



**THE DATASHEET OF  
ASVV-20.000MHZ-N152-T**



# CMOS/TTL COMPATIBLE VOLTAGE CONTROLLED CRYSTAL OSCILLATOR



7.0 x 5.0 x 1.6 mm

**ASVV**



**RoHS**  
Compliant

## FEATURES:

- Low profile (1.6) SMD VCXO
- Tristate functions
- Seam sealed package assures high reliability
- CMOS/TTL output
- Suitable for RoHS compliant reflow process

## APPLICATIONS:

- Phase locked loops (PLLs)
- Synthesizers
- Clock Recover, Digital Transmission device
- Digital set-up box
- Computers; Test Equipment

## STANDARD SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency Range:		1.0	-----	200	MHz	
Operating Temperature:		0	-----	+70	°C	See options
Storage Temperature:		-45	-----	+90	°C	
Overall Frequency Stability*:		-50	-----	+50	ppm	See options
Supply Voltage (Vdd):		3.135	3.3	3.465	V	3.3V±5%
Control Voltage (Vc):		0.15	1.65	3.15	V	
Supply Current (I <sub>dd</sub> ):		-----	1.1 ~ 2.0	5.0	mA	1.000~11.999 MHz
		-----	1.4 ~ 4.0	8.0		12.000~26.999 MHz
		-----	1.8 ~ 5.0	10.0		27.000~39.999 MHz
		-----	3.4 ~ 8.0	15.0		40.000~57.999 MHz
		-----	5.9 ~ 20.0	35.0		58.000~99.999 MHz
		-----	20.0 ~ 30.0	40.0		100.000~200.000 MHz
Linearity:		-10	-----	10	%	
Output Load		-----	-----	15	pF	
		-----	-----	5	TTL	
Output Voltage:	V <sub>OH</sub>	0.9*Vdd	-----	-----	V	
	V <sub>OL</sub>	-----	-----	0.1*Vdd	V	
Pullability:		±80	-----	-----	ppm	See options
Tri-state function (Stand-by) :		"1" (VIH≥2.2V) or Open: Oscillation "0" (VIH<0.8V) : Hi Z				
Aging:		-3.0	-----	+3.0	ppm	@+25°C First year
Symmetry:		40	-----	60	%	
Start-up Time :		-----	1.1 ~ 2.0	5	ms	@1/2Vdd (See options)
Rise/Fall Time (Tr/Tf):		-----	1.6 ~ 4.0	8.0	ns	1.000~11.999 MHz
		-----	1.0 ~ 3.0	6.0		12.000~26.999 MHz
		-----	1.4 ~ 2.5	5.0		27.000~39.999 MHz
		-----	1.1 ~ 2.0	4.0		40.000~57.999 MHz
		-----	0.7 ~ 2.0	3.0		58.000~99.999 MHz
		-----	0.9 ~ 1.5	3.0		100.000~200.000 MHz
Period jitter RMS :		-----	2.0	3.5	ps	1.000~11.999 MHz
		-----	2.0	3.5		12.000~26.999 MHz
		-----	2.0	3.5		27.000~39.999 MHz
		-----	2.0	3.5		40.000~57.999 MHz
		-----	5.0	8.0		58.000~99.999 MHz
		-----	7.0	10.0		100.000~200.000 MHz
Phase jitter RMS (12kHz to 20MHz):		-----	0.5	1.0	ps	1.000~11.999 MHz
		-----	0.5	1.0		12.000~26.999 MHz
		-----	0.5	1.0		27.000~39.999 MHz
		-----	0.5	1.0		40.000~57.999 MHz
		-----	4.5	5.5		58.000~99.999 MHz
		-----	5.0	6.0		100.000~200.000 MHz

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## STANDARD SPECIFICATIONS - continued:

Phase Noise (Typical value):	Offset	1kHz	10kHz	100kHz	dBc
	10.000MHz Carrier	-137.8	-148.4	-148.3	
	12.288MHz Carrier	-130.0	-145.0	-148.0	
	16.384 MHz Carrier	-136.1	-147.9	-152.2	
	19.440 MHz Carrier	-133.4	-147.3	-151.6	
	25.000 MHz Carrier	-134.3	-149.4	-152.1	
	32.768 MHz Carrier	-130.6	-144.6	-149.7	
	35.328 MHz Carrier	-120.0	-143.0	-150.0	
	44.736 MHz Carrier	-125.8	-142.4	-151.4	
	55.296 MHz Carrier	-130.4	-146.0	-149.0	
	57.142 MHz Carrier	-105.0	-130.0	-117.0	
	60.000 MHz Carrier	-123.4	-134.3	-147.4	
	100.000 MHz Carrier	-115.0	-125.0	-117.0	
	120.000 MHz Carrier	-108.0	-123.0	-116.0	
125.000 MHz Carrier	-112.6	-127.1	-122.3		
155.250 MHz Carrier	-108.0	-120.0	-113.0		

## OPTIONS & PART IDENTIFICATION:

(Left blank if standard)

ASVV -  MHz -  -  -  -

**Frequency in MHz**  
Please specify the frequency in MHz.  
e.g. 14.31818MHz

**Packaging**  
Blank: Bulk  
T: Tape & Reel

**Pullability**  
Blank: ±80ppm  
N102: ±100ppm  
N122: ±120ppm  
N152: ±150ppm

**Symmetry**  
Blank: 40/60% @ 1/2Vdd  
S: 45/55% @ 1/2Vdd

Operating Temperature	Frequency stability (ppm)			
	±20 ppm	±25 ppm	±30 ppm	±50 ppm
0°C to 50°C	I20	I25	I30	I50
0°C to 60°C	B20	B25	B30	B50
-10°C to 60°C	D20	D25	D30	D50
0°C to 70°C	C20	C25	C30	STD (Left blank)
-10°C to 70°C	F20	F25	F30	F50
-20°C to 70°C	E20	E25	E30	E50
-40°C to 85°C	-----	L25	L30	L50



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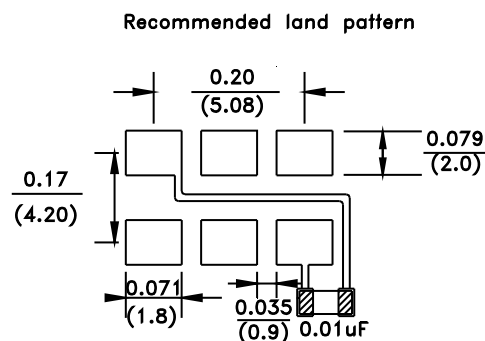
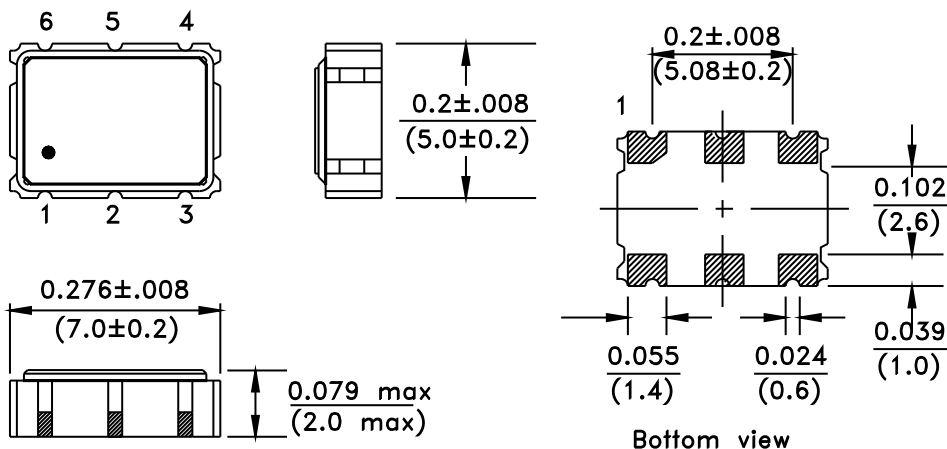
7.0 x 5.0 x 1.6 mm

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## OUTLINE DRAWING:



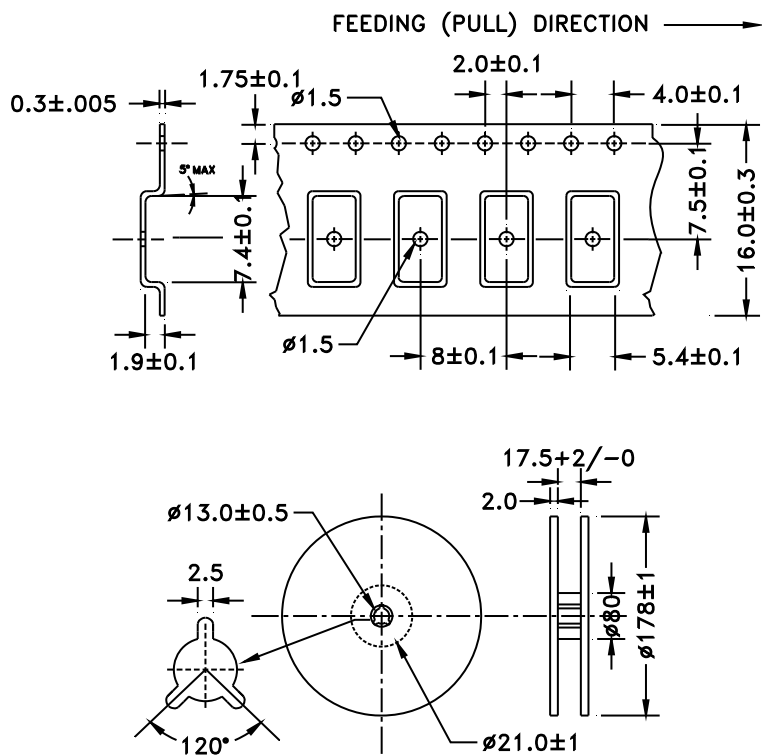
PIN #	Name
1	V <sub>c</sub>
2	Tri-state
3	GND
4	Output
5	NC
6	V <sub>dd</sub>

**Note 1:** Due to the material availability, the chamfer on pin 1 may have different outline.

**Note 2:** Recommend using an approximately 0.01 μF bypass capacitor between PIN 3 and 6.

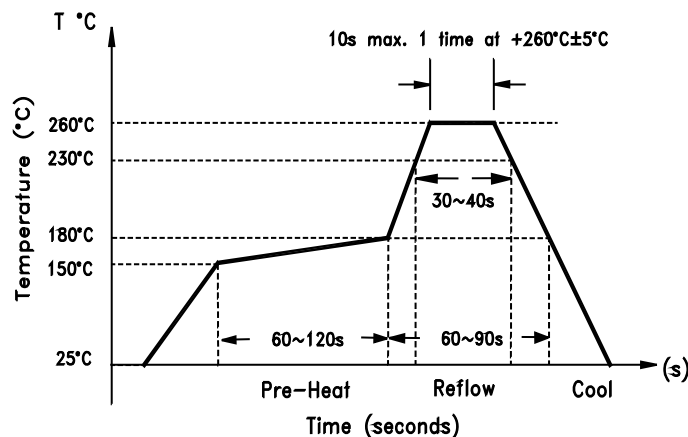
Dimensions: inches (mm)

## TAPE & REEL: T= Tape and reel (1,000pcs/reel)



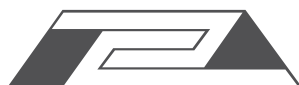
Dimensions: mm

## REFLOW PROFILE:



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