

ECN/PCN No.: 3853

For Manufacturer			
Product Description: Tristate HCMOS Oscillator	Abrakon Part Number / Part Series: SM997	<input type="checkbox"/> Documentation only <input type="checkbox"/> ECN <input checked="" type="checkbox"/> EOL	<input checked="" type="checkbox"/> Series <input type="checkbox"/> Part Number
Affected Revision: 11-08-01	New Revision: EOL	Application:	<input type="checkbox"/> Safety <input checked="" type="checkbox"/> Non-Safety
Prior to Change: SM997 Series (page 2)			
After Change: EOL			
Cause/Reason for Change: Discontinuation of this older product package type and associated manufacturing capability.			
Change Plan			
Effective Date: 06/21/2021	Additional Remarks:		
Change Declaration:			
Issued Date: 06/21/2021	Issued By: <i>Stephanie Lopez</i>	Issued Department: Engineering	
Approval: <i>Thomas Culhane</i> Engineering Director	Approval: <i>Reuben Quintanilla</i> Quality Director	Approval: <i>Ying Huang</i> Purchasing Director	
For Abracon EOL only			
Last Time Buy (if applicable): None	Alternate Part Number / Part Series: None		
Additional Approval:	Additional Approval:	Additional Approval:	
Customer Approval (If Applicable)			
Qualification Status: <input type="checkbox"/> Approved <input type="checkbox"/> Not accepted <i>Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.</i>			
Customer Part Number:		Customer Project:	
Company Name:	Company Representative:	Representative Signature:	
Customer Remarks:			

Miniature, Ceramic, Surface Mount, Tristate HCMOS Oscillators

SM996 • SM997 • SM998

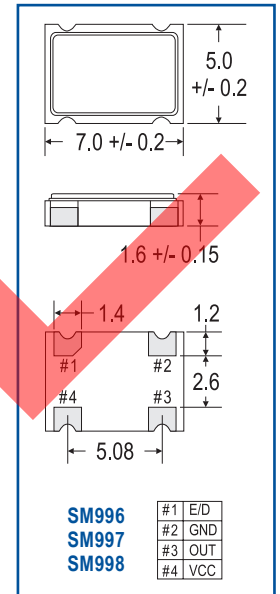
(5.0 V)

(3.3 V)

(2.5V)

NEW!

SPECIFICATIONS	SM996	SM997	SM998
Frequency Range	1.5 ~ 160.0 MHz	1.5 ~ 125.0 MHz	1.5 ~ 70.0 MHz
Supply Voltage	5.0 VDC ± 0.5 V	3.3 VDC ± 0.3 V	2.5 VDC ± 0.25 V
Input Current (MHz: mA max)	1.5 ~ 20.0 : 20 20.1 ~ 70.0 : 40 70.1 & above : 60	1.5 ~ 20.0 : 10 20.1 ~ 70.0 : 20 70.1 ~ 90.0 : 35 90.1 & above : 45	10.0 ~ 25.0 : 15 25.1 & above : 25
Rise & Fall Time (MHz: nS max)	1.5 ~ 25.0 : 10 25.1 & above : 8	1.5 ~ 25.0 : 10 25.1 ~ 70.0 : 8 70.1 & above : 5	1.5 ~ 25.0 : 6 15.1 ~ 24.0 : 6 24.1 & above : 6
Load Capacitance (MHz: pF)	1.5 ~ 50.0 : 50 50.1 & above : 30	1.5 ~ 50.0 : 50 50.1 & above : 30	1.5 ~ 20.0 : 15 20.0 & above : 15
Start up Time	10.0 mS max	10.0 mS max	6 mS max
Symmetry	60/40% at 1/2 Vcc max (55/45% available)		
Frequency Stability	± 100ppm standard (± 25ppm available)		
Oper Temp Range	0°C to 70°C standard (-40°C to 85°C available)		
Logic "0" Level	10% of Vcc max		
Logic "1" Level	80% of Vcc min		
E/D Phase Delay	100 nS max		



FEATURES

- Ceramic/seam sealed package
- TTL/CMOS compatible
- Reflow solderable at 260°C for 10 secs

- Tristate enable/disable
- Can be used as standard HCMOS oscillator by **not** connecting Pin #1
- 16mm tape & reel: 500 pcs/reel std, or Bulk [<500pcs]

APPLICATIONS

- Wireless RF
- PCMCIA
- Cameras
- Disk Drives
- PDAs

DEVELOPED FREQUENCIES (Fundamental)

1.843200	13.500000	16.128000	18.750000	22.579000	27.500000	32.768000
2.048000	13.560000	16.384000	18.816000	23.000000	27.704000	33.000000
4.000000	13.680000	16.528000	19.200000	24.000000	28.000000	33.177000
8.000000	13.824000	16.670000	19.440000	24.576000	28.224000	33.333000
10.000000	14.000000	16.780000	19.660000	24.648000	28.636000	33.368000
10.368000	14.318000	16.896000	19.680000	24.704000	29.491000	34.560000
11.059200	14.564000	16.934000	20.000000	24.832000	29.800000	35.000000
11.250000	14.745600	17.000000	20.480000	25.000000	30.000000	35.251000
12.000000	14.912000	17.118000	20.945000	25.088000	30.200000	35.328000
12.288000	15.000000	17.280000	21.245000	25.920000	30.512000	37.376000
12.352000	15.200000	17.664000	21.400000	26.000000	31.250000	38.800000
12.544000	15.360000	17.734000	21.504000	26.785000	32.000000	44.736000
12.800000	15.500000	18.000000	22.118000	26.800000	32.200000	51.840000
13.000000	16.000000	18.432000	22.220000	27.000000	32.256000	

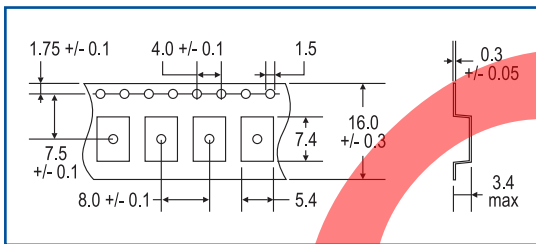
DEVELOPED FREQUENCIES (3rd Overtone)

36.864000	44.000000	55.000000	69.632000	90.000000
36.923000	44.236000	57.000000	70.000000	100.000000
37.052000	44.736000	57.700000	70.676000	106.250000
37.632000	45.000000	58.320000	71.000000	104.000000
38.000000	48.000000	59.100000	72.000000	111.000000
38.880000	48.636000	60.000000	73.000000	112.000000
40.000000	49.152000	61.440000	74.000000	118.750000
40.282000	49.408000	61.824000	75.000000	120.000000
40.680000	49.664000	62.500000	77.760000	125.000000
41.529000	50.000000	64.000000	78.125000	133.000000
42.884000	51.840000	65.544000	79.545000	155.200000
42.954000	52.000000	66.000000	80.000000	156.250000
43.200000	53.125000	66.666000	83.000000	
43.477000	54.000000	69.000000	85.000000	

SM996 • SM997 • SM998

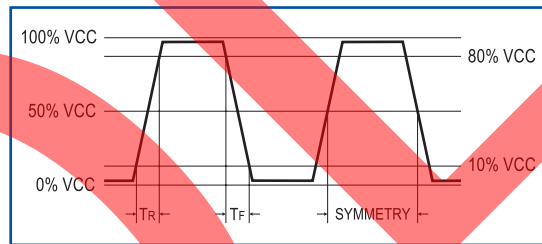
ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

Operating Temperature Range	0°C to 70°C standard (-40°C to 85°C available)
Storage Temperature Range	-55°C to 125°C
Vibration	MIL-STD-202F Method 204, 35G, 50 to 2000 Hz
Shock	MIL-STD-202F Method 213B Test Cond E, 1000G, 1/2 Sine Wave
Humidity	85% RH, 85°C, 48 Hours
Hermetic Seal	Leak Rate 2×10^{-8} ATM-cm ³ /sec max
Solderability	MIL-STD-202F Method 208E
MIL-PRF-55310	Available to full -55°C to 125°C screening
Packaging	16mm Tape & Reel (500pcs/reel standard, or Bulk <500pcs)

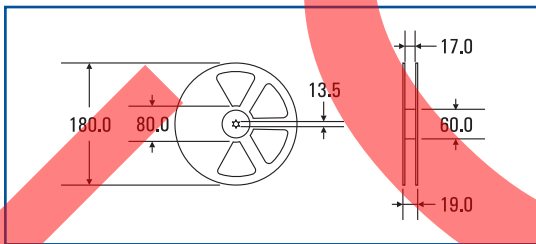


TAPE DIMENSIONS

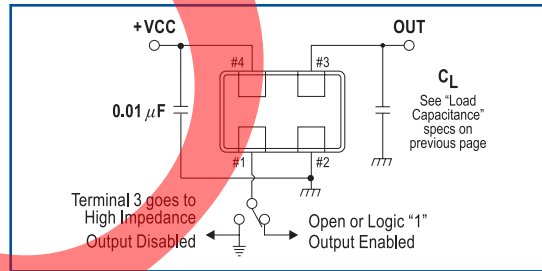
Units : mm



TYPICAL OUTPUT WAVEFORM



REEL DIMENSIONS (500pcs/reel std)



TEST CIRCUIT

PART NUMBERING KEY

SERIES	SYMMETRY	FREQUENCY STABILITY	TEMP RANGE	PACKAGING	FREQUENCY
SM996 (5.0V) SM997 (3.3V) SM998 (2.5V)	21 = 55/45% 22 = 60/40%	B = 100 ppm* C = 50 ppm D = 30 ppm E = 25 ppm	2 = 0°C ~ 70°C 3 = -20°C ~ 70°C 5 = -40°C ~ 85°C 7 = -10°C ~ 70°C*	A = Bulk (<500pcs) E = Tape & Reel* (500pcs/reel std)	
SM996	21	B	2	E	19.44

Sample Part Number

SM99621B2E
@ 19.44 MHz =

* Standard

Call plant for additional options. Use full descriptive part number when ordering. Parts will be marked with series and frequency only.

Monitor has a proven track record as a pioneer manufacturer in the frequency control market. If our extensive selection of standard and engineered crystals and oscillators does not meet your spec, we will work with you towards a customized solution.