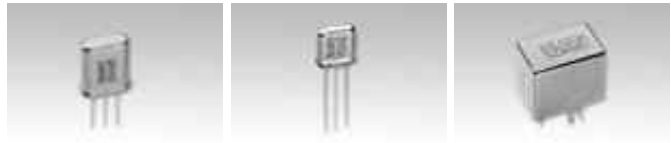


# Monolithic Crystal Filters

## Through Hole MCF DIP Series

- Through Hole MCF DIP Series
- Excellent vibration resistance and shock resistance
- Widely used in applications like Pagers, Cordless telephones, VHF radios.



### STANDARD SPECIFICATIONS:

For normal 10.7MHz series:

MODEL	Nominal Frequency (MHZ)	No.of poles	Pass Bandwidth (dB) (KHz)	Stop Bandwidth		Ripple (dB)	Loss (dB)	Guaranteed Attenuation		Terminating Impedance (kOhms/pf)	Operating Temp. (°C)	Case
				(dB)	(KHz)			(dB)	fo±KHz			
10L071A	10.7	2	3 ±3.75	20	±18.0	0.5	1.5	35	±300~±1000	1.8//5.0	-20~ +70	HC49/U.3S*1
10L072A		4	3 ±3.75	40	±14.0	1.0	2.5	65	±300~±1000	1.8//4.5	-20~ +70	HC49/U.3S*2
10L073A		6	3 ±3.75	45	±8.75	2.0	3.0	65	±12.5~±300	3.3//2.0	-20~ +70	L-1
10L074A		8	3 ±3.75	65	±8.75	2.0	4.0	90	±12.5~±300	3.3//2.0	-20~ +70	L-2
10L075A		10	6 ±3.75	75	±8.75	2.0	5.0	90	±10.5~±300	3.3//2.0	-20~ +70	L-3
10L121A		2	3 ±6.0	20	±25.0	0.5	1.5	35	±300~±1000	2.5//2.5	-20~ +70	HC49/U.3S*1
10L122A		4	3 ±6.0	40	±20.0	1.0	2.5	65	±300~±1000	2.5//1.5	-20~ +70	HC49/U.3S*2
10L123A		6	3 ±6.0	45	±14.0	2.0	3.0	65	±20~±300	2.5//1.5	-20~ +70	L-1
10L124A		8	3 ±6.0	65	±14.0	2.0	4.0	90	±20~±300	2.5//1.5	-20~ +70	L-2
10L125A		10	6 ±6.0	75	±14.0	2.0	5.0	90	±16~±300	2.5//1.5	-20~ +70	L-3
10L151A		2	3 ±7.5	18	±25.0	0.5	1.5	35	±300~±1000	3.0//2.0	-20~ +70	HC49/U.3S*1
10L152A		4	3 ±7.5	40	±25.0	1.0	2.5	65	±300~±1000	3.0//1.5	-20~ +70	HC49/U.3S*2
10L153A		6	3 ±7.5	45	±17.5	2.0	3.0	65	±25~±300	3.3//1.5	-20~ +70	L-1
10L154A		8	3 ±7.5	65	±17.5	2.0	4.0	90	±25~±300	3.3//1.5	-20~ +70	L-2
10L155A		10	6 ±7.5	75	±16.0	2.0	5.0	90	±18~±300	3.3//1.0	-20~ +70	L-3
10L301A	2	3 ±15.0	15	±50.0	0.5	1.5	30	±300~±1000	5.0//0	-20~ +70	HC49/U.3S*1	
10L302A	4	3 ±15.0	30	±40.0	1.0	2.5	65	±300~±1000	5.5//1.0	-20~ +70	HC49/U.3S*2	
10L303A	6	3 ±15.0	60	±45.0	2.0	3.0	65	±45~±300	5.5//1.0	-20~ +70	L-1	
10L304A	8	3 ±15.0	60	±30.0	2.0	4.0	90	±50~±300	5.5//1.0	-20~ +70	L-2	

**For normal 21.4MHz series:**

MODEL	Nominal Frequency (MHZ)	No.of poles	Pass Bandwidth (dB)	Stop Bandwidth (dB)	Ripple (dB)	Loss (dB)	Guaranteed Attenuation		Terminating Impedance (kOhms/pf)	Operating Temp. (°C)	Case
			(KHz)	(KHz)			(dB)	fo±KHz			
21S081A	21.4	2	3 ±3.75	20 ±18.0	0.5	1.5	35 ±300~±1000		850//6.0	-20~ +70	UM-1.3S*1
21S082A		4	3 ±3.75	40 ±14.0	1.0	2.5	65 ±300~±1000		850//5.0	-20~ +70	UM-1.3S*2
21S083A		6	3 ±3.75	45 ±8.75	2.0	3.0	65 ±12.5~±300		850//5.0	-20~ +70	S-1, M-1
21S084A		8	3 ±3.75	65 ±8.75	2.0	4.0	90 ±12.5~±300		850//5.0	-20~ +70	S-2, M-2
21S085A		10	6 ±3.75	75 ±8.75	2.0	5.0	90 ±10.5~±300		850//5.0	-20~ +70	S-3, M-3
21S121A		2	3 ±6.0	20 ±25.0	0.5	1.5	35 ±300~±1000		1.2//3.0	-20~ +70	UM-1.3S*1
21S122A		4	3 ±6.0	40 ±20.0	1.0	2.5	65 ±300~±1000		1.2//2.5	-20~ +70	UM-1.3S*2
21S123A		6	3 ±6.0	45 ±14.0	2.0	3.0	65 ±20~±300		1.2//2.5	-20~ +70	S-1, M-1
21S124A		8	3 ±6.0	65 ±14.0	2.0	4.0	90 ±20~±300		1.2//2.5	-20~ +70	S-2, M-2
21S125A		10	6 ±6.0	75 ±14.0	2.0	5.0	90 ±16~±300		1.2//2.5	-20~ +70	S-3, M-3
21S151A		2	3 ±7.5	18 ±25.0	0.5	1.5	35 ±300~±1000		1.5//2.5	-20~ +70	UM-1.3S*1
21S152A		4	3 ±7.5	40 ±25.0	1.0	2.5	65 ±300~±1000		1.5//2.0	-20~ +70	UM-1.3S*2
21S153A		6	3 ±7.5	45 ±17.5	2.0	3.0	65 ±25~±300		1.5//2.0	-20~ +70	S-1, M-1
21S154A		8	3 ±7.5	65 ±17.5	2.0	4.0	90 ±25~±300		1.5//2.0	-20~ +70	S-2, M-2
21S155A		10	6 ±7.5	75 ±16.0	2.0	5.0	90 ±18~±300		1.5//2.0	-20~ +70	S-3, M-3
21S301A		2	3 ±15.0	15 ±45.0	0.5	1.5	30 ±300~±1000		1.5//1.0	-20~ +70	UM-1.3S*1
21S302A		4	3 ±15.0	40 ±50.0	1.0	2.5	65 ±300~±1000		2.2//0.5	-20~ +70	UM-1.3S*2
21S303A		6	3 ±15.0	45 ±35.0	2.0	3.0	65 ±50~±300		2.2//0.5	-20~ +70	S-1, M-1
21S304A		8	3 ±15.0	65 ±35.0	2.0	4.0	90 ±50~±300		2.2//0.5	-20~ +70	S-2, M-2

**For Pagers:**

MODEL	Nominal Frequency (MHZ)	No.of poles	Pass Bandwidth (dB)	Stop Bandwidth (dB)	Ripple (dB)	Loss (dB)	Guaranteed Attenuation (dB)	Terminating Impedance (kOhms/pf)	Operating Temp. (°C)	Case
21S151A	21.4 ~ 21.8	2	3 ±7.5	18 ±25.0	1.0	1.5	35 ±300~±1000	1.5//2.5	-20~ +70	UM-1.3S*1
21T151A	21.4 ~ 21.8	2	3 ±7.5	18 ±25.0	1.0	1.5	35 ±300~±1000	1.5//2.0	-20~ +70	UM-5.3S*1
21T201A	21.4 ~ 21.8	2	3 ±10.0	18 ±30.0	1.0	1.5	35 ±300~±1000	1.8//1.5	-20~ +70	UM-5.3S*1

**For cordless telephones:**

MODEL	Nominal Frequency (MHZ)	No.of poles	Pass Bandwidth (dB)	Stop Bandwidth (dB)	Ripple (dB)	Loss (dB)	Guaranteed Attenuation (dB)	Terminating Impedance (kOhms/pf)	Operating Temp. (°C)	Case
10L151A	10.7	2	3 ±7.5	18 ±25.0	0.5	2.0	35 ±300~±1000	3.0//2.0	-20~ +70	HC49/U.3S*1
21S071A	21.4	2	3 ±3.5	18 ±12.5	1.0	2.0	60 ±(910±10)	1.5//6.0	-20~ +70	UM-1.3S*2
21S122A		2	3 ±6.0	40 ±20.0	1.5	3.0	80 ±(910±10)	1.2//2.5	-20~ +70	UM-1.3S*2
21S152A		4	3 ±7.5	40 ±25.0	1.5	3.0	80 ±(910±10)	1.5//2.0	-20~ +70	UM-1.3S*2
58S072AT	58.075	4	3 ±3.75	35 ±14.0	2.0	4.0	80 ±(910±10)	3.0//1.0	-20~ +70	UM-1.3S*2
58S122AT	58.1125	4	3 ±6.0	35 ±20.0	2.0	3.0	80 ±(910±10)	3.0//1.0	-20~ +70	UM-1.3S*2
58S152AT	58.1625	4	3 ±7.5	28 ±25.0	2.0	3.0	80 ±(910±10)	3.0//1.0	-20~ +70	UM-1.3S*2
83S302AT	83.160	4	3 ±15.0	20 ±60.0	1.5	6.0	65 ±(910±10)	2.5//1.0	-20~ +70	UM-1.3S*2

**For portable telephones:**

MODEL	Nominal Frequency (MHZ)	No. of poles	Pass Bandwidth (dB) (KHz)	Stop Bandwidth (dB) (KHz)	Ripple (dB)	Loss (dB)	Guaranteed Attenuation (dB) (fo±KHz)	Terminating Impedance (kOhms/pf)	Operating Temp. (°C)	Case
45S301AF	45.000	2	3 ±15.0	15 ±50.0	1.0	2.0	50 ±(910±10)	600//1.5	-20~ +70	UM-1.3S*1
45T301AF	45.000	2	3 ±15.0	15 ±50.0	1.0	2.0	50 ±(910±10)	600//1.5	-20~ +70	UM-5.3S*1
45N401AF	45.000	2	2 ±20.0	15 ±60.0	1.0	2.0	50 ±(910±10)	860//1.7	-20~ +70	UM-4.3S*1
45T151AF	45.000	2	3 ±7.5	15 ±22.0	1.0	2.0	66 ±(910±10)	470//6.0	-20~ +70	UM-5.3S*1
45S152AF	45.000	4	3 ±7.5	40 ±30.0	1.0	3.0	80 ±300~±1000	560//3.0	-20~ +70	UM-1.3S*2
45T152AF	45.000	4	3 ±3.75	40 ±30.0	1.0	3.0	80 ±300~±1000	560//3.0	-20~ +70	UM-5.3S*2
45T302AF	45.000	4	3 ±15.0	30 ±60.0	1.0	3.0	80 ±910	1.6K//0	-20~ +70	UM-5.3S*2
70T202AT	70.000	4	3 ±10.0	35 ±40.0	2.0	6.0	70 ±300~±1000	2.5K//1.0	-20~ +70	UM-5.3S*2
90T092AT	90.000	4	3 ±4.5	13 ±12.5	2.0	6.0	70 ±(910±10)	2.5K//1.0	-20~ +70	UM-5.3S*2

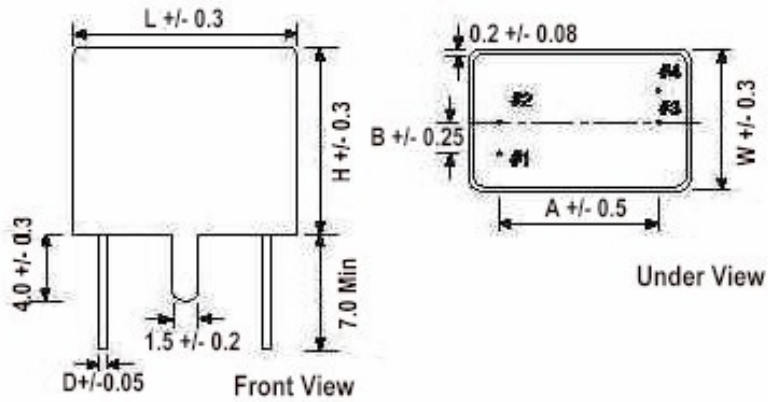
**For VHF radios:**

MODEL	Nominal Frequency (MHZ)	No. of poles	Pass Bandwidth (dB) (KHz)	Stop Bandwidth (dB) (KHz)	Ripple (dB)	Loss (dB)	Guaranteed Attenuation (dB) (fo±KHz)	Terminating Impedance (kOhms/pf)	Operating Temp. (°C)	Case
45L152A	45.00	4	3 ±7.5	40 ±30.0	2.0	3.0	70 ±300~±1000	3.0K//1.0	-20~ +70	HC49/U.3S*2
45S152A	45.00	4	3 ±7.5	40 ±30.0	2.0	3.0	70 ±300~±1000	3.0K//1.0	-20~ +70	UM-1.3S*2
55L171AT	55.845	2	3 ±8.5	18 ±34.0	2.0	3.0	35 ±300~±1000	3.0K//1.0	-20~ +70	HC49/U.3S*1
55S171AT	55.845	2	3 ±8.5	18 ±34.0	2.0	3.0	35 ±300~±1000	3.0K//1.0	-20~ +70	UM-1.3S*1
55S172AT	55.025	4	3 ±8.5	25 ±25.0	2.0	3.0	70 ±300~±1000	3.0K//1.0	-20~ +70	UM-1.3S*2
58S172AT	58.1125	4	3 ±8.5	25 ±25.0	2.0	4.0	70 ±300~±1000	3.0K//1.0	-20~ +70	UM-1.3S*2
70S152AT	70.000	4	3 ±7.5	40 ±30.0	2.0	6.0	70 ±300~±1000	2.5K//1.0	-20~ +70	UM-1.3S*2
90S202AT	90.000	4	3 ±10.0	35 ±40.0	2.0	6.0	70 ±300~±1000	2.5K//1.0	-20~ +70	UM-1.3S*2

**For SSB:**

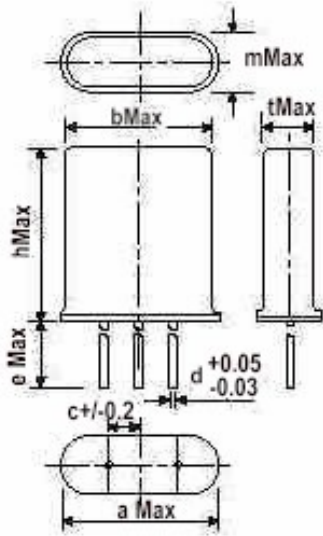
MODEL	Nominal Frequency (MHZ)	No. of poles	Pass Bandwidth (dB) (KHz)	Stop Bandwidth (dB) (KHz)	Ripple (dB)	Loss (dB)	Guaranteed Attenuation (dB) (KHz)	Terminating Impedance (kOhms/pf)	Operating Temp. (°C)	Case
10L023A	10.695	6	6 ±1.1	20 ±1.7	2.0	3.0	70 ±4 ~ ±1000	600//15.0	-20~ +70	L-1, L-5
10L024A	10.695	8	6 ±1.1	20 ±1.5	2.0	4.0	80 ±3 ~ ±1000	600//15.0	-20~ +70	L-2, L-6
10L044A	10.695	8	6 ±2.1	15 ±2.45	2.0	4.0	80 ±6 ~ ±1000	1.0K//8.0	-20~ +70	L-2, L-6

**Dimensions (UNIT : mm)**



Case	L	W	H	A	B	øD
S-1	8.5	8.5	11.5	5.0	2.0	0.35
S-2	11.0	8.5	11.5	7.4	2.0	0.35
S-3	13.4	8.5	11.5	9.8	2.0	0.35
M-1	10.0	8.5	11.5	6.0	2.0	0.35
M-2	13.4	8.5	11.5	8.6	2.0	0.35
M-3	16.0	8.5	11.5	11.8	2.0	0.35
L-1	15.0	12.0	15.0	9.0	2.5	0.43
L-2	18.5	12.0	15.0	13.4	2.5	0.43
L-3	23.0	12.0	15.0	17.8	2.5	0.43
L-4	28.0	12.0	15.0	22.2	2.5	0.43
L-5	15.0	12.0	20.0	9.0	2.5	0.43
L-6	18.5	12.0	20.0	13.4	2.5	0.43

**Dimensions (UNIT : mm)**



Case	a	b	t	m	h	e(min)	c	ød
UM-1.3S	7.9	7.0	2.4	3.2	8.2	18.0	1.9	0.35
UM-13S Slim	7.9	7.0	2.0	2.6	8.2	18.0	1.9	0.35
UM-4.3S	7.9	7.0	2.4	3.2	4.7	18.0	1.9	0.35
UM-5.3S	7.9	7.0	2.4	3.2	6.0	18.0	1.9	0.35
UM-5.3S Slim	7.9	7.0	2.0	2.6	6.0	18.0	1.9	0.35
HC-49/U.3S	11.05	10.3	3.8	4.65	13.1	13.2	2.44	0.43
HC-49/U1.3S	11.05	10.3	3.8	4.65	9.5	13.2	2.44	0.43
HC-49/U2.3S	11.05	10.3	3.8	4.65	11.0	13.2	2.44	0.43
HC-49/U3.3S	11.05	10.3	3.8	4.65	11.4	13.2	2.44	0.43

# Monolithic Crystal Filters

## Surface Mount UMS Series

- Ceramic SMD MCF
- Compactness & lightness (Height:1.4mm)
- Excellent vibration resistance and shock resistance
- Designed for automatic mounting and reflow soldering



### ELECTRICAL SPECIFICATIONS:

MODEL	Nominal Frequency (MHZ)	No.of poles	Pass Bandwidth (dB) (KHz)	Stop Bandwidth (dB) (KHz)	Ripple (dB)	Insertion Loss (dB)	Guaranteed Attenuation (dB)	Terminating Impedance (kOhms/pf)
UMS1-15A17.9	17.900	2	3 ±7.5	17 ±25	0.75	2.0	65	1.75/-1.7
UMS1-75A21.4	21.400	2	3 ±3.75	18 ±15	1.0	2.0	65	0.87/6.0
UMS1-15A21.4	21.400	2	3 ±7.5	18 ±25	0.5	1.5	65	1.5/2.5
UMS1-75A21.7	21.700	2	3 ±3.75	18 ±15	1.0	2.0	65	0.87/6.0
UMS1-15A21.7	21.700	2	3 ±7.5	18 ±25	0.5	1.5	65	1.5/2.5
UMS1-15A45.0	45.000	2	3 ±7.5	15 ±25	1.0	2.0	60	0.56/6.0
UMS1- 30A45.0	45.000	2	3 ±15	15 ±50	1.0	3.0	65	1.2/1.5

### *How To Order Custom Parts:*

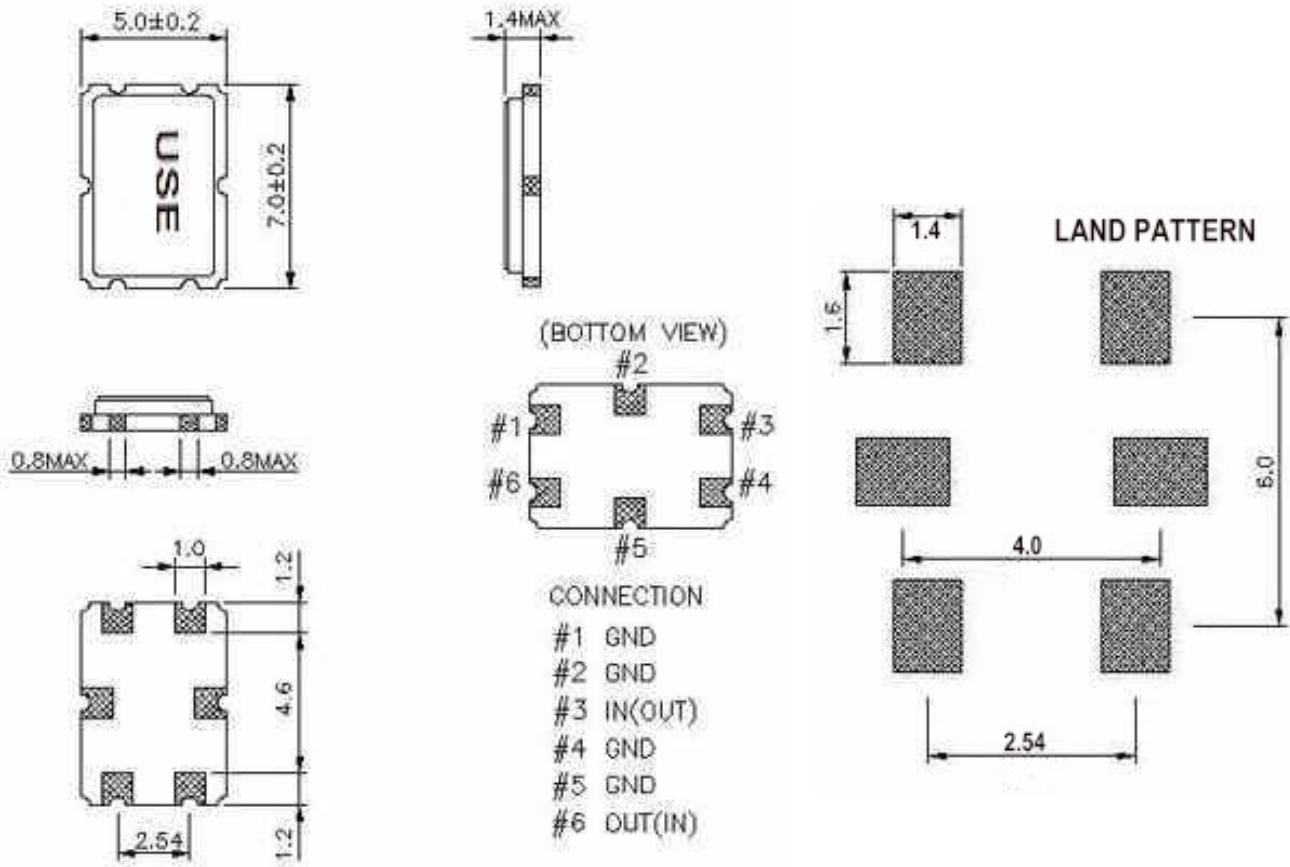
1. Pick a frequency with in the range specified in the table above and specify the properties you need from the tables below.
2. If you need [Tape & Reel](#), add "TR" in the box specified at the end of the part number.

### CUSTOM PART NUMBERING SYSTEM

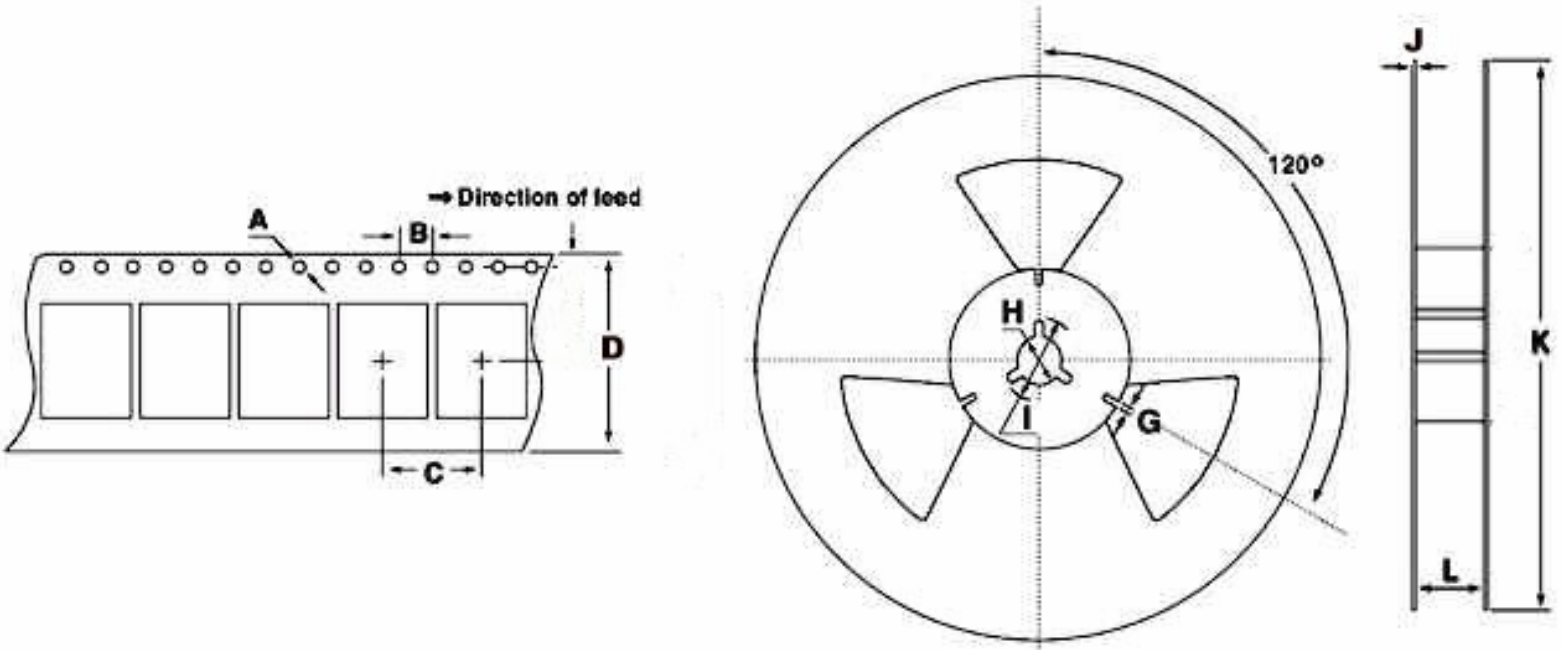
Frequency(MHz) Tape&Reel

**MECHANICAL DIMENSIONS:**

**UMS1 Package**



**TAPE AND REEL SPECIFICATIONS:**



**TAPE SPECIFICATIONS:(millimeters)**

MODEL	A	B	C	D
UMS1	1.5	4.0	8.0	16.0

**REEL SPECIFICATIONS:(millimeters)**

MODEL	G	H	I	J	K	L
UMS1	2.0	13.0	23.0	2.0	330 or 178	17.5