OSCILLATOR CLASSIFICATIONS -

Crystal Oscillator (XO): An oscillator with only a crystal to control the stability of the output frequency.

Voltage Controlled Crystal Oscillator (VCXO): An oscillator with a crystal and associated components to deviate or modulate the output frequency using an external control voltage.

Temperature Compensated Crystal Oscillator (TCXO): An oscillator with a crystal and associated components to provide temperature compensation of the output frequency.

Oven Controlled Crystal Oscillator (OCXO): An oscillator that uses an internal oven to control the temperature of the crystal and temperature sensitive circuitry, providing an excellent frequency vs. temperature response.

Voltage Controlled, Temperature Compensated Crystal Oscillator (VC/TCXO): An oscillator that combines the features of the TCXO with external voltage control of the output frequency.

Voltage Controlled, Oven Controlled Crystal Oscillator (VC/OCXO): An oscillator that combines the features of the OCXO with external voltage control of the output frequency.

OSCILLATOR TERMINOLOGY -

Duty Cycle: The measure of output waveform symmetry. This term is expressed as a percentage. The voltage at which the measurement is made varies by waveform type.

Enable/Disable (E/D): A control function that allows the output of the oscillator to be toggled on or off as desired by applying or removing an external logic control voltage to an oscillator pin.

Tristate: A control function that allows the output to be placed into a high impedance state. This feature is activated by the application of a external logic control voltage to an oscillator pin.

Rise Time: The time measured for the output signal voltage to transition from the “0” level to the “1” level.

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Fall Time: The time measured for the output signal voltage to transition from the "1" level to the "0" level.

Frequency Adjustment: The range of frequency that the oscillator can be tuned from the nominal frequency.

Inclusive Tolerance: The amount of frequency change allowable from the nominal frequency given a set of operating conditions. This includes the deviation at reference temperature, deviation over the operating temperature range, changes in input voltage, changes in load, shock, vibration and aging.

Calibration Tolerance: The amount of frequency deviation allowable from the nominal frequency at the reference temperature.

Temperature Stability: The amount of frequency deviation allowable from the nominal frequency over the operating temperature range.

Input Current: The amount of current drawn by the oscillator.

Load Drive Capability: The maximum load the oscillator can drive specified in terms of the number of gates or the type of load circuit.

Operating Temperature Range: The range of ambient temperature over which the oscillator shall operate while satisfying the specified values for its performance.

Reference Temperature: The ambient temperature of a crystal controlled oscillator at the measurement of characteristics other than temperature and aging characteristics.
(Typically 25 ± 2 °C)

Storage Temperature Range: The temperature range over, which the oscillator can be stored while not operating.

Operable Temperature Range: The temperature range over, which the oscillator can be operated but not necessarily meet the requirements of the operating temperature range.

Supply Voltage: The input voltage required for the oscillator to operate within specification.

Symmetry: A measure of the uniformity of the output waveform.

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