

### 3.3V FR-4 Based Surface Mount Voltage Controlled Crystal Oscillators

- ♦ **Applications:** Clock Recovery; PLL; Optic Transmission Equipment; Digital Cross Connect Equipment
- ♦ FR-4 Based SMT
- ♦ -10°C to 70°C Operating Temperature  
"M" Models Operate From -40°C to 85°C
- ♦ 45/55% Symmetry Standard
- ♦ CMOS Compatible
- ♦ For Other Discrete Frequencies Consult Factory
- ♦ Tape & Reel Packaging



### ELECTRICAL SPECIFICATIONS

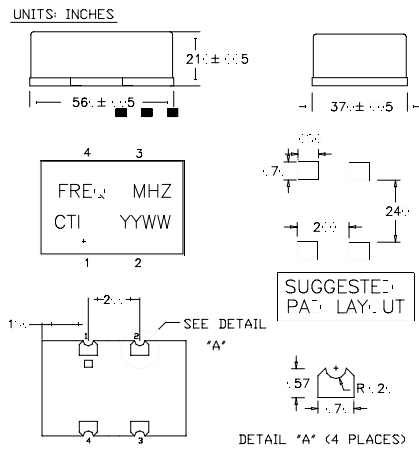
Model	F1533AD	
Frequency Range (MHz)	52.0	
Input Current (mA)	< 30	
Frequency Control Function	(For Custom Deviation Range, Vc Range, etc. - Consult Factory)	
Deviation (ppm)		
Minimum	±40	
Maximum	±70	
Linearity (%)	< 10	
Modulation Bandwidth (±3dB)	> 10KHz	
Nominal Control Voltage (V)	1.65	
Control Voltage Range (V)	0.3 to 3.0	
Transfer Function	Positive	
Input Impedance	> 50KΩ @ 10KHz	
Frequency Stability (ppm)		
Overall	Inclusive of Calibration, Temperature, Voltage, Load and 1Year of Aging	
-10°C to +70°C	±25	
-40°C to +85°C	±50	
15 Years Aging	±5	
Temperature Range (°C)		
Operating	-40°C to +85°C	
Storage	-40°C to +85°C	
Supply Voltage (V)	+3.3V ±10%	
Symmetry (%)	45/55	
Rise & Fall Times (ns) (CL= 15pF)	≤ 6	
Start Up Time (ms)	<10	
V <sub>OH</sub> (CL = 15pF)	≥ 0.9V <sub>cc</sub>	
V <sub>OL</sub> (CL = 15pF)	≤ 0.1V <sub>cc</sub>	
Typical SSB Phase Noise (dBC/Hz)	100Hz	-100
Offset from Carrier	1KHz	-120
	10KHz	-140
	100KHz	-150

### PART NUMBERING GUIDE

**F1533AD X** - Specify Frequency

    "Blank" = -10°C to 70°C Operating Temp.

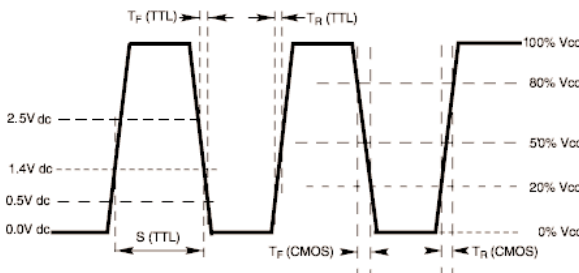
    "M" = -40°C to +85°C Operating Temp.



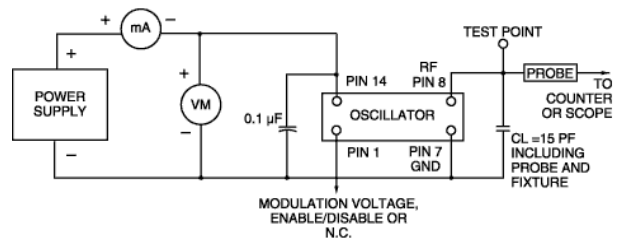
PIN	FUNCTION
1	Voltage Control
2	Gnd/ & Case Gnd
3	Output
4	+ V <sub>CC</sub>

Specifications Subject to Change Without Notice

### OUTPUT WAVEFORM



### TEST CIRCUIT DIAGRAM



### MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS

TEST METHODS	REFERENCE PROCEDURES	DESCRIPTION
Temperature Cycle	MIL-STD-833, Mtd 1010, Cond. B	-55°C to +125°C; Air-to-Air; 100 cycles; 10 min. dwell
Mechanical Shock	MIL-STD-883, Mtd 2002, Cond. B	1500 g's
Vibration	MIL-STD 883, Mtd 2007, Cond. B	20-2000 Hz; 0.06 inch; 15g's; 3 planes
Humidity Steady State	MIL-STD-202, Mtd 103	40°C; 90%-95% R.H.; 56 days
Thermal Shock	MIL-STD-883, Mtd 1011.7 Cond. B	100°C to 0°C; Water-to-Water; 15 cycles
Electrostatic Discharge	MIL-STD-883, Mtd 3015 Class II	2 KV to 4 KV Threshold
Solderability	MIL-STD-883, Mtd 2022.2	Solder dip; Meniscograph Criteria
Hermeticity	MIL-STD-883, Mtd 1014.8, Cond. A1	Mass spectro. 2 x 10 <sup>-8</sup> atmos. CC/sec He
Resistance to Soldering	MIL-STD-202, Mtd 210D, Cond. C	260°C; 10 seconds: 1 inch/sec.
Lead Integrity	MIL-STD-883, Mtd 2004.5, Cond. A, B1	Lead tension & bend stress
Marking Permanence	MIL-STD-883, Mtd 2015.8	Resistance to solvents
Life Test	MIL-STD-883, Mtd 1005.6	125°C, powered, 1000 hours minimum