200	V	V		V			V	G2
DH	3.2 x 2.5 x 0.95	HCSL	6 Pads	25 ~ 200	V	V		V	V	V	V	G2

Note: G3: -40 ~ 85 °C | G2: -40 ~ 105 °C | G1: -40 ~ 125 °C | G0: -40 ~ 150 °C

Crystal Oscillators



MHz Crystal Oscillators – Differential Output

(Green Products - RoHS Compliant)

SeriesV	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
EA	2.5 x 2.0 x 0.95	All	6 Pads	50 ~ 156.25		V		V	V			G2
EB	2.5 x 2.0 x 0.95	All	6 Pads	50 ~ 156.25		V		V		V		G2
EC	2.5 x 2.0 x 0.95	All	6 Pads	1 ~ 2.1 GHz		V		V			V	G2
FA	2.0 x 1.6 x 0.76	LVPECL	6 Pads	156.25		V		V	V			G2
FE	2.0 x 1.6 x 0.76	LVDS	6 Pads	156.25		V	V		V			G2



Voltage Controlled Crystal Oscillators (VCXO)

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
						3.3			Fund	3OT	PLL	
6U	7.0 x 5.0 x 1.3	CMOS	6 Pads	1 ~ 59		V			V			G2
BR	7.0 x 5.0 x 1.3	CMOS	6 Pads	50 ~ 200		V			V			G2
BJ	7.0 x 5.0 x 1.3	LVPECL	6 Pads	50 ~ 200		V			V			G2
BK	7.0 x 5.0 x 1.3	LVPECL	6 Pads	10 ~ 2.1 GHz		V					V	G2
BN	7.0 x 5.0 x 1.3	LVDS	6 Pads	50 ~ 200		V			V			G2
BP	7.0 x 5.0 x 1.3	LVDS	6 Pads	10 ~ 2.1 GHz		V					V	G2
CP	5.0 x 3.2 x 1.2	LVDS	6 Pads	10 ~ 2.1 GHz		V					V	G2
CK	5.0 x 3.2 x 1.2	LVPECL	6 Pads	10 ~ 2.1 GHz		V					V	G2
CN	5.0 x 3.2 x 1.2	LVDS	6 Pads	50 ~ 200		V			V			G2
CJ	5.0 x 3.2 x 1.2	LVPECL	6 Pads	50 ~ 200		V			V			G2
CR	5.0 x 3.2 x 1.2	CMOS	6 Pads	1 ~ 200		V			V			G2
DN	3.2 x 2.5 x 0.95	LVDS	6 Pads	50 ~ 200		V			V			G2
DJ	3.2 x 2.5 x 0.95	LVPECL	6 Pads	50 ~ 200		V			V			G2
DR	3.2 x 2.5 x 0.95	CMOS	6 Pads	1 ~ 200		V			V			G2

Note: Output, CS: Clipped Sinewave, All: Selections of LVPECL, LVDS & HCSL

Note: G3: -40 ~ 85 °C | G2: -40 ~ 105 °C | G1: -40 ~ 125 °C | G0: -40 ~ 150 °C

Crystal Oscillators



Temperature Compensated Crystal Oscillators (TCXO)

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
7L	2.5 x 2.0 x 0.8	CS	4 Pads	10 ~ 52	V	V	V	V	V			G2
7Z	2.0 x 1.6 x 0.75	CS	4 Pads	10 ~ 52	V	V	V	V	V			G2
8P	1.6 x 1.2 x 0.55	CS	4 Pads	10 ~ 52	V	V	V	V	V			G2
8S	1.6 x 1.2 x 0.55	CS	4 Pads	10 ~ 52	V	V	V	V	V			G2



Precise Temperature Compensated Crystal Oscillators (Precise TCXO)

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)			Temp Stability (ppb)	Op Temp
					2.7	2.8	3.3		
7N	7.0 x 5.0 x 1.8	CS / CMOS	4 / 10 Pads	10 ~ 52	V	V	V	±100 ~ 280	G2
7P	5.0 x 3.2 x 1.5	CS / CMOS	6 / 10 Pads	10 ~ 52	V	V	V	±100 ~ 280	G2



Oven Controlled Compensated Crystal Oscillators (OCXO)

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)	Temp Stability (ppb)	Op Temp
					3.3		
OE	14 x 9	CMOS	6 Pads	10 ~ 54	V	±5 ~ 50	G2
OG	9.7 x 7.5	CMOS	6 Pads	10 ~ 54	V	±5 ~ 50	G2
OH	7.5 x 5.0	CMOS	10 Pads	10 ~ 54	V	±5 ~ 50	G2

Note: Output, CS: Clipped Sinewave, All: Selections of LVPECL, LVDS & HCSL

Note: G3: -40 ~ 85 °C | G2: -40 ~ 105 °C | G1: -40 ~ 125 °C | G0: -40 ~ 150 °C

Automotive Crystal Units



MHz Crystals – Seam Type (Green Products - RoHS Compliant)

Series	Dimension (mm)	Pad	Frequency Range (MHz)	Op Temp
AB	5.0 x 3.2 x 0.9	4 Pads	8 ~ 50	G1
AM	3.2 x 2.5 x 0.7	4 Pads	9.84 ~ 62.4	G1
AZ	2.5 x 2.0 x 0.55	4 Pads	16 ~ 60	G1
AY	2.0 x 1.6 x 0.5	4 Pads	16 ~ 60	G1
AJ	1.6 x 1.2 x 0.35	4 Pads	25 ~ 60	G1



MHz Crystals – Glass Type (Green Products - Exempted By RoHS Directive)

Series	Dimension (mm)	Pad	Frequency Range (MHz)	Op Temp
AX	8.0 x 4.5 x 1.6	2 Pads	4 ~ 40	G0
A2	8.0 x 4.5 x 1.7	2 Pads	4 ~ 40	G0
AA	5.0 x 3.2 x 1.25	2 Pads	7.2 ~ 48	G0
AV	3.2 x 2.5 x 0.8	4 Pads	9.8 ~ 62.4	G0
A3	3.2 x 2.5 x 0.9	2 Pads	8 ~ 62.4	G0
AR	2.2 x 1.6 x 0.7	2 Pads	16 ~ 50	G1



kHz Crystals (Green Products - RoHS Compliant)

Series	Dimension (mm)	Pad	Frequency Range	Op Temp
AH	3.2 x 1.5 x 0.75	4 Pads	32.768 kHz	G1



Temperature Sensing Crystals (TSX) (Green Products - RoHS Compliant)

Series	Dimension (mm)	Pad	Frequency Range (MHz)	Op Temp
AF	2.0 x 1.6 x 0.8	4 Pads	19.2 ~ 55.2	G2
AG	1.6 x 1.2 x 0.65	4 Pads	26 ~ 76.8	G2

Note: Output, CS: Clipped Sinewave; All: Selections of LVPECL, LVDS & HCSL

Note: G3: -40 ~ 85 °C | G2: -40 ~ 105 °C | G1: -40 ~ 125 °C | G0: -40 ~ 150 °C

Automotive Crystal Oscillators



MHz Crystal Oscillators – CMOS Output

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
AC	5.0 x 3.2 x 1.2	CMOS	4 Pads	1 ~ 200	V	V	V	V	V	V		G2
AU	3.2 x 2.5 x 1.0	CMOS	4 Pads	1 ~ 200	V	V	V	V	V	V		G1
AW	2.5 x 2.0 x 0.8	CMOS	4 Pads	1 ~ 200	V	V	V	V	V	V	V	G1
AN	2.0 x 1.6 x 0.76	CMOS	4 Pads	1 ~ 200	V	V	V	V	V	V	V	G1
A5	1.6 x 1.25 x 0.6	CMOS	4 Pads	1 ~ 170	V	V	V	V	V	V		G1



kHz Crystal Oscillators – CMOS Output

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
ACZ	5.0 x 3.2 x 1.2	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G2
AUZ	3.2 x 2.5 x 1.0	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G1
AWZ	2.5 x 2.0 x 0.8	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G1
ANZ	2.0 x 1.6 x 0.75	CMOS	4 Pads	32.768 kHz	V	V	V	V	V			G1



MHz Crystal Oscillators – Differential Output

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
AD	3.2 x 2.5 x 0.9	All	6 Pads	25 ~ 200	V		V	V		V		G2



Temperature Compensated Crystal Oscillators (TCXO)

(Green Products - RoHS Compliant)

Series	Dimension (mm)	Output	Pad	Frequency Range (MHz)	Voltage (V)				Oscillation Mode			Op Temp
					1.8	2.5	2.8	3.3	Fund	3OT	PLL	
AQ	3.2 x 2.5 x 1.0	CS / CMOS	4 Pads	10 ~ 52	V	V	V	V	V			G2
AL	2.5 x 2.0 x 0.8	CS / CMOS	4 Pads	10 ~ 52	V	V	V	V	V			G2
AK	2.0 x 1.6 x 0.8	CS / CMOS	4 Pads	10 ~ 52	V	V	V	V	V			G2