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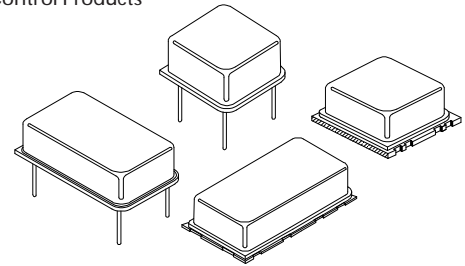
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# True TTL Series

- True TTL Output without Enable/Disable
- Lower EMI Due to Lower Ringing Noise (Overshoot/Undershoot)
- P1145 (Full Size) or ST2245 (Half Size) Metal Clock Oscillator
- Available in Thru-Hole or Surface Mount Configuration


**4.000 MHz – 60.000 MHz**

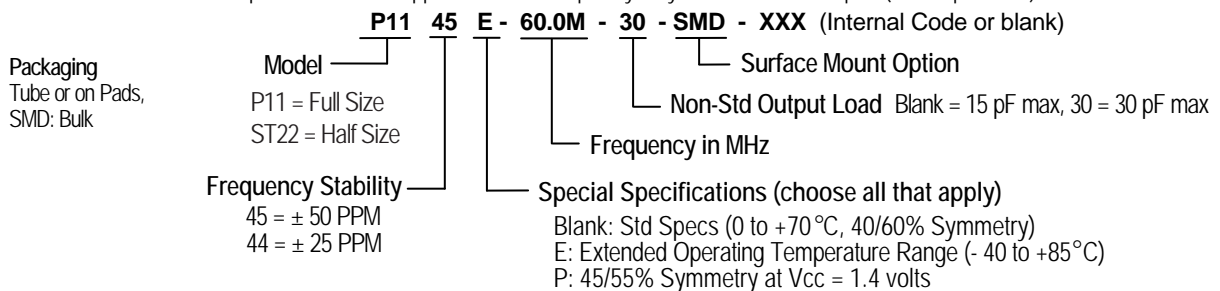
## Standard Specifications

|                             |   |
|-----------------------------|---|
| Overall Frequency Stability | ± 50 PPM or ± 25 PPM over Operating Temperature Range   |
| Operating Temperature Range | 0 to +70°C is standard, but can be extended to -40 to +85°C for certain frequencies                       |
| Supply Voltage (Vcc)        | 5.0 volts ± 10%   |
| Symmetry (Duty Cycle)       | 40/60 to 60/40% is standard, but 45/55% at Vcc = 1.4 volts is also available (see Waveform 1)             |
| Logic Levels                | Logic "1" 2.4 volts MIN; Logic "0" 0.4 volts MAX  |
| Output Load                 | Can drive up to 10 TTL loads + 15pF (typ. 1 ASIC), see Test Circuit 4 (consult factory for heavier loads) |
| Ringing Noise               | Depends on frequency and output load. See EMI application note  |

| Frequency Range<br>(MHz) | Supply Current<br>Icc (mA) |         | Rise and Fall Time<br>Tr & Tf (nS) |         |
|--------------------------|----------------------------|---------|------------------------------------|---------|
|                          | Typical                    | Maximum | Typical                            | Maximum |
| 4.000 – 7.999            | 23.0                       | 28.0    | 4.0                                | 5.0     |
| 8.000 – 15.999           | 24.0                       | 28.0    | 3.0                                | 4.0     |
| 16.000 – 21.999          | 24.0                       | 28.0    | 2.5                                | 3.5     |
| 22.000 – 60.000          | 27.0                       | 32.0    | 2.0                                | 3.0     |

## Part Numbering Guide

Portions of the part number that appear after the frequency may not be marked on part (C of C provided)



Consult factory for available frequencies and specs. Not all options available for all frequencies. A special part number may be assigned. Frequency Stability is inclusive of frequency shifts due to calibration, temperature, supply voltage, shock, vibration and load

## Mechanical: inches (mm)

## not to scale

Due to part size and factory abilities, part marking may vary from lot to lot and may contain our part number or an internal code.

