

## MOLDED SMD PLASTIC PACKAGE CRYSTAL (12.5 x 4.6 x 3.7mm)

### FEATURES:

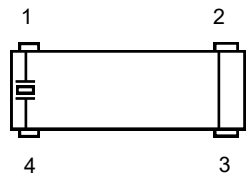
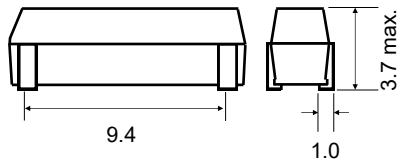
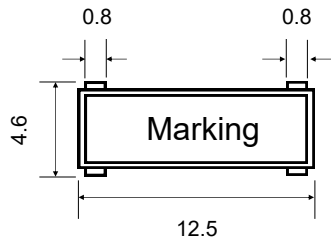
- HIGH FREQUENCY RANGE
- LOW COST
- LOW PROFILE



### ■ SPECIFICATION

FREQUENCY RANGE	3.579MHz ~ 70.000MHz	
FREQUENCY TOLERANCE @ 25°C	±15ppm ~ ±50ppm (See P/N guide for other options)	
FREQUENCY STABILITY	±20ppm ~ ±50ppm (See P/N guide for other options)	
OPERATING TEMPERATURE RANGE	STD: 0°C to 70°C, Option: -40°C to 85°C (See P/N guide for other options)	
STORAGE TEMPERATURE RANGE	-55°C to 125°C	
LOAD CAPACITANCE	STD: 18pF (See P/N guide for other options)	
SHUNT CAPACITANCE	7.0pF max.	
INSULATION RESISTANCE	500MΩ min. at 100V <sub>DC</sub> ± 15V <sub>DC</sub>	
DRIVE LEVEL	100uW max.	
AGING	±5.0ppm / 1 <sup>st</sup> year max.	
EQUIVALENT SERIES RESISTANCE	<b>Fundamental:</b>	3.579MHz ~ 4.500MHz: 150Ω max.    4.501MHz ~ 5.000MHz: 130Ω max. 5.001MHz ~ 7.000MHz: 120Ω max.    7.001MHz ~ 10.000MHz: 100Ω max. 10.001MHz ~ 12.000MHz: 80Ω max.    12.001MHz ~ 14.000MHz: 70Ω max. 14.001MHz ~ 16.000MHz: 50Ω max.    16.001MHz ~ 27.000MHz: 30Ω max.
	<b>3<sup>rd</sup> overtone:</b>	27.001MHz ~ 70.000MHz: 100Ω max.
OPERATION MODE	Fundamental or 3 <sup>rd</sup> overtone	

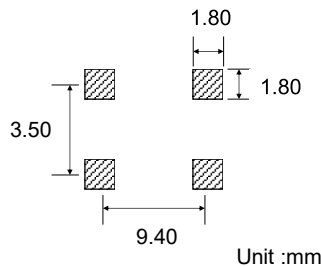
### ■ PACKAGE DIMENSIONS



Unit : mm

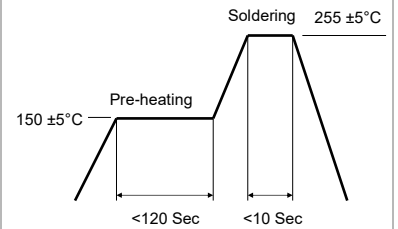
Pin Configuration	
1	Xtal
2	GND
3	GND
4	Xtal

### ■ SOLDER PATTERN



Unit : mm

### ■ REFLOW PROFILE



Note: Consult factory for detail

### ■ PART NUMBERING GUIDE

TS-SMD – F 00 00 HM 08 – 20.000M – TR

Mode
F: Fundamental
T: 3 <sup>rd</sup> overtone

Stability
00: ± 100ppm
50: ± 50ppm
25: ± 25ppm
15: ± 15ppm
10: ± 10ppm
XX: Two digit for Stability

Load Capacitance
08: 8pF
10: 10pF
12: 12pF
16: 16pF
18: 18pF
20: 20pF
22: 22pF
24: 24pF
28: 28pF
32: 32pF
S: Series

Other Options
TR: Tape and reel

Tolerance @ 25°C
00: ± 100ppm
50: ± 50ppm
30: ± 30ppm
25: ± 25ppm
10: ± 10ppm
XX: Two digit for Tolerance

Operating Temperature			
A: -55	F: -20	M: 70	S: 100
B: -50	G: -10	N: 75	T: 105
C: -40	H: 0	P: 80	U: 125
D: -35	J: 50	Q: 85	X: custom
E: -30	K: 60	R: 90	

Frequency
M: MHz

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