

## 0.18μm Low Leakage Logic Process

### FSA0L\_A 3.3V Crystal Oscillator I/O Cells

#### Key Features

- UMC's 0.18μm 1.8V/3.3V low leakage logic process
- High frequency oscillator pad range : 1MHz ~ 66MHz
- Low frequency oscillator pad range : 32kHz ~ 1MHz
- Programmable output driving capability
- Oscillation mode / power down (stop) mode / tri-state mode / parallel model
- Internal feedback resistance
- Built-in antenna diodes for all input pins from core
- Dedicated power and ground for noise immunity
- ESD robustness and latch-up immunity proven by silicon

#### General Description

This library is tailored for UMC's 0.18μm 1.8V/3.3V Low Leakage Logic Process. All I/O cells have been designed as programmable crystal oscillator I/O cells. Two layout structures, both optimized for pad limited and core limited designs, are available to support each programmable feature or function.

#### Quick Reference

Characteristic		Description
<b>Physical</b>	Process	UMC 0.18μm 1.8V/3.3V 1P6M low leakage logic process
	Cell Width * Cell Height	181.04μm * 235.6μm (Staggered) 250.48μm * 140.12μm (In-line)
	Cell Layout Metal	M1, M2, M3
	Power Ring Metal	M3 and above
	Layout Resolution	0.01μm
<b>Electrical</b>	Recommended Operating Conditions	Power supply voltage Core: 1.62V ~ 1.98V I/O: 2.97V ~ 3.63V
		Junction temperature: -40°C ~ 125°C
	Frequency	High frequency oscillator pad: 1M ~ 66M Low frequency oscillator pad: 32K ~ 1M

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