



Dynamic Engineers, Inc.

PRODUCTS BROCHURE

Fall 2013

OCXOs

TCXOs

VCXOs

CLOCK OSCILLATORS

VCO MODULES

CUSTOM CRYSTAL FILTERS

CUSTOM LC FILTERS

CUSTOM DR CERAMIC FILTERS

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PRODUCT APPLICATION GUIDE

Application	Clock XOs	VCXOs	TCXOs	OCXOs	Filters
AUTOMOTIVE					
ABS Brakes	X				
Engine Management	X				
Entertainment	X				
Navigation	X		X		
Remote Keyless Entry					
Steering	X				
T.P.M.S.	X				
COMMUNICATIONS					
Base Stations	X	X	X	X	
Bluetooth			X		X
Cable Modems	X				X
Data Loggers			X		
Digital Switching	X		X	X	
Ethernet	X	X			
Fibre Channel	X	X			
Femtocells	X		X	X	
Optical Networking	X	X	X		
Picocells	X		X		
R.F.I.D.					X
Repeater Stations	X	X	X	X	
RF Modules			X		X
Satellite Comms	X	X	X	X	X
SDH/Sonet	X	X	X	X	
Telemetric Systems					
Wi-Fi	X				
Wi-max	X				
Zigbee					
COMPUTING					
Peripherals	X				X
Routers	X				
Servers	X				
Storage Systems	X				
INDUSTRIAL					
Down Hole	X				
Home Automation	X				
POS Systems					
Process Control	X				
Security Systems	X				
Solar Energy	X				
Utility Smart Meters					X
Wind Turbines	X				
MEDICAL EQUIPMENT					
Cochlear Implants					
Defibrillators					
Monitoring Equipment	X				X
Pacemakers	X				
Scanners	X			X	X
MILITARY					
Avionics	X				X
Navigation	X		X		X
Radar	X		X	X	X
Tactical Radio	X		X		X
Weapons / Systems	X		X	X	X
TEST EQUIPMENT					
Frequency Counters	X	X	X	X	X
Synthesizers	X	X	X	X	X

OCXO: ULTRA-LOW NOISE 10 MHz TO 130 MHz

Best Noise @ 10 MHz (dBc/Hz): Less than -105 @ 1 Hz; -135 @ 10 Hz; -157 @ 100 Hz; -170 @ 1 kHz; -175 @ 10 kHz; -178 @ 100 KHz

Best Noise @ 100 MHz (dBc/Hz): Less than -100 @ 10 Hz; -130 @ 100 Hz; -160 @ 1 kHz; -175 @ 10 kHz; -180 @ 100 KHz

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO2525KLN-10MHz-X	12V	25.8 x 25.8 x 14.8	10 dBm sine	10	+/- 20	-20 to +70	
OCXO3627IQ-100MHz-A-V	12V	36.0 x 27.0 x 13.0	10 dBm sine	100	+/- 50	-20 to +60	
OCXO5050B-LN-10MHz	15V	52.0 x 52.0 x 20.0	11 dBm sine	10	+/- 25	-40 to +80	
OCXO3315-10.0MHz-LN	5V	20.2 x 20.2 x 12.5	6 dBm sine	10	+/- 10	-40 to +80	
OCXO3315-12.8MHz-LN	5V	20.2 x 20.2 x 12.5	6 dBm sine	12.8	+/- 10	-40 to +80	
OCXO2522MC-100MHz-A	5V	25.4 x 22.0 x 12.7	7 dBm sine	100	+/- 20	-40 to +85	
OCXO2020MC-3305-80MHz-A	5V	20.2 x 20.2 x 14.1	7 dBm sine	80	+/- 100	-55 to +85	

OCXO: ULTRA-STABLE DOCKO

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO3182-X39	5V	20.4 x 20.4 x 14.1	6 dBm sine	10	+/- 3.0	-40 to +85	
OCXO3307-10MHz-B	5V	35.4 x 26.7 x 16.3	8 dBm sine	10	+/- 1.0	-40 to +85	
DOCKO3627B-10MHz-A	5V	36.2 x 27.3 x 13.0	5 dBm sine	10	+/- 2.0	-20 to +70	
DOCKO3627M-LN-10MHz	12V	36.1 x 27.2 x 19.0	0.4 V pk to pk	10	+/- 0.5	-40 to +70	
OCXO3307	5 or 12V	35.4 x 26.7 x 16.3	8 dBm or HCMOS	8 to 100	+/- 0.2	-30 to +70	

OCXO: LOW POWER (0.15 WATTS @ 25°C)

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO3305	3.3 or 5V	20.5 x 15.1 x 10.0	7 dBm or HCMOS	5 to 250	+/- 100	-40 to +85	Y
OCXO3309	3.3 or 5V	15.9 x 15.1 x 10.0	HCMOS	8 to 100	+/- 10 (@10MHz)	-40 to +85	Y

OCXO: STANDARD 14-PIN DIL

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO1301	5V	14-pin DIL	ACMOS	10 to 100	+/- 100	-40 to +85	
OCXO1302	3.3V	14-pin DIL	ACMOS	10 to 100	+/- 100	-40 to +85	
OCXO1303	5V	14-pin DIL	sine wave	10 to 100	+/- 100	-40 to +85	
OCXO1304	3.3V	14-pin DIL	sine wave	10 to 100	+/- 100	-40 to +85	
OCXO1305	5V	14-pin DIL	sine wave	8 to 100	+/- 50	-40 to +85	
OCXO1306	5V	14-pin DIL	sine wave	8 to 100	+/- 50	-40 to +85	
OCXO1307	5V	14-pin DIL	sine wave	8 to 100	+/- 30	-40 to +85	
OCXO1308	5V	14-pin DIL	sine wave	8 to 100	+/- 30	-40 to +85	
OCXO1309	3.3V	14-pin DIL	HCMOS	5 to 100	+/- 5	-40 to +85	

OCXO: REDUCED SIZE 20 x 20

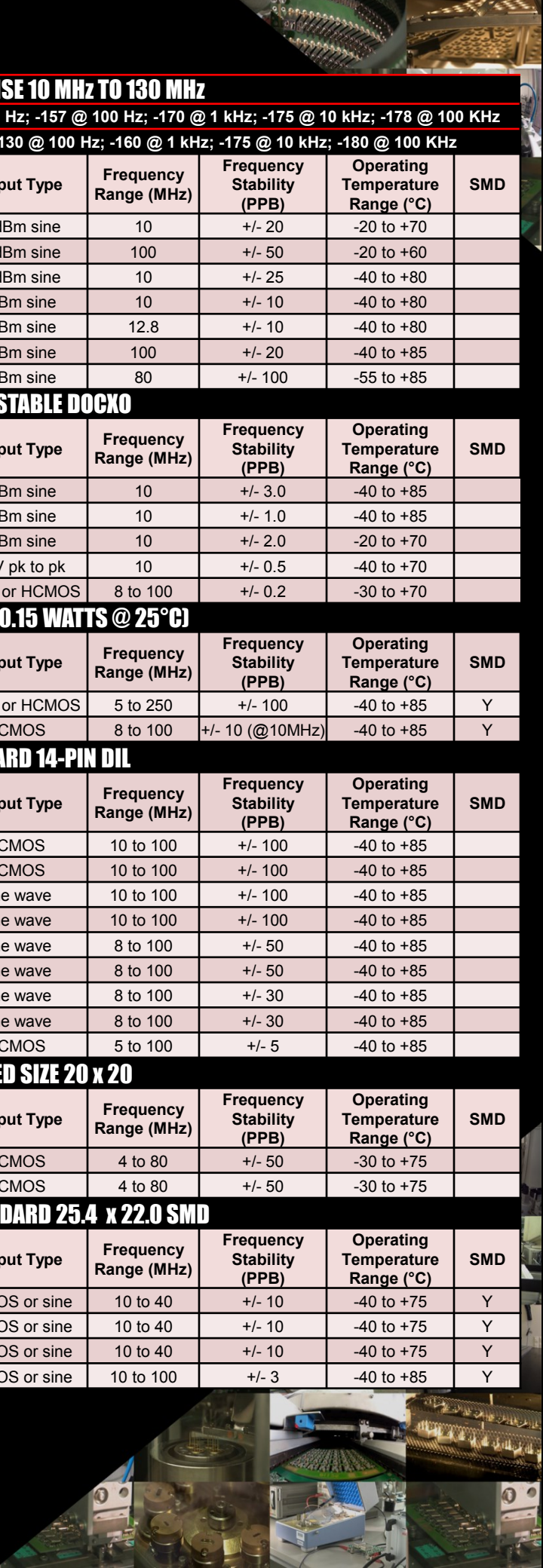
Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO1316	3.3V	20 x 20	HCMOS	4 to 80	+/- 50	-30 to +75	
OCXO1317	5V	20 x 20	HCMOS	4 to 80	+/- 50	-30 to +75	

OCXO: INDUSTRY STANDARD 25.4 x 22.0 SMD

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO1323	12V	25.4 x 22.0	HCMOS or sine	10 to 40	+/- 10	-40 to +75	Y
OCXO1324	3.3V	25.4 x 22.0	HCMOS or sine	10 to 40	+/- 10	-40 to +75	Y
OCXO1325	5V	25.4 x 22.0	HCMOS or sine	10 to 40	+/- 10	-40 to +75	Y
OCXO1328	5V	25.4 x 22.0	HCMOS or sine	10 to 100	+/- 3	-40 to +85	Y



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OCXO: INDUSTRY STANDARD 25 x 25 LEADED

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO1310	15V	26.2 x 26.2	CMOS	10 to 100	+/- 5	-40 to +85	
OCXO1311	12V	26.2 x 26.2	CMOS	10 to 100	+/- 5	-40 to +85	
OCXO1312	5V	26.2 x 26.2	ACMOS	10 to 100	+/- 5	-40 to +85	
OCXO1313	15V	26.2 x 26.2	Sine Wave	10 to 100	+/- 5	-40 to +85	
OCXO1314	12V	26.2 x 26.2	Sine Wave	10 to 100	+/- 5	-40 to +85	
OCXO1315	5V	26.2 x 26.2	Sine Wave	10 to 100	+/- 5	-40 to +85	
OCXO1318	3.3V	25.6 x 25.6	HCMOS or Sine	4 to 20	+/- 5	-40 to +70	
OCXO1319	5V	25.6 x 25.6	HCMOS or Sine	4 to 20	+/- 5	-40 to +70	

OCXO: INDUSTRY STANDARD 36 x 27 LEADED

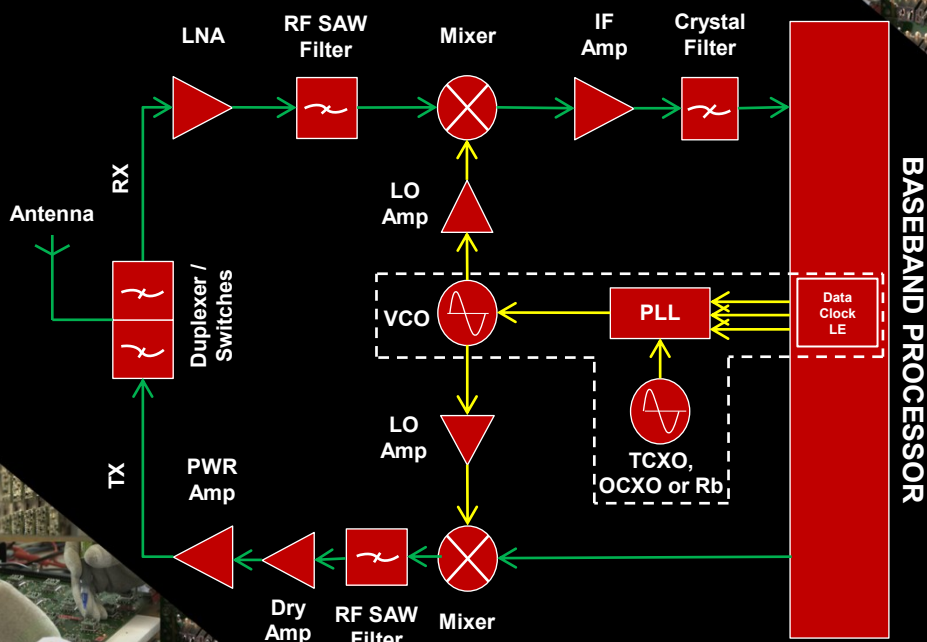
Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO1320	12V	36 x 27	HCMOS or sine	4 to 80	+/- 3	-40 to +75	
OCXO1321	3.3V	36 x 27	HCMOS or sine	4 to 80	+/- 3	-40 to +75	
OCXO1322	5V	36 x 27	HCMOS or sine	4 to 80	+/- 3	-40 to +75	

OCXO: HOLD-OVER OSCILLATORS

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
OCXO2525VSS-10MHz-A	5V	25.3 x 25.3 x 13.4	3 dBm sine	10	+/- 1	-40 to +85	
DOCXO3828V-10MHz-A	5V	38.1 x 28.0 x 18.2	HCMOS	10	+/- 1	-40 to +85	
DOCXO5050V-10MHz-A	15V	50.8 x 50.8 x 25.4	HCMOS	10	+/- 0.2	-20 to +75	

RF SYSTEM BLOCK DIAGRAM

**TYPICAL SYNTHESIZED OSCILLATOR:
VCO + PLL IC + TCXO + LOOP FILTER + ROM IC**



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TCXO: HIGH STABILITY MINIATURE SMD

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
TCXO7500T	3.3 or 5V	5.0 x 7.0 x 1.9	CMOS or clipped sine	5 to 40	+/- 200	-40 to +85	Y
TCXO7500T-25.600MHz-A	3.3V	5.0 x 7.0 x 1.9	CMOS	25.6	+/- 300	-40 to +75	Y
TCXO7500THP-9.6MHz-X	5V	5.0 x 7.0 x 2.0	clipped sine	9.6	+/- 120 to +/- 280	-40 to +85	Y
TCXO7500THP-19.2MHz-A	5V	5.0 x 7.0 x 2.0	clipped sine	19.2	+/- 250	-40 to +85	Y
TCXO5300THP	3.3 or 5V	3.2 x 5.0 x 1.6	CMOS or clipped sine	10 to 40	+/- 280	-40 to +85	Y
TCXO5300QST3-25MHz	3.3	3.2 x 5.0 x 1.6	CMOS	25	+/- 280	-40 to +85	Y
TCXO5300QC-24MHz	3.3	3.2 x 5.0 x 1.2	clipped sine	24	+/- 500	-40 to +85	Y
TCXO1000QST3-20MHz	3.3	5.0 x 7.0 x 2.0	CMOS	20	+/- 280	-40 to +85	Y

TCXO: STANDARD MODEL

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
TCXO1301	3.3V	19.9 x 13.0	CMOS or clipped sine	2 to 120	+/- 1000	-40 to +85	Y
TCXO1302	5V	19.9 x 13.0	CMOS or clipped sine	2 to 120	+/- 1000	-40 to +85	Y
TCXO1303	3.3V	25.4 x 22.0	CMOS or clipped sine	2 to 80	+/- 1000	-40 to +85	Y
TCXO1305	3.3V	20.3 x 12.7	CMOS or clipped sine	2 to 125	+/- 1000	-40 to +85	Y
TCXO1306	5V	20.3 x 12.7	CMOS or clipped sine	2 to 125	+/- 1000	-40 to +85	Y
TCXO1307	3.3V	20.2 x 20.2	CMOS or clipped sine	2 to 105	+/- 1000	-40 to +85	Y
TCXO1308	5V	20.2 x 20.2	CMOS or clipped sine	2 to 105	+/- 1000	-40 to +85	Y
TCXO1309	12V	36.0 x 27.0	CMOS or clipped sine	2 to 150	+/- 1000	-40 to +85	Y
TCXO1310	3.3	36.0 x 27.0	CMOS or clipped sine	2 to 150	+/- 1000	-40 to +85	Y
TCXO1311	5V	36.0 x 27.0	CMOS or clipped sine	2 to 150	+/- 1000	-40 to +85	Y
TCXO3413	3.3	5.0 x 7.0 x 2.3	CMOS	1.6 to 156	+/- 1000	-40 to +85	Y
TCXO7500L	3.3	5.0 x 7.0 x 2.3	LVDS	12 to 800	+/- 2000	-40 to +85	Y
TCXO3404	3.3 or 5V	5.0 x 7.0 x 2.0	CMOS or clipped sine	5 to 26	+/- 370	-40 to +85	Y

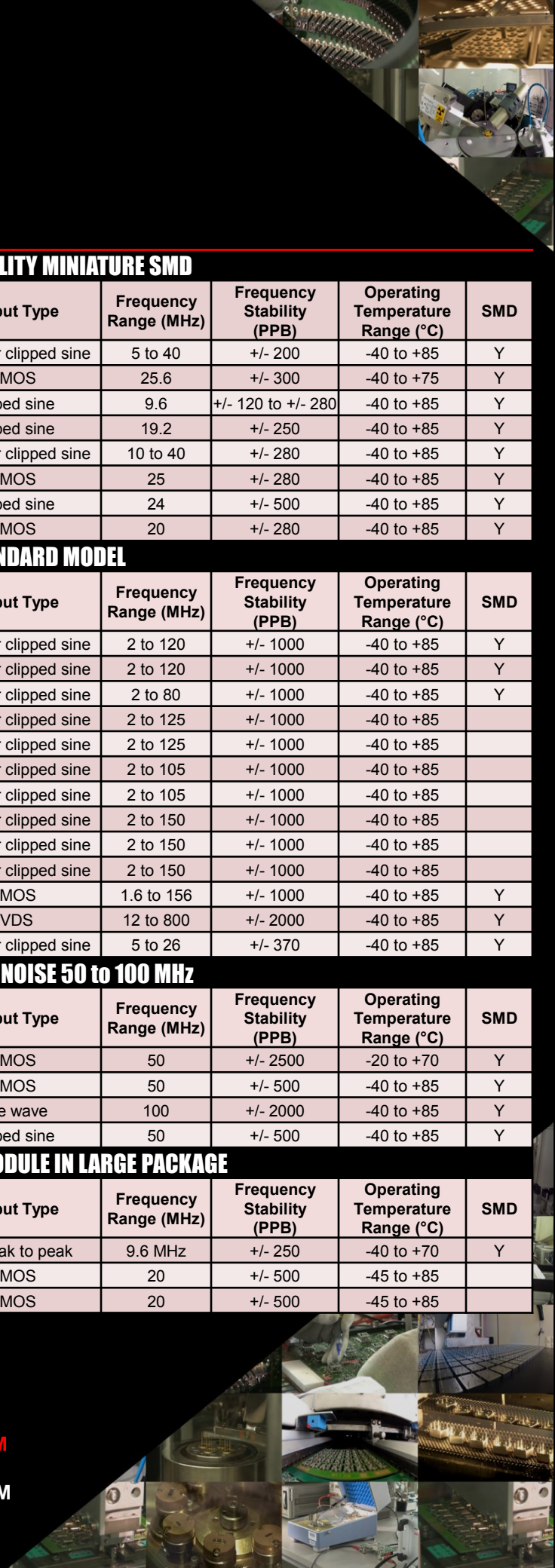
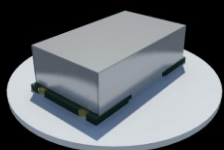
TCXO: LOW PHASE NOISE 50 to 100 MHz

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
TCXOQC119-50MHz-LN	3.3	11.4 x 9.6	CMOS	50	+/- 2500	-20 to +70	Y
TCXOQC914ST3-50MHz	3.3	14.0 x 9.0	CMOS	50	+/- 500	-40 to +85	Y
TCXOBEIM-100MHz-B	5V	25.4 x 19.0	sine wave	100	+/- 2000	-40 to +85	Y
TCXO7500QC-50MHz-A	3.3V	5.0 x 7.0 x 1.8	clipped sine	50	+/- 500	-40 to +85	Y

TCXO: INTEGRATED MODULE IN LARGE PACKAGE

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPB)	Operating Temperature Range (°C)	SMD
TCXO2515KP-9.6MHz	5V	25.2 x 15.2 x 5.6	2 V peak to peak	9.6 MHz	+/- 250	-40 to +70	Y
TCXOT79-20MHz	3.3	20.8 x 13.2	CMOS	20	+/- 500	-45 to +85	Y
TCXOT79-50MHz	3.3	20.8 x 13.2	CMOS	20	+/- 500	-45 to +85	Y

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XO: STANDARD MODEL

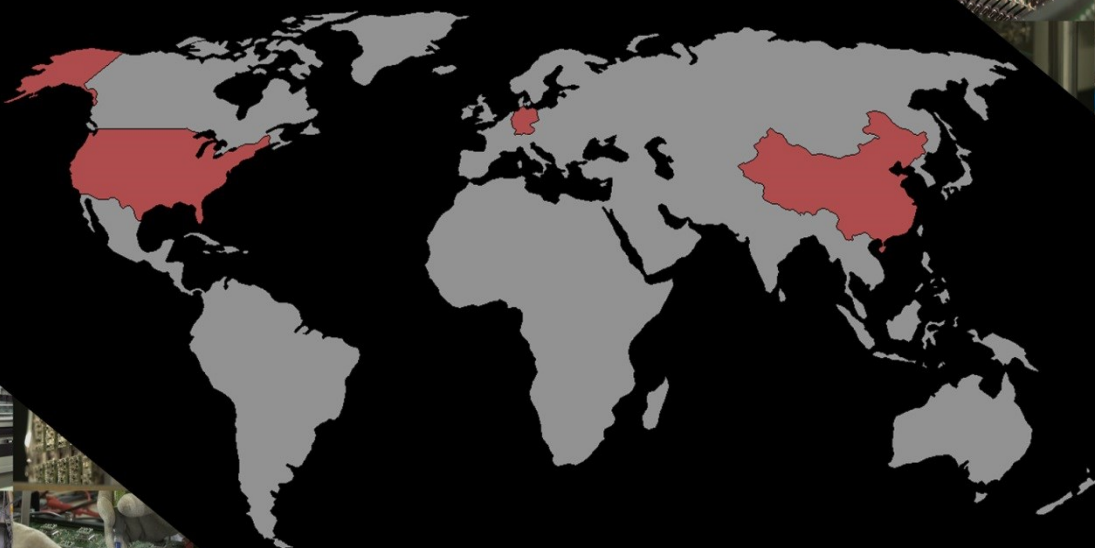
Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPM)	Operating Temperature Range (°C)	SMD
XO1301	5V	13.2 x 13.2	CMOS	1 to 150	+/- 25	-40 to +85	
XO1302	3.3V	13.2 x 13.2	CMOS	1 to 133	+/- 25	-40 to +85	
XO1303	3.3V	20.8 x 13.2	CMOS	1 to 133	+/- 25	-40 to +85	
XO1304	3.3V	3.2 x 2.5	CMOS	1 to 110	+/- 20	-40 to +85	Y
XO1305	2.5V	3.2 x 2.5	CMOS	1 to 90	+/- 20	-40 to +85	Y
XO1306	1.8V	3.2 x 2.5	CMOS	1 to 75	+/- 20	-40 to +85	Y
XO1307	1.8V	2.5 x 2.0	CMOS	1 to 133	+/- 20	-40 to +85	Y
XO1308	2.5V	2.5 x 2.0	CMOS	1 to 166	+/- 20	-40 to +85	Y
XO1309	3.3V	2.5 x 2.0	CMOS	1 to 200	+/- 20	-40 to +85	Y
XO1310	5V	14.5 x 9.8	CMOS	1 to 150	+/- 25	-40 to +85	Y
XO1311	5V	7.0 x 5.0	CMOS	1 to 150	+/- 25	-40 to +85	Y
XO1312	3.3V	7.0 x 5.0	CMOS	1 to 133	+/- 25	-40 to +85	Y
XO1313	3.3V	5.0 x 3.2	CMOS	1 to 133	+/- 25	-40 to +85	Y
XO1318	5V	5.0 x 3.2	CMOS	1 to 150	+/- 25	-40 to +85	Y

XO: FAST DELIVERY LOW PHASE JITTER

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPM)	Operating Temperature Range (°C)	SMD
XO3506-PF-LVCMOS	2.5 or 3.3V	7.0 x 5.0	LVCMOS	10 to 250	+/- 50	-40 to +85	Y
XO3506-PF-LVDS	2.5 or 3.3V	7.0 x 5.0	LVDS	10 to 1500	+/- 50	-40 to +85	Y

XO: ULTRA-LOW PHASE JITTER

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPM)	Operating Temperature Range (°C)	SMD
XO7500L-G2	3.3	7.0 x 5.0	LVDS	40 to 200	+/- 25	-40 to +85	Y
XO3001	2.5 or 3.3V	7.0 x 5.0	LVDS or LVPECL	19.44 to 320	+/- 20	-40 to +85	Y



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VCXO: FAST DELIVERY LOW PHASE JITTER

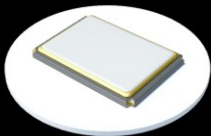
Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPM)	Operating Temperature Range (°C)	SMD
VCXO3506-PF-LVCMOS	2.5 or 3.3V	7.0 x 5.0	LVCMOS	10 to 250	+/- 50	-40 to +85	Y
VCXO3506-PF-LVDS	2.5 or 3.3V	7.0 x 5.0	LVDS	10 to 1500	+/- 50	-40 to +85	Y

VCXO OR VCXO: ULTRA-LOW PHASE JITTER

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPM)	Operating Temperature Range (°C)	SMD
VCXO7500VLP	3.3V	7.5 x 5.0	LVDS or LVPECL	212.5 to 800	+/- 50	-40 to +85	Y
VCXOKFTP	3.3V	14.4 x 9.5	PECL	8 to 800	+/- 50	-40 to +85	Y
VCXO7500LP	2.5 or 3.3V	7.0 x 5.0	LVDS or LVPECL	38 to 640	+/- 25	-40 to +85	Y

VCXO: STANDARD MODEL

Model	Supply Voltage	Package (mm)	Output Type	Frequency Range (MHz)	Frequency Stability (PPM)	Operating Temperature Range (°C)	SMD
VCXO1301	3.3V	14.4 x 9.5	LVPECL	60 to 800	+/- 50	-40 to +85	Y
VCXO1302	3.3 or 5V	14.4 x 9.5	CMOS	2 to 125	+/- 50	-40 to +85	Y
VCXO1303	3.3 or 5V	14-pin DIL	CMOS	2 to 125	+/- 50	-40 to +85	
VCXO1304	3.3V	20.0 x 13.0	LVPECL	100 to 800	+/- 90	-40 to +85	Y
VCXO1310	3.3V	7.0 x 5.0	LVPECL	9.5 to 622.08	+/- 100	-40 to +85	Y
VCXO1311	3.3V	3.2 x 2.5	CMOS	1.25 to 54	+/- 50	-40 to +85	Y
VCXO1312	2.5V	3.2 x 2.5	CMOS	4 to 54	+/- 50	-40 to +85	Y
VCXO1313	1.8V	3.2 x 2.5	CMOS	4 to 54	+/- 50	-40 to +85	Y
VCXO1314	5V	7.0 x 5.0	CMOS	1 to 300	+/- 150	-40 to +85	Y
VCXO1315	3.3V	7.0 x 5.0	CMOS	1 to 300	+/- 150	-40 to +85	Y
VCXO1316	2.5V	7.0 x 5.0	CMOS	1 to 300	+/- 150	-40 to +85	Y
VCXO1317	5V	7.0 x 5.0	CMOS	1 to 300	+/- 150	-40 to +85	Y
VCXO1318	3.3V	7.0 x 5.0	CMOS	1 to 300	+/- 150	-40 to +85	Y
VCXO1319	2.5V	7.0 x 5.0	CMOS	1 to 300	+/- 150	-40 to +85	Y
VCXO1320	5V	5.0 x 3.2	CMOS	1 to 77.76	+/- 100	-40 to +85	Y
VCXO1321	3.3V	5.0 x 3.2	CMOS	1 to 300	+/- 100	-40 to +85	Y



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VCO: WIDEBAND

Model	Supply Voltage	Package (mm)	Frequency Range (MHz)	Tuning Voltage Range (Volts)	Tuning Sensitivity (MHz per Volt)	Phase Noise @10 KHz offset (dBc/Hz)	SMD
VCO-130-218MHz-A	5	12.7 x 12.7	130 to 218	1.5 to 15.0	7 to 10	-110	Y
VCO1000ET	5	12.7 x 12.7	2000 to 4000	0.5 to 16.0	100 to 235	-90	Y
VCO1301WB	5	12.7 x 12.7	50 to 100	1.0 to 15.0	4 to 5	-109	Y
VCO1314WB	5	12.7 x 12.7	240 to 760	0.5 to 24.0	14 to 24	-106	Y
VCO1319WB	8	12.7 x 12.7	400 to 800	0.5 to 11.0	32 to 52	-105	Y
VCO1324WB	12	12.7 x 12.7	600 to 1200	0.0 to 16.0	30 to 70	-110	Y
VCO1329WB	10	12.7 x 12.7	800 to 1600	0.0 to 19.0	20 to 80	-102	Y
VCO1334WB	5	12.7 x 12.7	900 to 1800	0.0 to 15.0	70 to 100	-100	Y
VCO1343WB	5	12.7 x 12.7	1100 to 2500	0.5 to 22.0	20 to 150	-98	Y
VCO1352WB	5	12.7 x 12.7	2450 to 3200	0 to 10	75	-98	Y

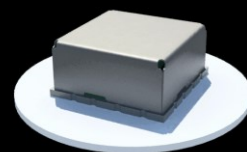
VCO: ULTRA-LOW NOISE (ULN)

Model	Supply Voltage	Package (mm)	Frequency Range (MHz)	Tuning Voltage Range (Volts)	Tuning Sensitivity (MHz per Volt)	Phase Noise @10 KHz offset (dBc/Hz)	SMD
VCO1330ULN	8	12.7 x 12.7	1990 to 2060	0 to 5	22.9 to 52.7	-105	Y
VCO1388ULN	8	12.7 x 12.7	3625 to 3625	0.5 to 4.5	5	-120	Y
VCO1317ULN	5	12.7 x 12.7	1665	1705	1.5 to 34.1	-107	Y
VCO1318ULN	5	12.7 x 12.7	1688 to 1688	0.25 to 4.75	0.5 to 5.9	-120	Y
VCO1365ULN	8	12.7 x 12.7	806 to 829	1 to 12	2.5	-125	Y
VCO1370ULN	8	12.7 x 12.7	982 to 1015	0 to 12	3.6	-127	Y
VCO1375ULN	8	12.7 x 12.7	1456 to 1456	0.5 to 4.5	6	-122	Y
VCO1378ULN	8	12.7 x 12.7	1740 to 1785	0.5 to 4.5	15	-116	Y
VCO1383ULN	8	12.7 x 12.7	2165	2185	9 to 12	-114	Y
VCO1376ULN	8	12.7 x 12.7	1664	1664	6	-125	Y

VCO: OPTIMIZED BAND (OB)

Model	Supply Voltage	Package (mm)	Frequency Range (MHz)	Tuning Voltage Range (Volts)	Tuning Sensitivity (MHz per Volt)	Phase Noise @10 KHz offset (dBc/Hz)	SMD
VCO3361	5	12.7 x 12.7	825 to 930	0 to 5.5	30	-105	Y
VCO4448	10	12.7 x 12.7	4400 to 4800	0.5 to 18.0	40	-90	Y
VCO1356OB	8	12.7 x 12.7	1510 to 1650	1.5 to 12.0	24	-107	Y
VCO1360OB	5.1	12.7 x 12.7	1630 to 1638	0.5 to 4.5	9	-113	Y
VCO1364OB	5	12.7 x 12.7	1760 to 1810	0.5 to 4.5	36	-105	Y
VCO1368OB	5	12.7 x 12.7	1800 to 1900	0.5 to 4.5	40	-107	Y
VCO1372OB	5	12.7 x 12.7	1940 to 1960	0.5 to 4.5	13	-109	Y
VCO1374OB	5	12.7 x 12.7	1963 to 2027	0.5 to 4.5	36	-107	Y
VCO1400OB	5	12.7 x 12.7	3050 to 3120	0.5 to 4.5	33	-105	Y
VCO1410OB	5	12.7 x 12.7	3620 to 3775	0.5 to 4.5	54	-95	Y

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CUSTOM CRYSTAL FILTER: NARROW BAND

Model	Package (mm)	Center Frequency (MHz)	Passband (+/- kHz)	Passband Attenuation (dB)	Stopband (+/- kHz)	Stopband Attenuation (dB)	SMD
CRYSTAL-FILTER 3	41.7 x 19.3	9.000	2.8	6	10	50	
CRYSTAL-FILTER 6	41.5 x 16.2	12.500	10.5	3	28	60	
CRYSTAL-FILTER 7	25.4 x 15.8	17.000	25	3	62.5	30	
CRYSTAL-FILTER 8	57.2 x 19.5	20.000	1.8	6	20	70	
CRYSTAL-FILTER 9	50.3 x 17.2	27.021	2.5	3	10	30	
CRYSTAL-FILTER 10	28.0 x 15.2	32.768	3.8	6	16	40	
CRYSTAL-FILTER 11	23.6 x 15.3	40.040	10.5	3	40	50	
CRYSTAL-FILTER 13	38.0 x 25.0	56.960	16	1	85	30	
CRYSTAL-FILTER 15	39.0 x 15.5	70.000	100	3	200	28	
CRYSTAL-FILTER 16	32.0 x 12.7	70.250	12.5	1	110	45	
CRYSTAL-FILTER 17	36.0 x 13.0	75.000	11	6	100	40	
CRYSTAL-FILTER 18	56.0 x 19.0	94.050	65	3	450	50	
CRYSTAL-FILTER 19	36.0 x 11.5	109.350	5	1	45	50	
CRYSTAL-FILTER 20	43.2 x 16.5	141.558	8	3	50	40	

CUSTOM CRYSTAL FILTER: INTERMEDIATE BAND

Model	Package (mm)	Center Frequency (MHz)	Passband (+/- kHz)	Passband Attenuation (dB)	Stopband (+/- kHz)	Stopband Attenuation (dB)	SMD
CRYSTAL-FILTER 1	75.5 x 28.5	1.400	3	3	8.1	60	
CRYSTAL-FILTER 4	44.5 x 16.0	10.000	15	6	30	60	
CRYSTAL-FILTER 5	85.0 x 23.0	10.700	25	7	100	65	
CRYSTAL-FILTER 14	32.0 x 12.7	69.500	175	3	500	20	

CUSTOM CRYSTAL FILTER: WIDE BAND

Model	Package (mm)	Center Frequency (MHz)	Passband (+/- kHz)	Passband Attenuation (dB)	Stopband (+/- kHz)	Stopband Attenuation (dB)	SMD
CRYSTAL-FILTER 2	42.0 x 22.5	4.300	20	6	35	60	
CRYSTAL-FILTER 12	38.0 x 16.5	43.500	180	1	430	40	

CUSTOM LC FILTER

Model	Package (mm)	Center Frequency (MHz)	Passband (+/- MHz)	Passband Attenuation (dB)	Stopband (+/- MHz)	Stopband Attenuation (dB)	SMD
LCF1000	44.5 x 16.0	21.400	0.500	3	2	60	
LCF1001	36.8 x 12.7	113.000	5	3	78 to 165	50	
LCF1002	22.9 x 10.2	220.000	25	0.6	280 to 1000	40	Y
LCF1003	22.9 x 10.2	125.000	5	3	250	60	Y
LCF1005	135.0 x 25.0	400 to 470	400 to 470	0.5	800 to 900	50	
LCF1006	25.4 x 13.5	121.500	3	3	Fo - 78.7	65	

DR CERAMIC FILTER: MONOBLOCK

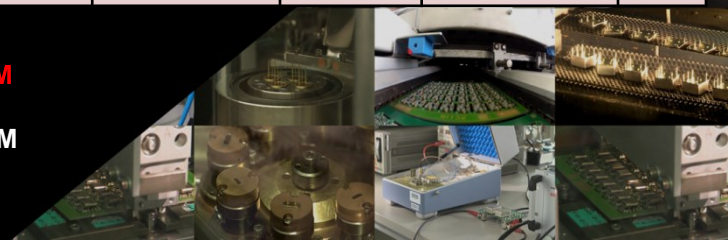
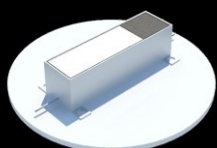
Model	Package (mm)	Center Frequency (MHz)	Passband (+/- MHz)	Passband Attenuation (dB)	Stopband (+/- MHz)	Stopband Attenuation (dB)	SMD
DRF2614-2437MHz-A	26.0 x 14.0	2437	25	3	0.3 to 2300	34	Y
DRF2212-3800MHz-A	22.0 x 12.0	3800	80	3	4000	25	Y
DRF1312-4425MHz-A	13.0 x 12.0	4425	80	3	5095 to 5255	35	Y
DRF1006-3285MHz-A	10.0 x 6.0	3285	25	3	3075	30	Y
DRF1004-5800MHz-A	10.0 x 4.0	5800	75	3	DC to 5000	30	Y
DRF6852-939.5MHz-A	68.0 x 52.0	939.5	2.5	3	806 to 880	50	Y
DRF3316-881.5MHz-A	33.0 x 16.0	881.5	12.5	3	860	25	Y
DRF1312-1030MHz-A	13.0 x 12.0	1030	2.5	3	50	15	Y
DRF1312-1857.5MHz-A	13.0 x 12.0	1857.5	7.5	3	1930 to 1945	50	Y
DRF1312-2593MHz-A	13.0 x 12.0	2593	97	3	2330 to 2856	20	Y
DRF2110-2140MHz-A	21.0 x 10.0	2140	10	3	2070	55	Y
DRF4313-2140MHz-A	43.0 x 13.0	2140	10	3	2125 to 2155	10	Y

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Dynamic Engineers, Inc.

COMPANY SUMMARY

WORLD CLASS SUPPLIER OF RF DEVICES

Since 1986 Dynamic Engineers, Inc. (DEI) has been providing custom RF component solutions to global customers in the SATCOM, land mobile communications, cellular infrastructure, and test instrument markets. With headquarters in Houston, Texas, DEI works to satisfy customers with a highly-automated German manufacturing operation, a growing quality-assurance testing center in Guangzhou, China, and two partnering business operations in greater Europe.

Custom RF component solutions include:

- Quartz Crystals
- Quartz-based clock oscillators
- VCXOs
- TCXOs & OCXOs
- VCOs & Synthesizers
- Custom LC & Crystal filters
- Power Transistors
- Misc. Semiconductors
- Custom RF Modules

QUALITY AND CUSTOMER SERVICE

Quality and customer service are the cornerstones of DEI's success. We are diligently focused on meeting and exceeding customer expectations. DEI has invested extensively into processes which provide its customers with the highest quality of products available throughout the industry. We regularly open ourselves up for customer and other audits. Our quality management system is constantly evolving to meet the changing requirements of the electronics industry.

QUALITY APPROVALS

- Accredited to ISO 9001:2008 by TÜV SÜD
- ISO14001 previously held but currently lapsed

GERMAN FACILITY

- Modern premises based in Germany
- 16,000 ft²
- Class 1000 clean room
- In-house PCB design & assembly
- High degree of automation allowing for competitive manufacturing costs and flexible delivery lead-times
- Automated test facilities
- Processing of both AT-cut & SC-cut crystals

NOTE: Please consult sales department for a more detailed and complete listing of custom OCXOs, VCOs and LC Filter products.

