

# Quartz

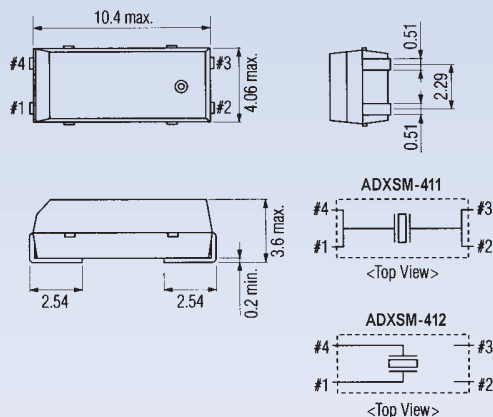
Surface Mount

ADXS-410 Series (411, 412)

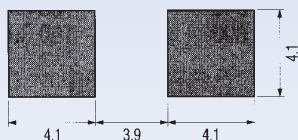
## ADXSM-411 & ADXSM-412



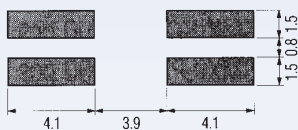
ADXSM-411 AND ADXSM-412 (unit: mm)



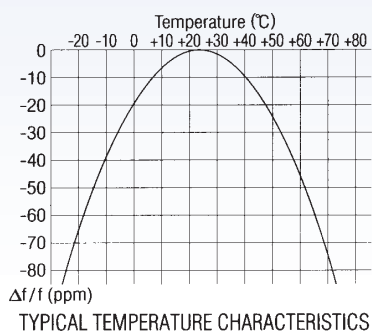
### SOLDERING PATTERN FOR ADXSM-411



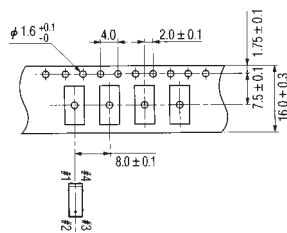
### SOLDERING PATTERN FOR ADXSM-412



### X-CUT



### TAPE SPECIFICATIONS



2000pcs. per reel (330mm dia.)

### PACKAGE DATA

Item / Package	ADXSM-411 and ADXSM-412
OUTER PACKAGE	Plastic
SEALING	Press-fit (2 x 6mm built-in)
TERMINAL PLATING	Solder

### STANDARD SPECIFICATIONS

Package Type		ADXSM-411 and ADXSM-412
Nominal Frequency	F	32.768 KHz
Frequency Tolerance at +25°C ±5°C	# f/F	±20 ppm
Load Capacitance	CL	12.5 pF, Typical
Equivalent Series Resistance	Rs	50 kΩ max.
Drive Level	P	1.0 μW max.
Quality Factor	Q	50000, Typical
Turnover Temperature	Tt	+25°C ±5°C
Temperature Coefficient	β	-0.034 ppm / °C <sup>2</sup> , Typical
Shunt Capacitance	Co	1.35 pF, Typical
Motional Capacitance	C1	0.003 pF, Typical
Capacitance Ratio	γ	450, Typical
Aging (for first year)	# f/F	±3 ppm max. at +25°C ±3°C
Insulation Resistance	IR	500 MΩ min. at 100V DC ±15V
Cut		X-Cut
Operating Temperature Range	To	-40°C to +85°C
Storage Temperature Range	Ts	-55°C to +125°C
Shock	# f/F	±5 ppm max.
Vibration	# f/F	±5 ppm max.
Reflow Soldering Condition		10 seconds max. at +235°C ±5°C

SEE PAGE 8 FOR PART NUMBERING GUIDE

# Quartz Part Numbering Guide

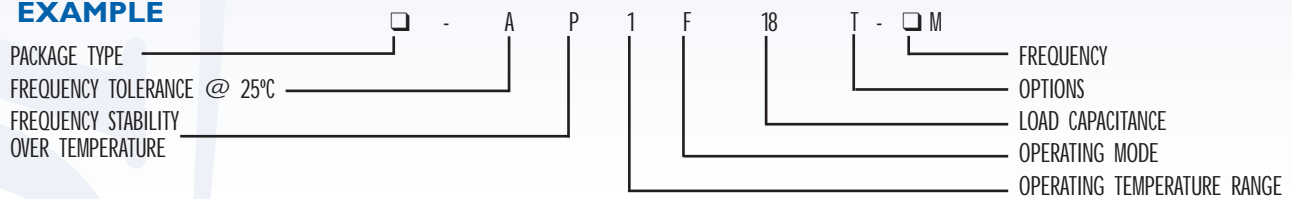
Surface Mount

ADXSM, ADX49SM, ADX49SSM1/SSM2, ADX49SMP/SMP1 Series



<b>Package Type</b>	ADXSM-351 pg10 ADXSM-364 pg11 ADXSM-365 pg12 ADXSM-463 pg16 ADXSM-481 pg17 ADXSM-491 pg20 ADXSM-492 pg20	ADXSM-571 pg21 ADXSM-572 pg22 ADXSM-581 pg23 ADXSM-5111A pg24 ADXSM-6122A pg24 ADXSM-6121A pg25 ADXSM-5122A pg25	ADXSM-5134AZ pg26 ADXSM-5136AZ pg26 ADXSM-5135AZ pg27 ADXSM-5137AZ pg27 ADXSM-5138AZ pg28 ADXSM-5121B pg29 ADXSM-5122B pg29	ADX49SM pg30 ADX49SSM pg30 ADX49SSM1 pg31 ADX49SSM2 pg31 ADX49SMP pg32 ADX49SMP1 pg32
<b>Frequency Tolerance @ 25°C</b>	±100ppm A ±50ppm B ±45ppm C	±40ppm D ±35ppm E ±30ppm F	±25ppm G ±20ppm H ±15ppm I	±10ppm J ±5ppm K
<b>Frequency Stability Over Temperature</b>	±100 ppm P ±50 ppm Q ±45 ppm R ±40 ppm S	±35 ppm T ±30 ppm U ±25 ppm V ±20 ppm W	±15 ppm X ±10 ppm Y ±7.5 ppm YY ±5 ppm Z	±4 ppm ZZ ±3 ppm ZY
<b>Operating Temperature Range</b>	0°C to +70°C 1 -10°C to +60°C 2 -20°C to +70°C 3 -40°C to +75°C 4	-40°C to +85°C 5 -40°C to +90°C 6 0°C to +55°C 7 -40°C to +125°C 8	0°C to +50°C 9 -10°C to +50°C 10 -10°C to +70°C 11 -30°C to +75°C 12	-30°C to +80°C 13 -350°C to +80°C 14
<b>Operating Mode</b>	Fundamental F 3rd Overtone 3	5th Overtone 5 7th Overtone 7	9th Overtone 9	
<b>Load Capacitance</b>	6 pF 6 10 pF 10 12 pF 12	15 pF 15 16 pF 16 18 pF 18	20 pF 20 22 pF 22 30 pF 30	32 pF 32 50 pF 50 Series S
<b>Options</b>	Bulk Blank	Insulator Tab I	Tape & Reel T	
<b>Frequency</b>	MHz M	KHz K		

**EXAMPLE**



<b>Package Type</b>	ADXSM-281 pg9 ADXSM-371 pg13 ADXSM-391 pg14	ADXSM-411 pg15 ADXSM-412 pg15 ADXSM-481A pg18	ADXSM-481B pg19 ADXSM-482B pg19
<b>Frequency Tolerance @ 25°C</b>	±100ppm A ±50ppm B ±45ppm C ±40ppm D	±35ppm E ±30ppm F ±25ppm G ±20ppm H	±15ppm I ±10ppm J ±5ppm K
<b>Load Capacitance</b>	6 pF 6	7 pF 7	12.5 pF 12.5
<b>Options</b>	Bulk Blank	Insulator Tab I	Tape & Reel T
<b>Frequency</b>	MHz M	KHz K	

**EXAMPLE**

