Tel : 0044 (0)118 979 1238
Fax : 0044 (0)118 979 1283
email : info@actcrystals.com

ACT1100 / ACT1700 Standard Clock Oscillators

Compatible with Eu Directive 2002/EC - RoHS

The ACT1100 is a full size through hole oscillator. The ACT1700 is a half size through hole oscillator. The popularity of these families still remains even after the advent of smaller surface mount devices. With wide frequency and operating temperature ranges, these series offer low cost & good reliability for ATM, Networking, Microprocessor and Consumer applications. An option with a supply voltage of 2.5V is available please contact our sales desk for details. A 10ppm stability double package option is available, please enquire. For wider frequency range < 500KHz, >150MHz (120MHz) please refer to the ACT1100HS/1700HS data.

Specification

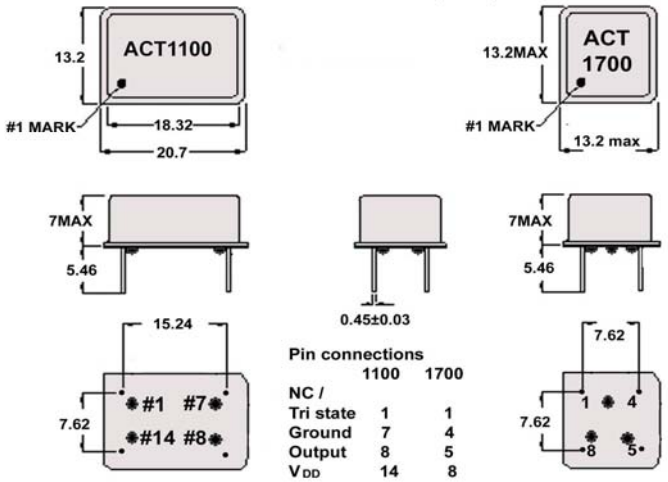
Parameter	Symbol	Specification			Condition
		TTL	HCMOS	TTL/HCMOS*	
Frequency Range (MHz)	fo	1.0~ 155.0	0.5~150 (120***)	1.0~150(120***)	Please Specify
Supply Voltage	VDD	5.0VDC ±10%	3.3 ,5.0VDC±10%	5.0VDC ±10%	Please Specify
Frequency Stability	Δf/fo	±10ppm**, ±25ppm, ±50ppm and ±100ppm			Please Specify
Temp Operating Range	Topr	0 ~ +70°, -10 ~ +70°C **			Please Specify
Temp Storage Range	Tstg	-40~85°C			
Supply Current	Iop	15mA max(3.3VDC) 25mA max(3.3VDC)	25mA max(5.0VDC) 35mA max(5.0VDC)		0.5 - 27MHz 27 - 125MHz
Duty Cycle	TW/t	40/60%, 45/55% TTL 40/60%, 45/55% HCMOS			Measured at +1.4Volts Measured at 50% VDD
Output Level '0'	VOL	TTL 0.4V max, HCMOS .33V max TTL 0.4V max, HCMOS 0.5V max			VDD = 3.3V VDD = 5.0V
Output Level '1'	VOH	TTL 2.4V min, HCMOS 2.97V min VDD TTL 2.4V min, HCMOS 4.5V min VDD			VDD = 3.3V VDD = 5.0V
Output Logic		[TTL], [(HCMOS], [HCMOS/TTL (Universal)]			Please Specify
Output Load		TTL 10 Gates HCMOS 15 pF			
Rise & Fall Time	tr/tf	TTL 10nSec max, 3nSec typical Measured between 0.4V ~ 2.4V (RL = 390Ω ; CL = 15pF) CMOS 10nSec max, 3nSec typical Measured between 10%~ 90% VDD (CL = 15pF)			
Start-up Time		4mSec max,			
Option on Pin 1****		Tri State or No Connection****			Please Specify
Aging		±5ppm / year max			@25°C

* Universal Output ** Double package tight stability option *** ACT1700 **** ACT1700 <100MHz for Tri state option

Available Stabilities (Note **)

	±10ppm**	±25ppm	±50ppm	±100ppm
0 ~ 70 °C	✓	✓	✓	✓
-10 ~+70°C	Enquire	✓	✓	✓
-40 ~ +85°C		Enquire	Enquire	Enquire

Dimensions (mm)



Plating Material on leads SnAgCu

Soldering conditions please refer to page 3

ACT1100 ('V' SERIES)

ACT1700 ('CL' SERIES)

Please note that all parameters can not necessarily be specified in the same device

Customer to specify : Frequency, Operating Temperature Range, Frequency Stability, Supply Voltage, Output, Duty Cycle, Output Enable (Tristate) If required

In line with our ongoing policy of product evolvement and improvement, the above specification may be subject to change without notice

ISO9001:2000 Registered

For quotations or further information please contact us at:

3 The Business Centre, Molly Millars Lane, Wokingham, Berkshire, RG41 2EY, UK
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Reliability tests

Test	Test Method	Measurement Requirements
Leak	Helium bomb: Pressure 200kpa Time 70 min pressure release 5 min measure within 30min	**$\leq 4x10^{-9}$pa.m^3/s**
Drop	750mm height. 3 drops. Onto wood.	**Specification as per page 1 must be met.**
Shock	Peak acceleration 981m/s2 Pulse duration 6ms Each of X, Y and Z axis. 3 shocks each axis	
Vibration	10 to 55Hz and return to 10Hzamplitude 1.5mm sweep time 1min. 2 hrs each of X, Y and Z axis. Total test time 6 hrs	
Resistance to Soldering Heat	As per profile fig.1 below and/or soldering iron applied for 5s max tip temperature 350±10°C	
Aging	85±3°C 30 days measurements after at least 1 hr at atmospheric conditions.	
High Temperature Storage	105±3°C 16 hrs measurements after at least 1 hr at atmospheric conditions	
Low Temperature Storage	-55±3°C 2hrs measurements after at least 1 hr at atmospheric conditions	
Thermal Cycling	100cycles to the temperature profile fig 2 below. Measurements after at least 1 hr at atmospheric conditions	
Damp Heat Constant	Temperature 40±2°C RH 90~95% for 56 days. Measurements after at 1 hr at atmospheric conditions	
Solderability	255±5°C for 10±0.5s using Rosin resin methyl alcohol flux Solvent (1:4) dipped to a nominal depth of 0.5mm.	

Fig 1 Temperature cycling

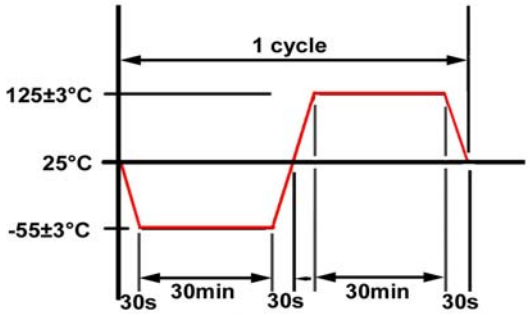

Fig. 2 Soldering Heat Profile For Reliability Testing
See fig 3 for Wave soldering.

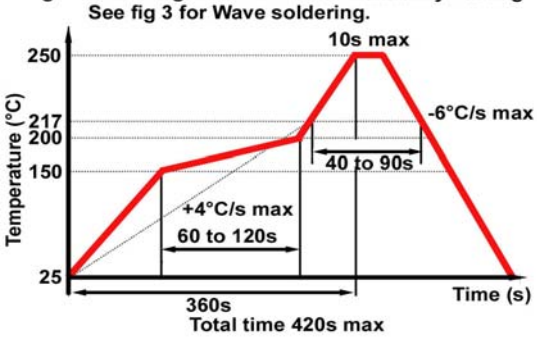

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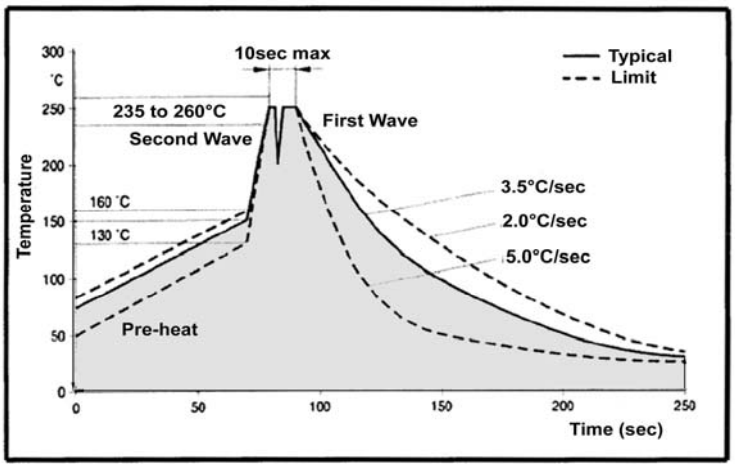
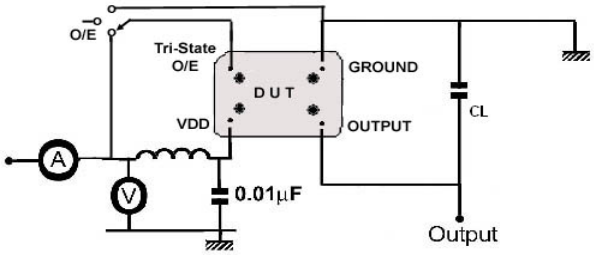
Fig. 3 Recommended Wave Soldering Profile



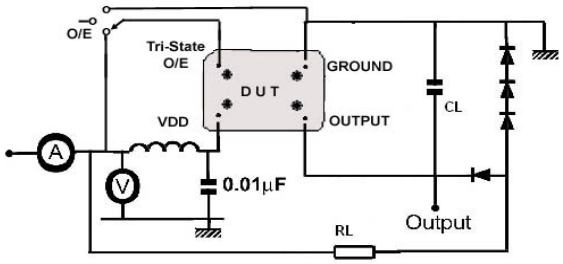
Application circuits

CMOS Test Circuit



Output to oscilloscope and/or frequency counter

TTL Test Circuit



Output to oscilloscope and/or frequency counter

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ACT THROUGH HOLE CLOCK OSCILLATORS - PART NUMBERING

Highlight = Standard Specification / Parameter

Example :

V	2500	B	B	C	H	J	P	L	-PF
(ACT1100)	(25.00MHz)	(±50ppm)	3.3 V	(-10+70)	45/55%	Universal (15pF HCMOS // 10TTL)	Tristate	Loose	(RoHS)

Device Series Code

1100=	V
1700 =	CL

Frequency

To 99.9999MHz 1st four digits of Frequency & >99.9999MHz 1st five Digits of Frequency (GHz=1st 6 digits)

Examples

0983	= 9.8304MHz
1200	= 12.000MHz
9999	= 99.9999MHz
10000	= 100.00MHz

NB:

It is important to suffix the above part number with the full frequency required to give a completed part number as illustrated below

Stability over Operating Temperature (±ppm)

Code	±ppm
E	10
D	15
I	20
C	25
H	30
B	50
A	100

Note 1

Voltage

Code	Volts
P	1.0
D	1.8
C	2.5
B	3.3
A	5

Duty Cycle (Symmetry %)

S	40/60
H	45/55
L	Unspecified

Output Load

C	CMOS
Q	HCMOS 30 Pf
E	HCMOS
J	UNIVERSAL 15pF HCMOS / 10TTL

Tristate / Output enable

P	Yes
N	No

Packaging

L = Loose	

RoHS Comp'

- PF

Operating Temperature Range (ºC)

D	0~50
E	0~70
C	-10+70-
B	-20+70
G	-30+80
I	-40+85

Note 1

Full Example Part Number

HS2500BBCHJPL-PF 25.00MHz

Available Stabilities (Note 1)

	±10ppm**	±25ppm	±50ppm	±100ppm
0 ~ 70 °C	✓	✓	✓	✓
-10 ~+70°C	Enquire	✓	✓	✓
-40 ~ +85°C		Enquire	Enquire	Enquire

NOTES :

1) Note 1: Inclusive of 25°C tolerance, operating temperature range, ±10% VDD change, Load change, aging, shock and vibration.

2) Tighter Stabilities, Duty Cycles, Supply Voltages, Output Loads and other Operating Temperature Ranges may be available. As each of these specification parameters may impact on each other, it is not always possible to combine all options in one device. Therefore, if a specification not catered for above is required, please contact us directly for assistance.

3) ACT are always happy to consider truly custom specification parts which may require non-standard specification parameters, specific testing, customer requested AQL requirements, non standard packaging or taping and reeling and custom marking. (MOQ DEPENDENT) Such devices would normally be allocated a custom specification (An ACT1100 device may have a part number such as HS2500L- C2222-PF)

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