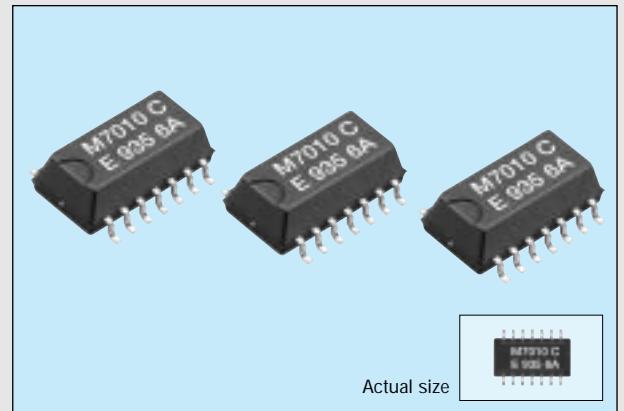


## SELECTABLE-OUTPUT PLL OSCILLATOR

**MG-7010SA**

- Can output one CPU frequency among 15 selections.
- Reflow able, high-density mounting-type SMD.
- Provided with output enable and stand-by function to allow low current consumption.
- Using C-MOS IC allows low current consumption and assures high reliability.



## ■ Specifications (characteristics)

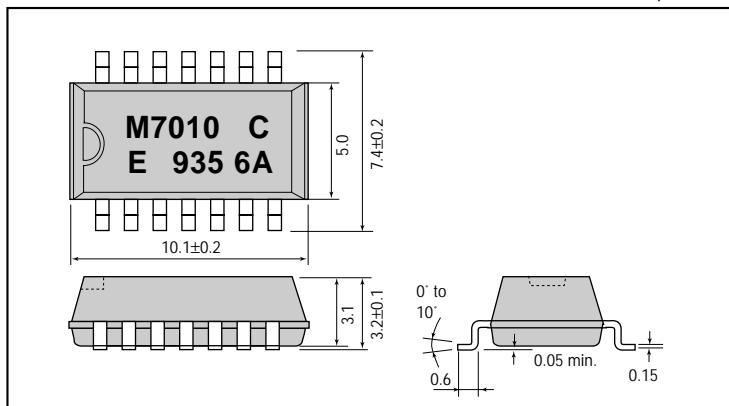
Item	Symbol	Specifications	Remark
Frequency change time	$t_{ft}$	10ms max.	S0, S1, S2, S3 changing
Output frequency range	$f_o$	20.0000 MHz to 120.0000 MHz	$V_{DD}=4.5V$ to 5.5V
		20.0000 MHz to 80.0000 MHz	$V_{DD}=2.7V$ to 5.5V
Power source voltage	Max. supply voltage	$V_{DD-GND}$	-0.5V to +7.0V
	Operating voltage	$V_{DD}$	2.7V to 5.5V
Temperature range	Storage temperature	$T_{STG}$	-55°C to +100°C
	Operating temperature	$T_{OPR}$	-10°C to +70°C
Soldering condition	$T_{SOL}$	Twice at under 260°C within 10 sec. or under 230°C within 3 min.	
Frequency stability	$\Delta f / f_o$	C: $\pm 100$ ppm	-10°C to +70°C, $V_{DD}=2.7V$ to 5.5V
Current consumption	$I_{OP}$	45mA max.	No load condition ( $f_o=120$ MHz)
Output disable current	$I_{OE}$	25mA max.	OE=GND, $f_o=120$ MHz
Standby current	$I_{ST}$	10 $\mu$ A max.	$\overline{ST}=GND$
Duty	$t_w/t$	40% to 60%	1.4V level
High output voltage	$V_{OH}$	$V_{DD}-0.5V$ min.	$I_{OH} = -16mA$ ( $V_{DD}=5\pm 0.5V$ )
Low output voltage	$V_{OL}$	0.4V max.	$I_{OL} = 16mA$ ( $V_{DD}=5\pm 0.5V$ )
Output load condition	$C_L$	25pF max.	$V_{DD}=4.5V$ to 5.5V ( $f_o \leq 80$ MHz)
		15pF max.	$V_{DD}=2.7V$ to 4.5V or $f_o > 80$ MHz
High input voltage	$V_{IH}$	2.0V min.	$\overline{ST}, OE$ terminal
Low input voltage	$V_{IL}$	0.8V max.	$\overline{ST}, OE$ terminal
Output rise time	$t_{TLH}$	4.0ns max.	20% $\rightarrow$ 80% $V_{DD}$ level
Output fall time	$t_{THL}$	4.0ns max.	80% $\rightarrow$ 20% $V_{DD}$ level
Oscillation start up time	$t_{OSC}$	10ms max.	Time at 4.5V to be 0 sec.
Aging	$f_a$	$\pm 5$ ppm/year max.	$T_a=25^\circ C$ , $V_{DD}=3.3V$ or 5.5V
Shock resistance	S.R.	$\pm 20$ ppm max.	Three drops on a hard board from 75 cm or excitation test with 3000g x 0.3ms 1/2 sine wave in 3 directions

## ■ Output frequency

Select bit	Output frequency (MHz)															
	100.0	33.33	30.0	120.0	25.0	20.0	70.0	80.0	75.0	66.66	60.0	60.0	50.0	45.0	90.0	40.0
S3	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
S2	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
S1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
S0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1

## ■ External dimensions

(Unit: mm)



## ■ Terminal connection

Terminal No.	Terminal symbol	Function
1	S3	Frequency select bit 3
2	GND	Ground
4	S0	Frequency select bit 0
5	S1	Frequency select bit 1
6	OE	Output Enable control Clock out at "H" high-impedance at "L"
7	$\overline{ST}$	Stand by control "H" $\rightarrow$ Clock out "L" $\rightarrow$ "Level"
8	$V_{DD}$	Power supply
13	OUT	Clock output
14	S2	Frequency select bit 2
3, 9, 10 11, 12	N.C	No connection

# THE CRYSTALMASTER



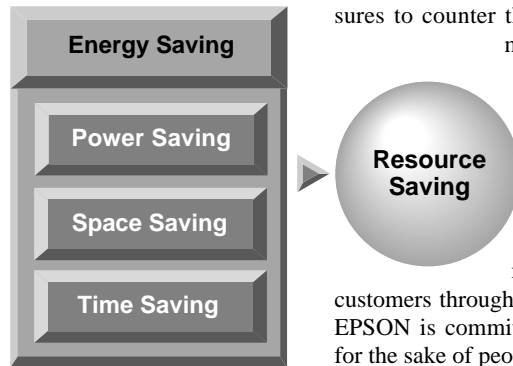
## ENERGY SAVING EPSON

EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

Power saving technology provides low power consumption at low voltages.

Space saving technology provides further reductions in product size and weight through super-precise processing and high-density assembly technology.

Time saving technology shortens the time required for design and development on the customer side and shortens delivery times.



Our concept of Energy Saving technology conserves resources by blending the essence of these three efficiency technologies. The essence of these technologies is represented in each of the products that we provide to our customers.

In the industrial sector, leading priorities include measures to counter the greenhouse effect by reducing CO<sub>2</sub>, measures to preserve the global environment, and the development of energy-efficient products. Environmental problems are of global concern, and although the contribution of energy-saving technology developed by EPSON may appear insignificant, we seek to contribute to the development of energy-saving products by our customers through the utilization of our electronic devices. EPSON is committed to the conservation of energy, both for the sake of people and of the planet on which we live.



**SEIKO EPSON CORP. QUARTZ DEVICE DIVISION acquired ISO9001 and ISO14001 certification by B.V.Q.I. (Bureau Veritas Quality International) .**

**ISO9001 in October, 1992.**

**ISO14001 in November, 1997.**

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