

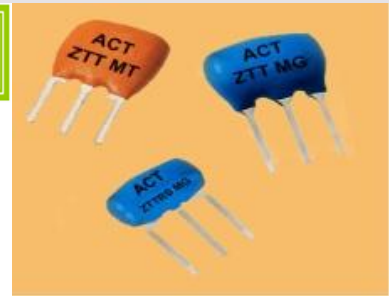
ACT Series: ZTT

Through Hole Ceramic Resonator (Three pin, Built In Capacitor)

Features

- Three pin through hole Ceramic resonator
- Built in capacitors
- Three different types available(ZTT, ZTTRS, ZTTWS)
- Excellent temperature range
- Resonator vibrating mode: MG = Thickness Shear
 MT = Thickness Expander, MX = Thickness Expander(3rd Overtone)

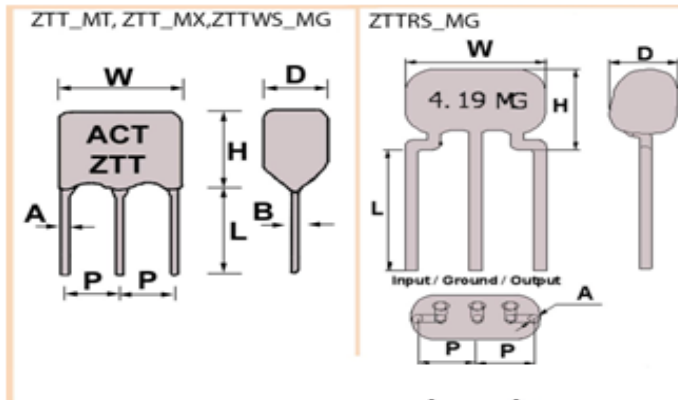
Compatible with Eu Directive
 2002/95/EC - RoHS
 Contains Pb in ceramic parts
 exempted from article 4(1)
 of the directive



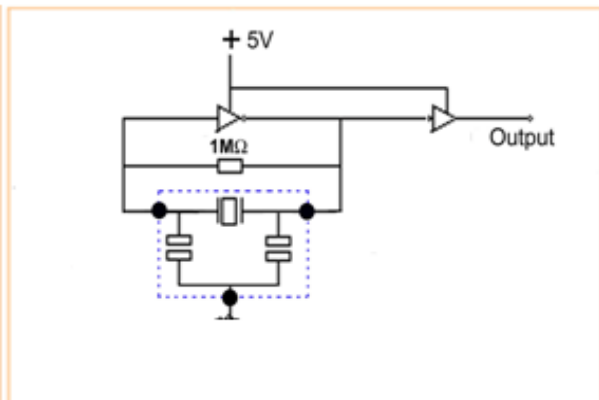
Specification

Type	Frequency Range (MHz)	Frequency Tolerance (25°C) (%)	Stability over Temp. Range (-25 ~ +85°C) (%)	Operating Temperature (°C)	Aging over 10 Years (%)	Notes
ZTT_MT	6.0 ~ 13.0	±0.5	±0.3	-25 ~ +85°C	±0.3	Fundamental mode
ZTT_MX	12.0 ~ 60.0	±0.5	±0.3	-25 ~ +85°C	±0.3	3 rd Overtone mode
ZTTRS_MG	3.0 ~ 12.50	±0.5	±0.3	-25 ~ +85°C	±0.3	Round lead type
ZTTWS_MG	1.79 ~ 6.0	±0.5	±0.3	-25 ~ +85°C	±0.3	Low-profile type

Dimensions



Test Circuit



Dimension Table (Unit: mm)									Test Circuit Parameters:
Part Type	Frequency	H	W	D	P	L	A	B	IC (MG,MT): 1/6TC4069UBP x 2
ZTT_MT	6.0~13.0	10	10	5	2.5±0.2	5.0±0.1	0.5±0.1	0.3±0.1	IC (MX): 1/6TC74HCU04 x 2
ZTT_MX	12.0~13.0	12	10	5	2.5±0.2	5.0±0.1	0.5±0.1	0.3±0.1	ZTT_MT C1=C2: 22pF
ZTT_MX	13.01~60.0	10	10	5	2.5±0.2	5.0±0.1	0.5±0.1	0.3±0.1	ZTT_MX C1=C2:30pF(12.0~20.0MHz)
ZTTRS_MG	3.0~12.50	5.5	6	3.1	2.5±0.2	3.5±0.5		0.48±0.05	ZTT_MX C1=C2:15pF(20.01~25.99MHz)
ZTTWS_MG	1.79~6.0	5.5	10	4	2.5±0.2	5.0±0.1	0.5±0.1	0.25±0.1	ZTT_MX C1=C2: 5pF(26.0~60.0MHz)
									ZTTRS_MG C1=C2: 15pF
									ZTTWS_MG C1=C2: 30pF

Important note when using Ceramic resonators with microcontrollers

Some resonator parameters vary considerably with frequency and physical construction/size. These differences are too great to be able to be practically shown in a data sheet.

However, these parameters can be critical when the resonators are used with microcontrollers. Even if two different resonators appear to have the same specification the typical values of these critical parameters can be considerably different. When enquiring about resonators for use with microcontrollers it is important to supply the make and part number of the IC to be used and/or the list of recommended resonators, if this is given.

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

ISO9001 Registered

For quotations or further information please contact us at:
 3 The Business Centre, Molly Millars Lane, Wokingham, Berkshire, RG41 2EY, UK
<http://www.actcrystals.com>

ACT Series: ZTT

**Through Hole Ceramic Resonator
 (Three pin, Built In Capacitor)**

COMMODITY CODE
 854160 00 00

PART NUMBERING & COMMODITY CODE

Standard (Popular) Specifications Highlighted in Yellow - Others available please check Note.3

ZTTWS	6.00	M	N	F	L	PF
ZTTWS_MG	Frequency	MHz	Freq.Tol. 0.5%	Stability:±0.3%,-25~+85°C	Loose	RoHS v
①	②	③	④	⑤	⑥	⑦

①

ACT Series	Code
ZTT_MT	ZTTMT
ZTT_MX	ZTTMX
ZTTRS_MG	ZTTRS
ZTTWS_MG	ZTTWS

② Frequency
 Use full frequency including decimal point.

③

Unit	Code
MHz	M

Example Full Part Number
 For 6.00MHz Order ZTTWS6.00MNFL-PF

④

Freq. Tolerance	Code
2kHz	R
1kHz	P
0.70%	T
0.50%	N
0.40%	S
0.30%	O
0.25%	Q
Note 3	

⑤

Stability	Code
±0.5%, -20~+85°C	A
±0.4%, -20~+85°C	B
±0.3%, -20~+85°C	C
±0.2%, -20~+85°C	D
±0.1%, -20~+85°C	E
±0.2%, -25~+85°C	H
±0.3%, -25~+85°C	F
±0.4%, -25~+85°C	M
±0.3%, -40~+70°C	G
±0.5%, -40~+85°C	I
±0.4%, -40~+85°C	J
±0.3%, -40~+85°C	K
±0.2%, -40~+85°C	L
±0.5%, -40~+105°C	P
±0.4%, -40~+105°C	Q
±0.3%, -40~+105°C	R
±0.2%, -40~+105°C	S
±0.5%, -40~+125°C	V
±0.4%, -40~+125°C	W
±0.3%, -40~+125°C	X
±0.2%, -40~+125°C	Y
Note 3	

⑥

Tape & Reel	Code
Loose	L
500 pcs	B
1000 pcs	C
2000 pcs	E
2500 pcs	G
3000 pcs	D
4000 pcs	F
2K AMMO	Z
1K AMMO	Y
Note 4	

⑦

RoHS	Code
Approved v	PF

Notes:

- 1) Tighter Stabilities, tolerances, Output Loads and 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.
- 2) 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 'ACT ZTTWS_MG' type device may have part number such as ZTAW6.00-C1501-PF).

- 3) Enquire if a stability and / or tolerance other than the standard(s) highlighted in yellow is required.
- 4) MOQ 500 pieces, apart from development samples and thereafter quantities in multiples of 500 pieces.

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