

● ELECTRICAL SPECIFICATIONS

Parameters	Value	Unit
Frequency Range	8.000 ~ 13.000 16.000 ~ 60.000	MHz
Frequency Tolerance at 25°C, max	±0.5	%
Frequency Stability over Temperature Range, max	8.00 ~ 13.00	±0.4
	16.00 ~ 60.00	±0.3
Operating Temperature Range	Standard	-20 ~ +85
	Extended 1	-40 ~ +125
Storage Temperature Range	-55 ~ +125	°C
Load*	8.00 ~ 13.00	22
	16.00 ~ 60.00	10
Aging Over 10 Years	±0.3	%

Note\*: Other Loads available. Please consult with the factory

● MECHANICAL SPECIFICATION (A)

SIZE

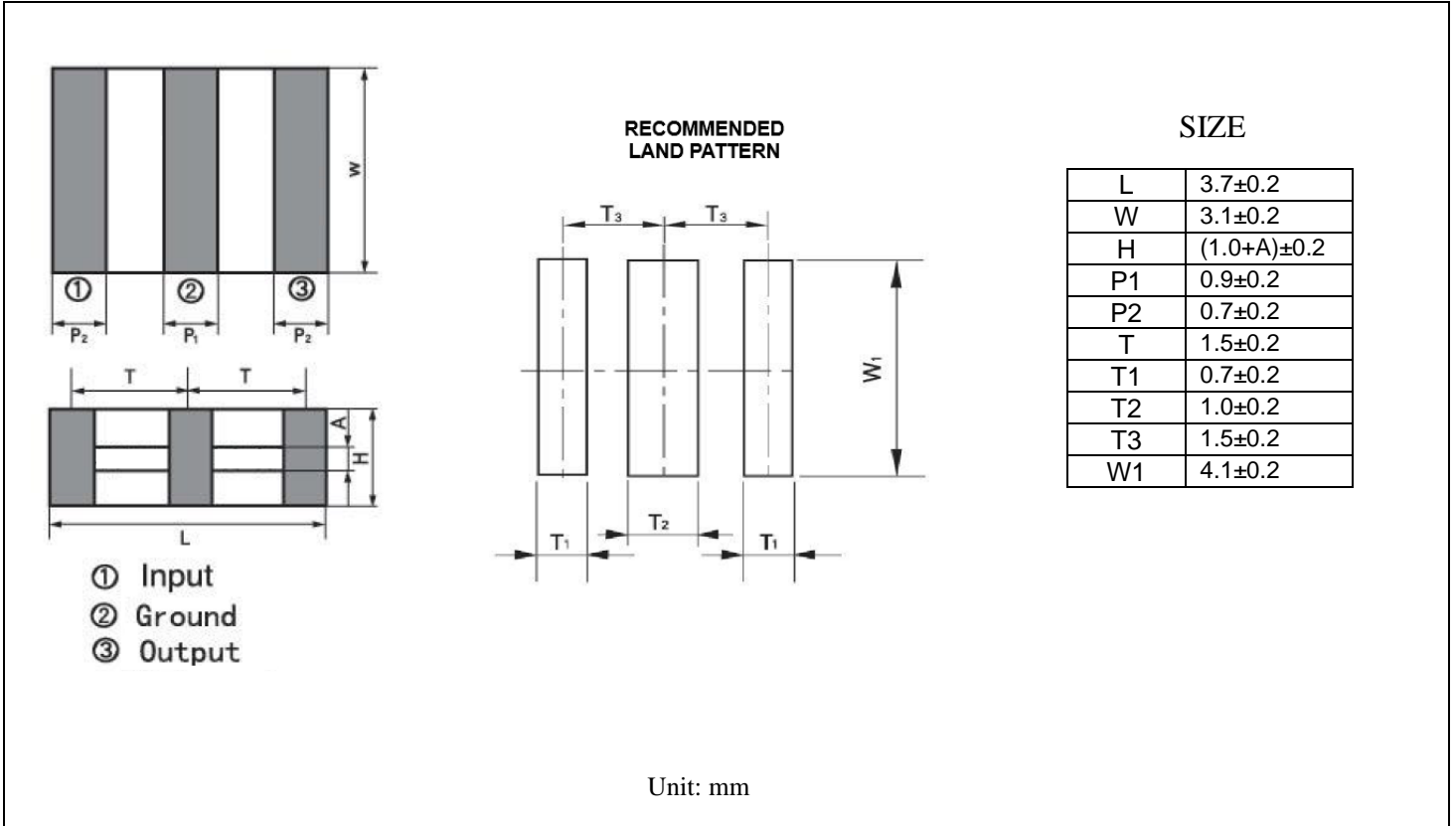
L	3.7±0.2
W	3.1±0.2
H	(1.0+A)±0.2
P2	0.7±0.2
T	3.0±0.2
T1	0.7±0.2
T3	3.0±0.2
W1	4.1±0.2

Unit: mm

Note:

A stand for thickness of the ceramic element which varies from frequency, the range is 0.1 to 0.7mm

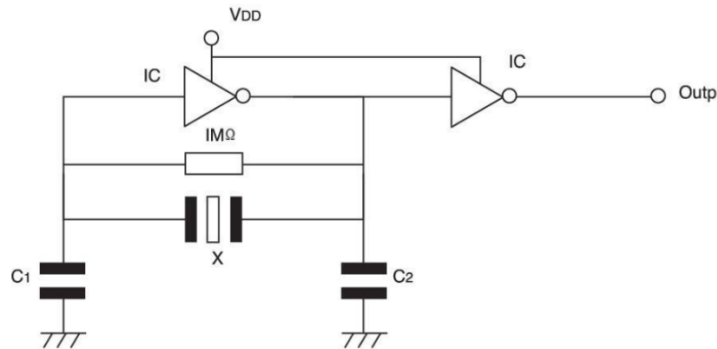
● MECHANICAL SPECIFICATION (B)



Note:

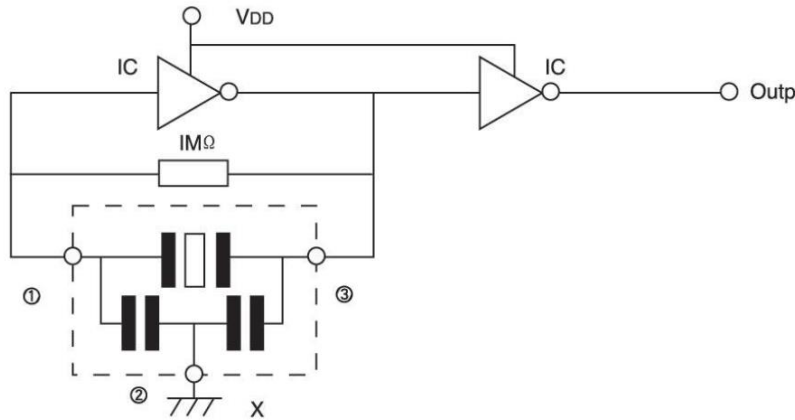
A stand for thickness of the ceramic element which varies from frequency, the range is 0.1 to 0.7mm

● TEST CIRCUIT (A)



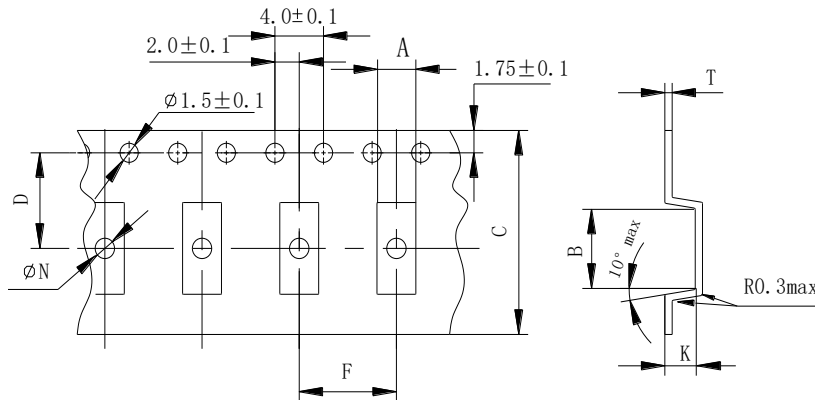
X: Ceramic Resonator  
VDD: +5V

● TEST CIRCUIT (B)



X: Ceramic Resonator  
VDD: +5V

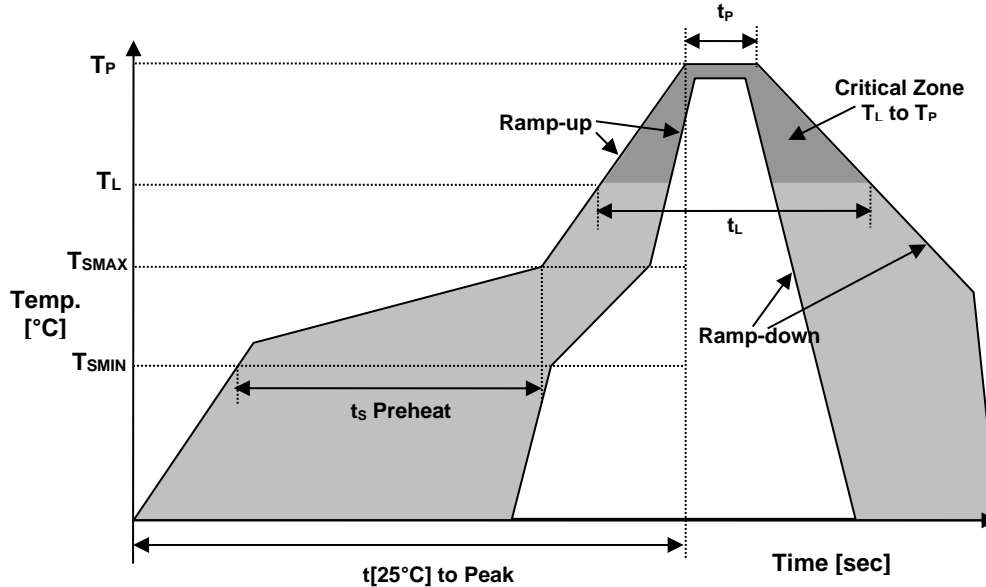
● CARRIER TAPE DIMENSIONS



6.0\*3.0mm

CP	A	B	C	D	F	ΦN	K	T
mm	3.4±0.2	6.5±0.2	16.0±0.2	7.5±0.1	8.0±0.1	1.55±0.1	2.1±0.1	0.3±0.1

## REFLOW PROFILE



Reflow profile		
Temperature Min Preheat	$T_{SMIN}$	140°C
Temperature Max Preheat	$T_{SMAX}$	160°C
Time ( $T_{SMIN}$ to $T_{SMAX}$ )	$t_S$	80-120 sec.
Temperature	$T_L$	200°C
Peak Temperature	$T_P$	260°C max
Ramp-up rate	$R_{UP}$	3°C/sec max.
Ramp-down rate	$R_{DOWN}$	6°C/sec max.
Time within 5°C of Peak Temperature	$t_p$	10 sec.
Time $t[25^\circ\text{C}]$ to Peak Temperature	$t[25^\circ\text{C}]$ to Peak	180 sec.
Time	$t_L$	20-40 sec.

## ENVIRONMENTAL

Parameter	Value
MOISTURE SENSITIVITY LEVEL	1
RoHS	Compliant
REACH SVHC	Compliant
HALOGEN-FREE	Compliant
ESD CLASSIFICATION LEVEL	N/A
TERMINATION FINISH	Sn



#### ● PART NUMBERING SYSTEM

Series	-	Frequency (MHz)	-	Pads	-	Package type (mm)	-	Operating Temperature (°C)	-	Load (pF)
SMR	-	8.000 ~ 13.000 16.000 ~ 60.000	-	A=2pads B=3pads	-	3731=3.7x3.1	-	Blank for Standard EXT1=Extended 1	-	22 10

#### Example: SMR-12.000-A3731-22

SMR, 12.000 MHz, A Two Pads, 3.7 x 3.1mm, from -20°C to +85°C, 22 pF load

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