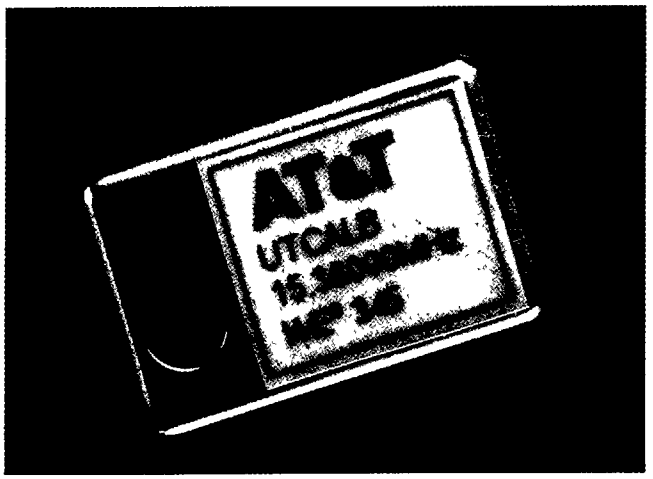
AT&T Microelectronics

U-Type Temperature-Compensated Voltage-Controlled Crystal Oscillator (TCVCXO)



Description

The AT&T U-Type Temperature-Compensated Voltage-Controlled Crystal Oscillator (TCVCXO) is designed for use in both CMOS, TTL and low-power sine wave applications. It has a maximum operational temperature range of –40 °C to +85 °C and is available in frequencies between 1.0 MHz and 20.0 MHz. The U-Type TCVCXO is compatible with a 14-pin DIP footprint.

Typical uses for the U-Type TCVCXO are in cellular and mobile telephones and radios and in frequency synthesis applications.

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Center Frequency Range					
TTL/CMOS Outputs	Fo	1.0	—	20.0	MHz
Clipped Sine Wave Output		10.0		20.0	MHz
Operational Temperature Range					
Commercial	T	0	25	70	°C
Industrial		–40	25	85	°C
Frequency Stability					
Versus Temperature					
0 °C to 55 °C		—	—	±1.0	ppm
–30 °C to +70 °C	ΔF	—	—	±3.0	ppm
–40 °C to +85 °C		—	—	±5.0	ppm
Versus Supply Voltage		—	—	±0.25	ppm
Versus Aging		—	—	±1.0	ppm/year
Pulling Range (Vc = 0.5 V to 4.5 V)*	—	±25	—	—	ppm from Fo
Supply Voltage	VDD	4.75	5.0	5.25	V
Supply Current					
1.0 MHz to 15 MHz			—	15	mA
>15 MHz	IDD	—	—	20	mA
Clipped Sine Wave		—	—	2	mA
Output Levels†					
Output High	VOH	4.5	—	—	V
Output Low	VOL	—	—	0.5	V
Control Voltage	Vc	0.5	2.5	4.5	V
Transition Times (TTL and CMOS outputs)					
Rise Time	TRISE	—	—	10	ns
Fall Time	TFALL	—	—	10	ns
Symmetry or Duty Cycle (TTL and CMOS)	SYM	40	49/51	60	%
Frequency Adjustment Trimmer	—	±3.0	—	—	ppm
Fan-out	—	—	—	2	TTL Loads
Storage Temperature	TSTOR	–55	—	125	°C

* Does not include additional ±3.0 ppm frequency adjustment by the trimmer.
† Clipped sine wave output has a minimum 1 V peak to peak into a 20 kΩ, 15 pF.

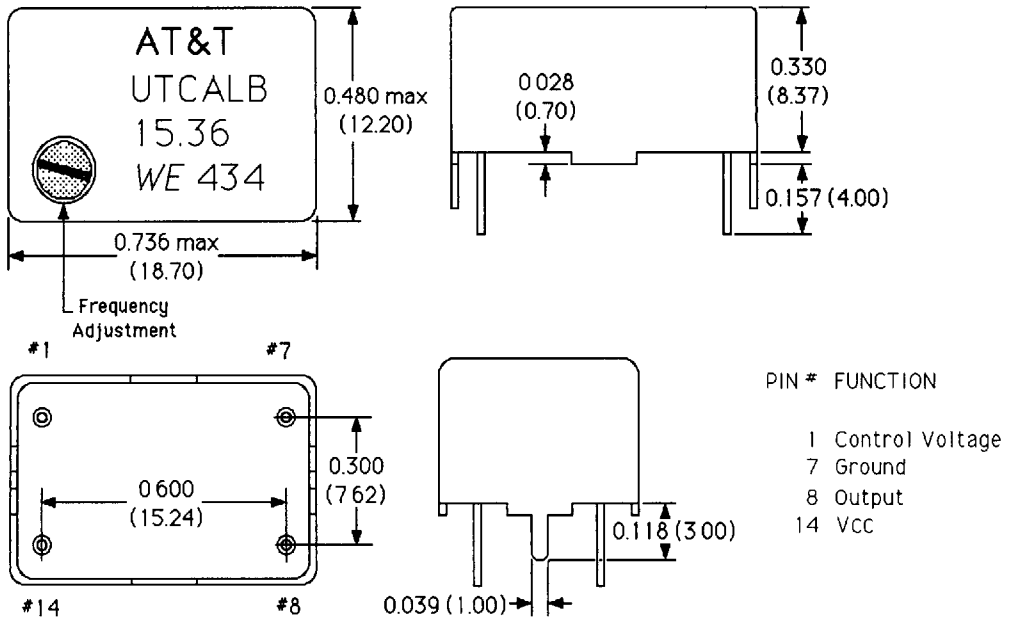
Mechanical and Environmental Characteristics

Parameter	Description
Mechanical Shock	MIL-STD-883, Method 2002, Condition A.
Mechanical Vibration	MIL-STD-883, Method 2007, Condition A.
Temperature Cycle	MIL-STD-883, Method 1010, Condition A.
Gross Leak Test	All units 100% leak tested in deionized water.
Fine Leak Test	All units tested to MIL-STD-883, Method 1014, Condition A.
Seal Strength	2 lbs. maximum force perpendicular to top and bottom.
Bend Test	MIL-STD-202, Method 211, Condition C.
Marking	MIL-STD-202, Method 215.

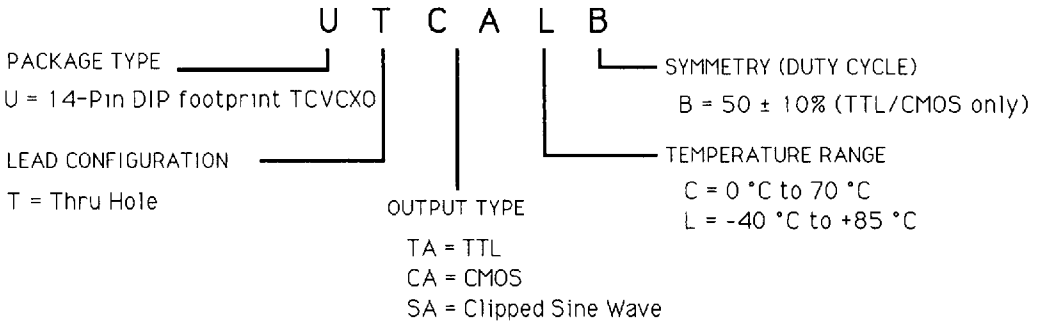
Outline Diagram

U-Type TCVCXO Package

Dimensions are in inches and (millimeters).



Part Numbering Information



Note: Other specifications may be available upon request. *WE* 434 is the date code and represents the year 199(4) and the week (34) of manufacture.