

FEATURES

- Wide Frequency Range
- Low Profile
- 2 pads
- 4.0mm & 3.0mm Height for Various I. C
- Lead Free available

APPLICATIONS

- Microprocessor Systems
- Data Communications
- Consumer Electronics
- Automotive Electronics

SPECIFICATION *

Parameters	Product		Option Code	
	49SM	49SSM	SM2	SSM2
Frequency Range:	3.2000~80.0MHz		△	Specify
Oscillation Mode:	AT Fund. (3.2~40MHz)		△	A
	BT Fund. (20~40MHz)		△	B
	3rd OT (24~80MHz)		△	C
Frequency Tolerance:	±5ppm		△	5
	±10ppm		△	10
	±20ppm		△	20
	±30ppm		△	30
	±50ppm		▲	50
	Other Values		△	Specify
Load Capacitance:	12pF		△	12
	16pF		△	16
	18pF		△	18
	20pF		▲	20
	30pF		△	30
	Series Resonant		△	S
Other Values		△	Specify	
Frequency Stability:	±10ppm		△	10
	±20ppm		△	20
	±30ppm		△	30
	±50ppm		▲	50
	Other Values		△	Specify
Operating Temp. Range:	0℃~+50℃		△	0
	-10℃~+60℃		▲	10
	-20℃~+70℃		△	20
	-40℃~+85℃		△	40
	Other Values		△	Specify
Storage Temp. Range:	-40℃~+85℃		▲	
Equivalent Series Resistance (ESR):	See Table 1		△	Specify
Drive Level:	1000 uW Max		▲	
Shunt Capacitance (C 0):	7.0 pF Max.		▲	
Aging:	±5ppm Max.		▲	
Package:	Bulk		△	B
	Tape/Reel		△	T
Other Values:	Lead Free		△	LF

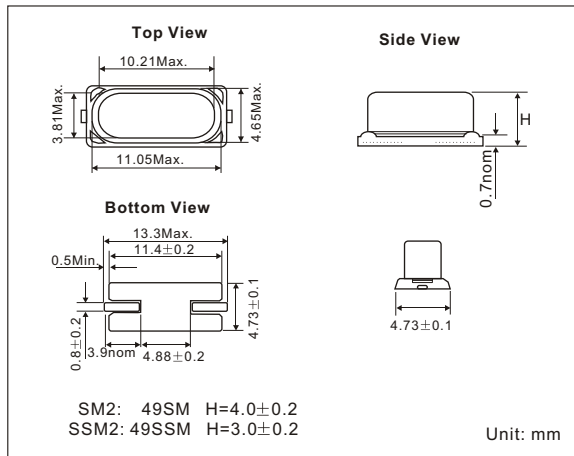
▲ Standard * Specifications Subject to Change Without Notice
 △ Optional: please specify required code when inquiring or ordering

PARTNUMBER GUIDE

TGS	C	SM	2	4M0	A	50	- 20	- 50	- 10	- 120	- T
Mark	Quartz Crystals	SM: 49SM SSM: 49SSM	2 Pads	Freq. Range	Oscillation Mode	Freq. Tolerance	Load Capacitance	Freq. Stability	Operating Temp. Range	ESR	Package

e.g. Full P/N.: TGS CSM2 4M0A50-20-50-10-120T
 Short P/N.: CSM2 4M0A20T (Others is standard Spec.)

DIMENSIONS



ESR VALUES

Table 1

Frequency Range (MHz)	ESR Max (ohm)	Frequency Range (MHz)	ESR Max (ohm)
3.2000 ~ 3.5780	250	7.00000 ~ 9.99900	80
3.5790 ~ 3.9990	150	10.0000 ~ 13.9990	50
4.0000 ~ 4.9990	120	14.0000 ~ 25.9990	40
5.0000 ~ 5.9990	100	26.0000 ~ 39.9990	100
6.0000 ~ 6.9990	80	40.0000 ~ 80.0000	80

STANDARD FREQUENCIES

Frequency in MHz

3.200000	7.680000	14.18181	22.11840
3.276800	8.000000	14.31818	24.00000
3.579545	8.064000	14.74560	24.57600
3.686400	8.192000	15.00000	25.00000
4.000000	8.867237	15.36000	27.00000
4.032000	9.830400	16.00000	28.22400
4.096000	10.00000	16.38400	28.32200
4.194304	10.24000	16.93440	29.49120
4.433619	10.24500	17.734475	30.00000
4.915200	11.05920	18.00000	32.00000
5.000000	12.00000	18.43200	32.76800
6.000000	12.28800	19.66080	
6.144000	12.80000	20.00000	
7.372800	13.50000	20.11840	

PACKAGE

- Standard package in T/R: 1000pcs/ reel, 2 Reel/box, 5 box/carton
 See page 115 for detail dimensions

