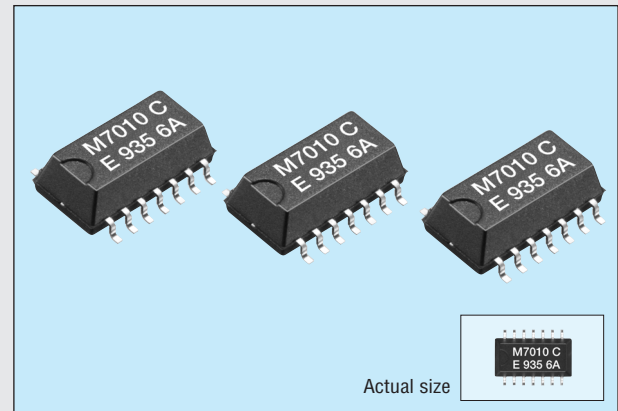


## SELECTABLE-OUTPUT PLL OSCILLATOR

# 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)

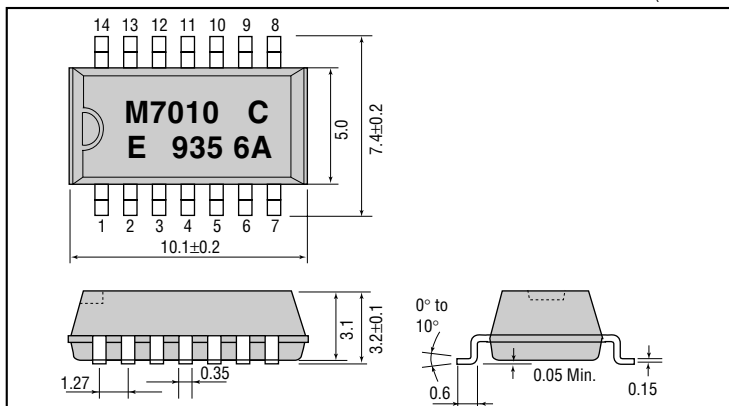
Item	Symbol	Specifications	Remark
Frequency change time	$t_{ft}$	10 ms Max.	S0, S1, S2, S3 changing
Output frequency range	$f_o$	20.0000 MHz to 120.0000 MHz	$V_{DD}=4.5$ V to 5.5 V
		20.0000 MHz to 80.0000 MHz	$V_{DD}=2.7$ V to 5.5 V
Power source voltage	Max. supply voltage	$V_{DD-GND}$	-0.5 V to +7.0 V
	Operating voltage	$V_{DD}$	2.7 V to 5.5 V
Temperature range	Storage temperature	$T_{STG}$	-55 °C to +100 °C
	Operating temperature	$T_{OPR}$	-20 °C to +70 °C
Soldering condition	$T_{SOL}$	Twice at under +260 °C within 10 s or under +230 °C within 3 min.	
Frequency stability	$\Delta f / f_o$	C: $\pm 100 \times 10^{-6}$	-20 °C to +70 °C, $V_{DD}=2.7$ V to 5.5 V
Current consumption	$I_{OP}$	45 mA Max.	No load condition ( $f_o=120$ MHz)
Output disable current	$I_{OE}$	25 mA 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 %	1.4 V level
High output voltage	$V_{OH}$	$V_{DD}-0.5$ V Min.	$I_{OH} = -16$ mA ( $V_{DD}=5\pm 0.5$ V)
Low output voltage	$V_{OL}$	0.4 V Max.	$I_{OL} = 16$ mA ( $V_{DD}=5\pm 0.5$ V)
Output load condition	$C_L$	25 pF Max.	$V_{DD}=4.5$ V to 5.5 V ( $f_o \leq 80$ MHz)
		15 pF Max.	$V_{DD}=2.7$ V to 4.5 V or $f_o > 80$ MHz
High input voltage	$V_{IH}$	2.0 V Min.	$\overline{ST}, OE$ terminal
Low input voltage	$V_{IL}$	0.8 V Max.	$\overline{ST}, OE$ terminal
Output rise time	$t_{rLH}$	4.0 ns Max.	20 % $\rightarrow$ 80 % $V_{DD}$ level
Output fall time	$t_{fHL}$	4.0 ns Max.	80 % $\rightarrow$ 20 % $V_{DD}$ level
Oscillation start up time	$t_{osc}$	10 ms Max.	Time at 4.5 V to be 0 s
Aging	$f_a$	$\pm 5 \times 10^{-6}$ /year Max.	$T_a=+25$ °C, $V_{DD}=3.3$ V or 5.5 V
Shock resistance	S.R.	$\pm 20 \times 10^{-6}$ Max.	Three drops on a hard board from 750 mm or excitation test with 29400 m/s <sup>2</sup> x 0.3 ms 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