RS1XOS6201-xxZAE
Clock Spread Spectrum IC

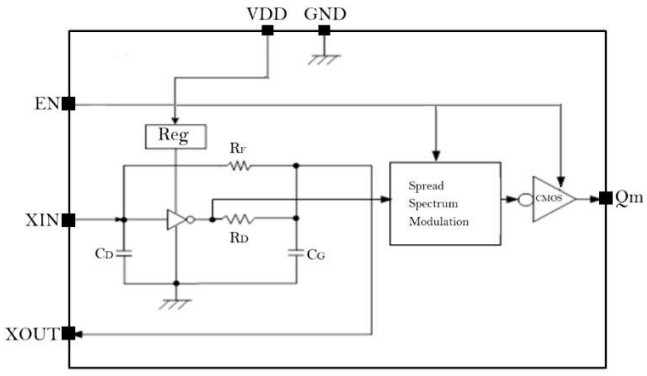
Features

- 10 to 50 MHz input frequency ranges
- Operating voltages of 1.62 V to 3.63V
- Spreading Ratio: -2.0%,-1.5%,-1.0%,-0.8%
- Modulation Rate: Fin / 764
- Low power consumption and dissipation

Applications

- IP Camera
- Printers/MFPs
- Media players
- DTV/Set-top Box
- Embedded digital video devices
- LCD Panel Modules
- Automotive components
- Networking devices
- Surveillance

Block Diagram



Description

The RS1XOS6201-xxZAE is one Low Power Spread Spectrum Frequency Multiplier part of RSM SSC family. The output frequency is same as crystal, and is designed to reduce electromagnetic interference (EMI) by spreading the clock.

The Spreading Mode/Ratio is programmed in fab by ROM codes. The RS1XOS6201-xxZAE provides spread, refer to different option.

Benefits

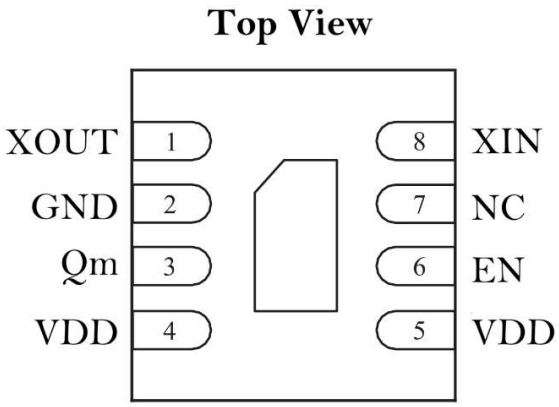
- Reduction in EMI
- System cost saving
- Reduced system complexity
- Faster time to market

Order Information

Part no.	Package type
RS1XOS6201-xxZAE	DFN2*2-8L

Note:
xx: -AC: -2%, AE: -1.5%, AF: -1%, BF: -0.8%

Pin Function



Pad Description

Pin Name	I/O Type	Description
OE	I	Output Enable/Disable or Spreading Enable/Disable control by 3 states; Low： Qm output Hiz; High: Qm output with spreading >VDD + 1V: Qm output without spreading.
X_{IN}	I	Crystal input pad.
X_{OUT}	O	Crystal output pad.
GND	GND	Ground.
Qm	O	Spread spectrum clock output (OE=VDD).
V_{DD}	Power	Power supply.

Maximum Rating

Supply Voltage to Ground Potential……..……4V
OE pin ……..…VDD+2V
Other Inputs and Output……..…VDD+0.5V
Storage Temperature……..……-65°C to +150°C

Note:
Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sec-tions of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Recommended Operating Conditions

(GND=0V, unless otherwise noted.)

Sym.	Parameter	Conditions	Min	Typ	Max	Unit
V_{DD}	Supply voltage	-	1.62	-	3.63	V
T_A	Operating temperature	-	-40		+125	°C
f_0	Oscillation frequency*1	-	16	27	40	MHz

DC Characteristics

V_{DD}= 1.62V to 3.63V, Ambient Temperature -40 to +125°C

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{DD}	Operating voltage	–	1.62	–	3.63	V
V_{OH}	Output high voltage	VDD=1.8V, IOH = -1mA	VDD-0.4			V
		VDD=2.5V, IOH = -1mA	VDD-0.4	–	–	V
		VDD=3.3V, IOH = -1mA	VDD-0.4	–	–	V
V_{OL}	Output low voltage	VDD=1.8V, IOL = 1mA			0.4	V
		VDD=2.5V, IOL = 1mA	–	–	0.4	V
		VDD=3.3V, IOL = 1mA	–	–	0.4	V
V_{IH}	HIGH-level input voltage	OE Measurement	0.7VDD			V
V_{IL}	LOW-level input voltage	OE Measurement			0.3VDD	V
IDD1	Supply current1	VDD=1.8V, OE=VDD;27MHz/15pf		2	4	mA
		VDD=2.5V, OE=VDD;27MHz/15pf		2.5	5	mA
		VDD=3.3V, OE=VDD;27MHz/15pf		3.0	6	mA
IDD2	Supply current2	VDD=1.8V, OE>VDD+1V,27MHz/15pf		1.3	3	mA
		VDD=2.5V, OE>VDD+1V,27MHz/15pf		1.7	3.5	mA
		VDD=3.3V, OE>VDD+1V,27MHz/15pf		2.1	4	mA

AC Characteristics

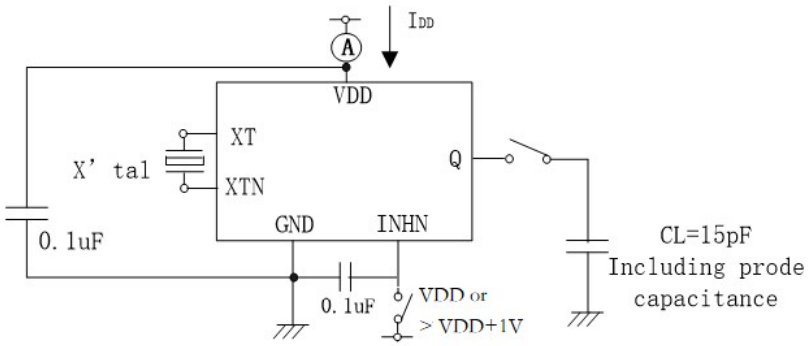
V_{DD}= 1.62V to 3.63V, Ambient Temperature -40 to +125°C

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
XIN, XOUT	Crystal frequency range		10	–	50	MHz
t_{Rise}	Output rise time	Measured from 20% to 80% VDD=1.8V, Load=15pf		2.4	5	ns
		Measured from 10% to 90% VDD=2.5V, Load=15pf		2.4	5	ns
		Measured from 10% to 90% VDD=3.3V, Load=15pf	–	2	5	ns
t_{Fall}	Output fall time	Measured from 80% to 20% VDD=1.8V, Load=15pf		2.6	5	ns
		Measured from 90% to 10% VDD=2.5V, Load=15pf		2.4	5	ns
		Measured from 90% to 10% VDD=3.3V, Load=15pf	–	2	5	ns
Duty cycle	Output duty cycle	Load=15pf, 50%VDD	45	50	55	%

Note: Typical condition is on room temperature at 25°

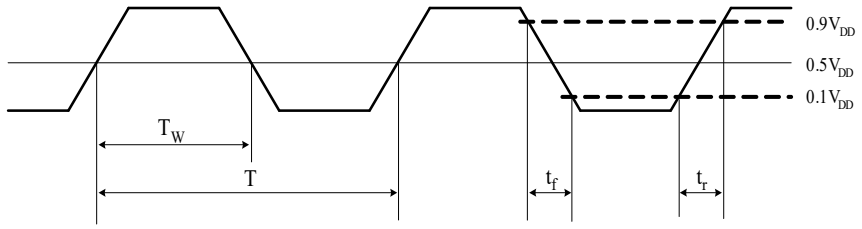
Measurement Circuit

Measurement parameter: I_{DD}, Duty, t_r, t_f



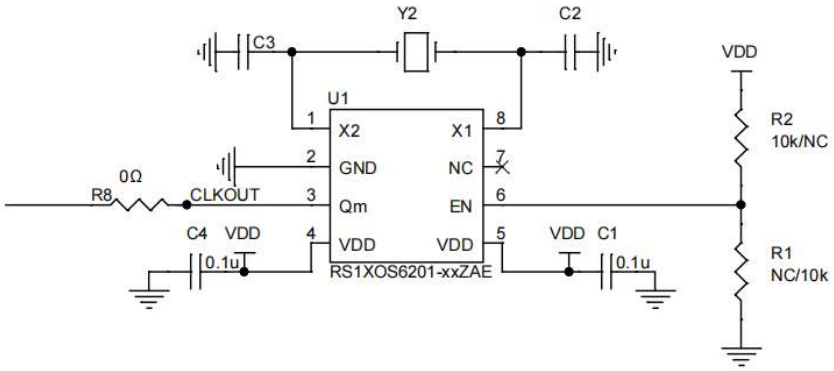
Note:The AC characteristics are observed using an oscilloscope on pin Q

Output switching waveform



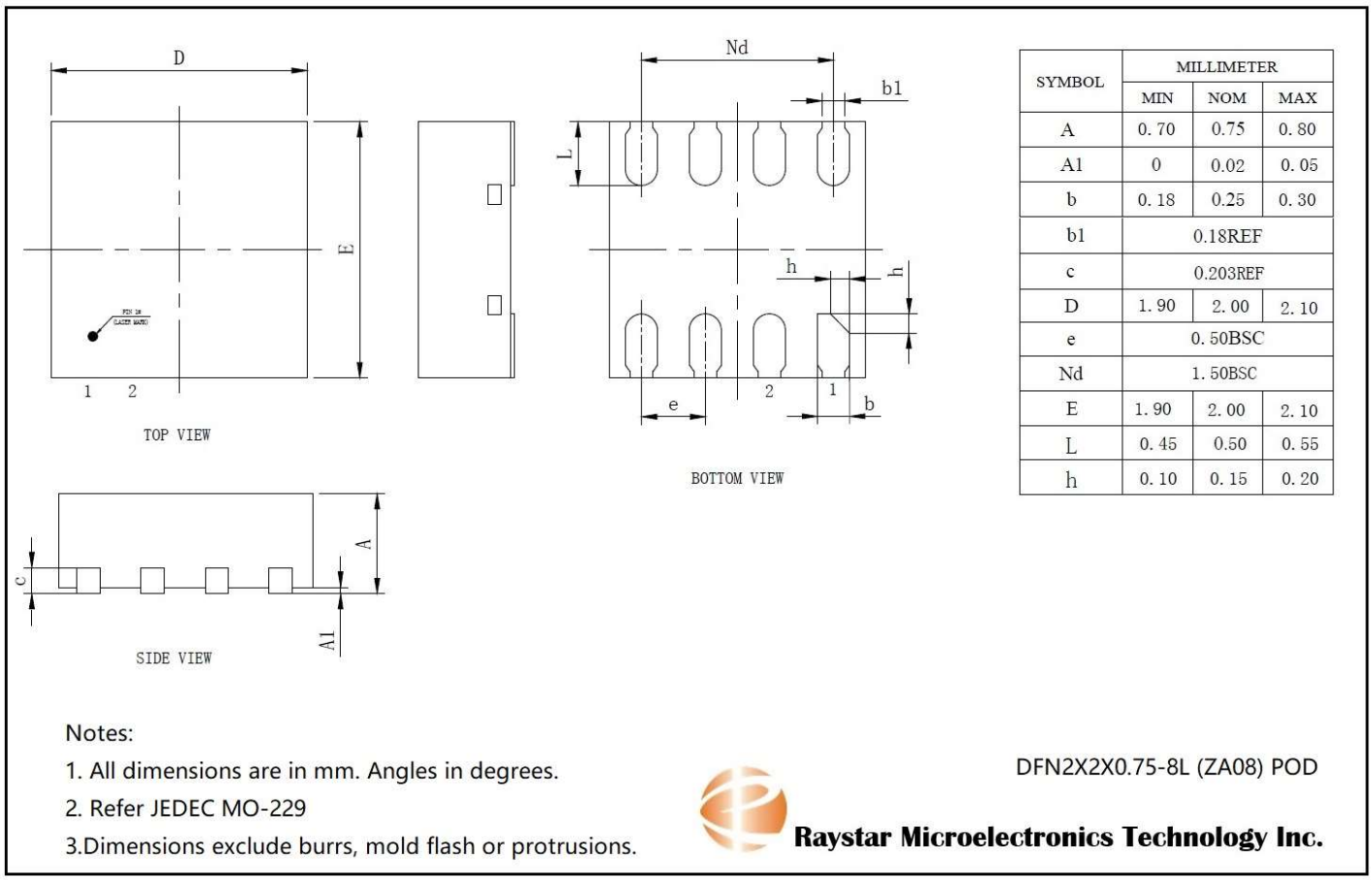
DUTY=Tw/T×100(%)

Application Circuit



Package Dimension

DFN 2X2X0.75-8L(0.5 pitch) ZA08



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0	0.02	0.05
b	0.18	0.25	0.30
b1		0.18REF	
c		0.203REF	
D	1.90	2.00	2.10
e		0.50BSC	
Nd		1.50BSC	
E	1.90	2.00	2.10
L	0.45	0.50	0.55
h	0.10	0.15	0.20

Notes:

1. All dimensions are in mm. Angles in degrees.
2. Refer JEDEC MO-229
3.Dimensions exclude burrs, mold flash or protrusions.

DFN2X2X0.75-8L (ZA08) POD

Raystar Microelectronics Technology Inc.

Revision History

Revision	Description	Date
0	Initiated	2023/5/25
1.0	Updated format and official release	2024/12/03
1.1	Add application circuitry, Add Order Information	2025/4/14
1.2	Updated production description	2025/8/13