

# 3.3V LOW EMI SMD SPREAD SPECTRUM CLOCK OSCILLATOR



ASSFL SERIES

\* RoHS COMPLIANT

5.0 x 3.2 x 1.2mm

## FEATURES:

- Integrated spread spectrum technology
- EMI reduction up to 20dB
- Solve EMI failures as a drop in replacement for std. 5x7mm Osc.
- Cost effective EMI reduction

## APPLICATIONS:

- Printers, Digital Copy Machines, Scanners, Projectors, Modems, LAN, WAN, Navigation Equipment, Automotive, Audio, Medical Electronics, Hand-held readers, Industrial Automation

## STANDARD SPECIFICATIONS:

PARAMETERS	
Frequency Range	6.000 MHz to 160.000 MHz
Spread Type	±0.5% (see Table 1 for options)
EMI Reduction (Reduction is applied to the entire freq. spectrum)	-7dBc min. 100MHz at C0.25; -9dBc min. 100MHz at C0.5; -15dBc min. 100MHz at C1.5 With respect to the dB level when no modulation.
Operating Temperature	0°C to + 70°C (see options)
Storage Temperature	- 65°C to + 150°C
Frequency Stability	± 100 ppm (see options)
Supply Voltage (Vdd)	3.3 Vdc ± 5%
Start-up Time	2ms typ, 5ms max.
Stabilization Time	2ms max.
Rise and Fall Time (Tr/Tf)	4n sec. max. (10% VDD <-> 90% VDD)
Load	15pF
Current Consumption	20mA max.
Duty Cycle	50% ± 5% (CL = 15pF at 50% VDD)
Output Logic	CMOS Square wave
Cycle to cycle Jitter	±250ps typ; ±300ps max.
Output Impedance	40Ω
Static Discharge Voltage	>2,000V (per MIL-STD-883, method 3015)
Aging	±5ppm per year max.; Ta=+25°C
Output Voltage "High"; "1"	2.0V min.; 3.2V typ (at 90% VDD)
Output Voltage "Low"; "0"	0.8V max. ; 0.2V typ (at 10% VDD)
Modulation Carrier Freq.	6.9KHz min.; 55.5KHz max; Freq dependent call for details.
Pin 1 Function	Output is high impedance when taken low. Output enable/disable time: 100ns max.

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## MARKING:

- TUH Frequency
- ASSFL ZYX Part Number; (Date code, Y=year, W=week) (eg. 0603= third week of 2006)

### Note 1:

TUH : Frequency  
 T = First "ten" digit of frequency  
 U = First "unit" of frequency  
 H = First "tenth" of frequency  
 Example: 100 for 10.0 MHz  
 143 for 14.31818 MHz

ZY : Date Code  
 Z = Month (A to L)  
 Y = Year (6 for 2006)  
 X = Traceability

Table 1

Spread types and %	
<b>Down Spread</b>	
D1	-1%
D3	-3%
<b>Center Spread</b>	
C0.5	±0.5% *
C1.5	±1.5%

\* Standard

## OPTIONS AND PART IDENTIFICATION (Left blank if standard):

ASSFL - Frequency - Operating Temperature - Frequency Stability - Spread type - Packaging

### Temperature options:

- D for 40°C to +85°C

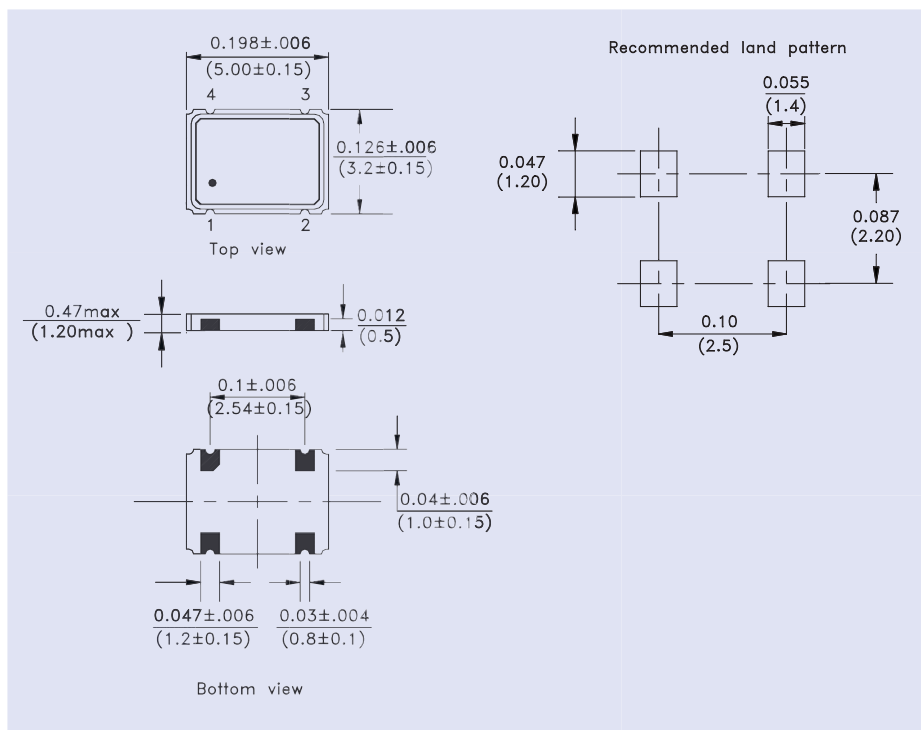
### Frequency stability option:

- W for 25 ppm max
- Z for 50 ppm max

### Packaging option:

- T for Tape and Reel

## OUTLINE DRAWING:



PIN	FUNCTION
1	Tri-state
2	GND
3	Output
4	Input