CERAMIC SMD CRYSTAL CLOCK OSCILLATOR

5.0 x 7.0 x 1.8mm

APV SERIES : PRELIMINARY

FEATURES:

- Low Jitter
- Low Power (2.5, 3.3V)
- Sub 1pS (12kHz - 20MHz)
- CMOS, PECL or LVDS Output

APPLICATIONS:

- SONET, Fiber Channel, SERDES HDTV, OBSAI, CPRI, PCI Express, 1394

STANDARD SPECIFICATIONS:

PARAMETERS	
Frequency Range	38 MHz to 640 MHz
Operating Temperature	0°C to + 70°C (see options)
Storage Temperature	-55°C to +125°C
Overall Frequency Stability	± 50 ppm max. (see options)
Supply Voltage (Vdd)	2.25V to 3.63V (2.5V to 3.3V ± 10%)
Phase Jitter RMS (12KHz-20MHz)	0.5pS Typ, 1pS Max
Period Jitter (peak to peak)	20pS typ., 30pS max up to 320 MHz; 50pS typ., 70pS max 321MHz to 640MHz
Tri-State Function	***For CMOS and LVDS*** = "1" (VIH ³ 0.7* Vdd) or open: Oscillation; "0" (VIL < 0.3* Vdd): No oscillation/Hi Z ***For PECL See TriState Pin Operation table P Option Standard PECL OE*** "0" (VIL < 0.3* Vdd): or Open: Oscillation; "1" (VIH ³ 0.7* Vdd): No oscillation/Hi Z ***P Option*** = "1" (VIH ³ 0.7* Vdd) or open: Oscillation; "0" (VIL < 0.3* Vdd): No oscillation/Hi Z
PECL	
Supply Current (I_{DD})	65mA max (for 38MHz<Fo≤320MHz), 90mA max (320MHz<Fo<640MHz)
Symmetry (Duty Cycle)	45% min, 50% typical, 55% max.
Output Logic High	V_{DD} -1.025V min, V_{DD} -0.880V max.
Output Logic Low	V_{DD} -1.810V min, V_{DD} -1.620V max.
Rise time	1.5ns max, 0.6nSec typical
Fall time	1.5ns max, 0.6nSec typical
CMOS	
Supply Current	30mA max (38MHz<Fo<320MHz)
Symmetry (Duty Cycle)	45% min, 50% typ, 55% max,
Rise/ Fall Time	(0.3V ~ 3.0V w/15 pF load) 0.7nS Typ.; (20%-80% w/50Ω Load) 0.3nS Typ.
LVDS	
Supply Current (I_{DD})	45mA max(for 38MHz<Fo≤320MHz), 70mA max (320MHz<Fo<640MHz)
Output Clock Duty Cycle @ 1.25V	45% min, 50% typical, 55% max
Output Differential Voltage (V_{OD})	247mV min, 355mV typical, 454mV max
VDD Magnitude Change (ΔV_{OD})	-50mV min, 50mV max
Output High Voltage	V_{OH} = 1.6V max, 1.4V typical
Output Low Voltage	V_{OL} = 0.9V min, 1.1V typical
Offset Voltage [R_L = 100Ω]	V_{OS} = 1.125V min, 1.2V typical, 1.375V max
Offset Magnitude Voltage[RL = 100Ω]	ΔV_{OS} = 0mV min, 3mV typical, 25mV max
Power-off Leakage (I_{OXD}) [Vout=VDD or GND, VDD=0V]	±10µA max, ±1µA typical
Differential Clock Rise Time (t_r) [R_L=100Ω, CL=10pF]	0.7ns typical, 1.0ns max, 0.2nS min
Differential Clock Fall Time (t_f) [R_L=100Ω, CL=10pF]	0.7ns typical, 1.0ns max, 0.2nS min

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APV SERIES : PRELIMINARY

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PIN ASSIGNMENTS:

PIN #	NAME	DESCRIPTION
1	Tri-state	Tri-state
2	NC	No Connect
3	GND	Ground
4	Q	PECL, LVDS
5	$\overline{Q}$	Complimentary PECL, LVDS
6	V_{DD}	VDD Connection

MARKING:

- TUH Frequency
  T=First "ten" digit of frequency,
  U=First "unit" of frequency,
  H=First "tenth" digit of freq,
  Ex: 100 for 10.0MHz;
  143 for 14.31818 MHz)
- APV ZYX (Z: Month, A to L;
  Y: Year, 5 for 2005;
  X: Traceability Code)

TRI-STATE PIN OPERATION:

OUTPUT TYPE OPTION		PIN 1 LOGIC LEVEL*	OUTPUT STATE
P	PECL	0 (Default)	Enabled
		1	Tri-state
P1	PECL1	1	Enabled
		0	Tri-state
V	LVDS	0	Tri-state
		1 (Default)	Enabled
C	CMOS	0	Tri-state
		1 (Default)	Enabled

*Connect to VDD from logic level "1", connect to ground for logic level "0".

OPTIONS AND PART IDENTIFICATION (Left blank if standard):

APVX - Frequency - Temperature - Frequency Stability - Output - Packaging

Vdd options:
Blank (3.3Vdc±10%V)
1 (2.5Vdc±10%V)

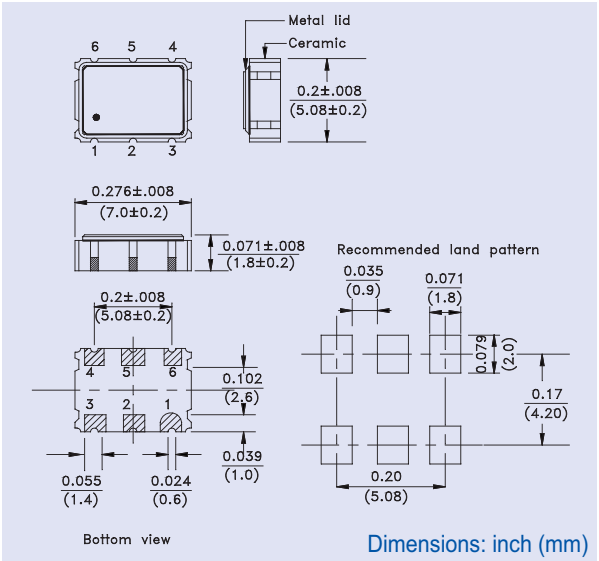
Temperature:
E for -20°C to +70°C
L for -40°C to +85°C

Stability options:
R for ± 25 ppm max
S for ± 20 ppm max

Output options:
P = PECL
P1 = PECL1
V = LVDS
C = CMOS

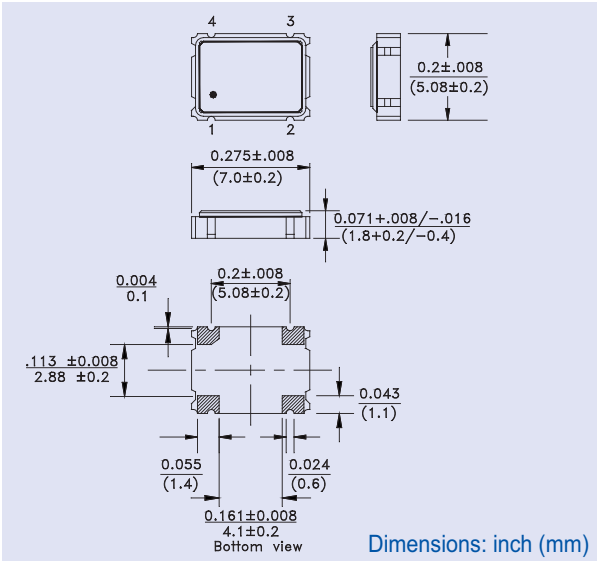
Packaging option: **T** for Tape and Reel (1,000pcs/reel)

PECL & LVDS DRAWING:



Dimensions: inch (mm)

CMOS DRAWING:



Dimensions: inch (mm)

PIN #	NAME
1	Tri-state
2	GND/Case
3	Output
4	Vdd

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