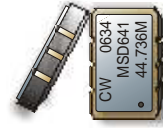


# CRYSTAL CONTROLLED OSCILLATORS

## LEADLESS SURFACE MOUNT HCMOS CLOCK OSCILLATOR



MSD641

### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	7	Vdc	

### OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Frequency Range	(Fo)	1.8	-	80	MHz	
Total Frequency Tolerance		-20	-	20	ppm	1
Operating Temperature Range		-40	-	85	°C	
Supply Voltage	(Vcc)	4.50	5.00	5.50	Vdc	
Supply Current	(Icc)	-	-	50	mA	
Jitter (BW=10Hz to 20MHz)		-	-	5	ps rms	
Jitter (BW=12kHz to 20MHz)		-	-	1	ps rms	
SSB Phase Noise at 10Hz offset		-	-60	-	dBc/Hz	
SSB Phase Noise at 100Hz offset		-	-90	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-125	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-135	-	dBc/Hz	
SSB Phase Noise at 100KHz offset		-	-140	-	dBc/Hz	

### INPUT CHARACTERISTICS

TABLE 3.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Tri-state Enable Voltage	(Vih)	≥70%Vcc	-	-	Vdc	2
Tri-state Disable Voltage	(Vil)	-	-	≤30%Vcc	Vdc	2

### HCMOS OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	50	pF	
Voltage (High)	(Voh)	≥ 0.9(Vcc)	-	-	Vdc	
(Low)	(Vol)	-	-	≤ 0.1(Vcc)	Vdc	
Current (High)	(Ioh)	-16	-	-	mA	
(Low)	(Iol)	-	-	16	mA	
Duty Cycle at 50% of Vcc		45	50	55	%	
Rise / Fall Time 10% to 90%		-	1.5	3	nS	

### PACKAGE CHARACTERISTICS

TABLE 5.0

Package	Hermetically sealed, leadless ceramic package.
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Note:

- Inclusive of calibration, frequency vs. temperature stability, supply voltage change, load change, shock and vibration, 20 years aging.
- Oscillator output is enabled with no connection on pad 1

### DESCRIPTION

The Connor-Winfield MSD641 is a hermetically sealed surface mount 5.0V Crystal Controlled Oscillator (XO) HCMOS/TTL Compatible. The MSD641 is designed for applications requiring low jitter and tight frequency stability.

### FEATURES

5.0V OPERATION

LOW JITTER <1ps RMS

FREQUENCY TOLERANCE: ±20ppm

TEMPERATURE RANGE: -40 to 85°C

TRI-STATE ENABLE / DISABLE FUNCTION

TAPE AND REEL PACKAGING

RoHS COMPLIANT / LEAD FREE

### ORDERING INFORMATION

MSD641 - 44.736 MHz

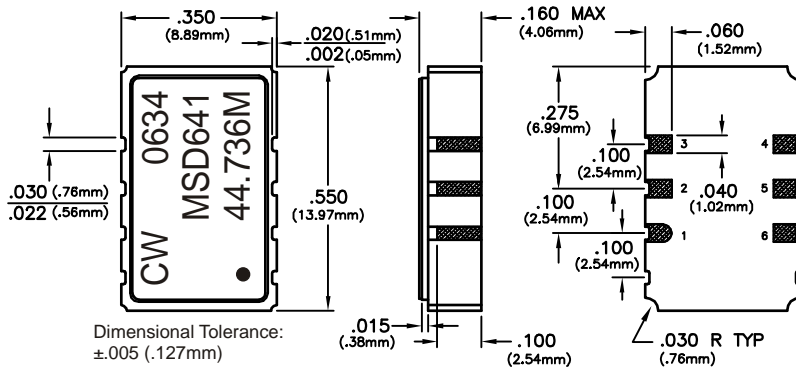
CLOCK  
SERIES

CENTER  
FREQUENCY

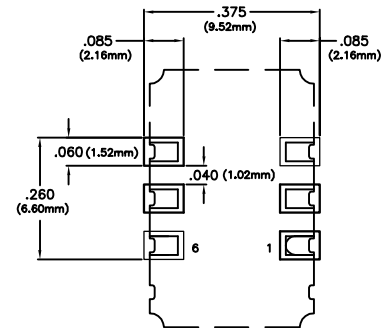
Specifications subject to change without notice.

# CRYSTAL CONTROLLED OSCILLATORS

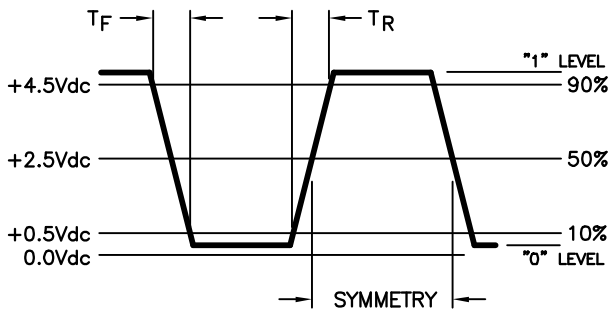
## Package Outline



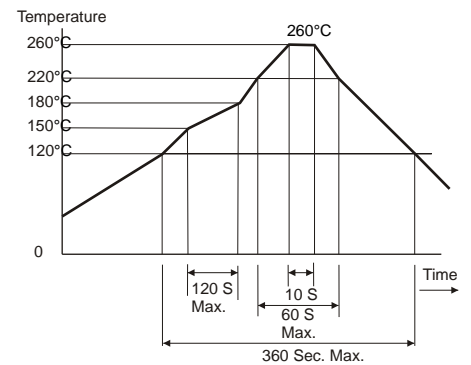
## Suggested Pad Layout



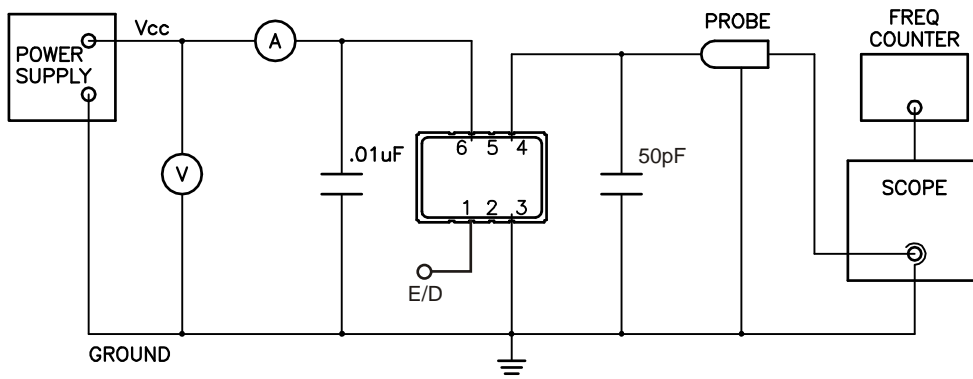
## Output Waveform



## Solder Profile



## Test Circuit



## Pin Connections

Pin	Connection
1	Enable / Disable
2	N/C
3	Ground
4	Output
5	N/C
6	Vcc