■SG-8002 Series Specifications

Page	Model \ Item		Current Consumption	Operating Voltage	Output load condition	Output rise time Output fall time	Duty	Function
36	SG-8002LA (SON 4-pin) SG-8002LB (SOJ 4-pin)	PH	35 mA Max.	4.5 V to 5.5 V	15 pF	4.0 ns Max. (20 %V_{DD} to 80 %V_{DD}, CL=Max.)	40 % to 60 %(50 %V_{DD},CL=15 pF,F0≤80 MHz/-40 °C to+85 °C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V	15 pF	4.0 ns Max. (20 %V_{DD} to 80 %V_{DD}, CL=Max.)	45 % to 55 %(50 %V_{DD},CL=15 pF,V_{DD}=3.0 V to 3.6 V,F0≤40 MHz) 40 % to 60 %(50 %V_{DD},CL=15 pF,V_{DD}=3.0 V to 3.6 V,F0≤125 MHz) ↑ (50 %V_{DD},CL=15 pF,V_{DD}=2.7 V to 3.6 V,F0≤66.7 MHz)	OE
		SC						ST
37 38 39	SG-8002CA (DCC) SG-8002JA (SOJ 4-pin) SG-8002DB (DIP 14-pin) SG-8002DC (DIP 8-pin)	PT	45 mA Max.	4.5 V to 5.5 V	5 TTL+15 pF (f0≤125MHz/-20 °C to+70 °C) 25 pF (f0≤66.7 MHz/-20 °C to+70 °C) 5 TTL+15 pF (f0≤40 MHz/-40°C to +85 °C) 15 pF(f0≤55 MHz/-40°C to +85 °C)	2.0 ns Max. (0.8 V to 2.0 V, CL=Max.) 4.0 ns Max. (0.4 V to 2.4 V, CL=Max.)	45 % to 55 %(1.4 V,CL=5 TTL+15 pF,F0≤66.7 MHz/-20 °C to +70 °C) ↑ (1.4 V,CL=5 TTL+15 pF,F0≤40.0 MHz/-40 °C to +85°C) 40 % to 60 %(1.4 V,CL=5 TTL+15 pF,F0≤125 MHz/-20°C to +70 °C) ↑ (1.4 V,CL=25 pF,F0≤66.7 MHz/-20°C to +70°C) ↑ (1.4 V,CL=15 pF,F0≤55.0 MHz/-40°C to +85°C)	OE
		ST						ST
		PH			25 pF (f0≤125 MHz/-20°C to+70 °C) 50 pF (f0≤66.7 MHz/-20°C to+70 °C) 15 pF (f0≤55 MHz/-40 °C to+85°C) 25 pF (f0≤40 MHz/-40 °C to+85 °C)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL<25) 4.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=25 pF,F0≤66.7 MHz/-20°C to +70 °C) ↑ (50 % V_{DD},CL=25 pF,F0≤40.0 MHz/-40°C to +85 °C) 40 % to 60 %(50 % V_{DD},CL=25 pF,F0≤125 MHz/-20°C to +70 °C) ↑ (50 % V_{DD},CL=50 pF,F0≤66.7 MHz/-20°C to+70 °C) ↑ (50 % V_{DD},CL=15 pF,F0≤55.0 MHz/-40°C to +85 °C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF (f0≤66.7 MHz/2.7 to 3.6 V) 15 pF (f0≤125 MHz/3.0 to 3.6 V) 30 pF (f0≤40 MHz/3.0 to 3.6 V)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL≤15) 4.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=30 pF,V_{DD}=3.0 V to 3.6 V,F0≤40 MHz) 40 % to 60 %(50 % V_{DD},CL=15 pF,V_{DD}=3.0 V to 3.6 V,F0≤125 MHz) ↑ (50 % V_{DD},CL=15 pF,V_{DD}=2.7 V to 3.6 V,F0≤66.7 MHz)	OE
		SC						ST
38	SG-8002JC (SOJ 4-pin)	PT	45 mA Max.	4.5 V to 5.5 V	5TTL + 15 pF (f0≤90 MHz/-20 to+70 °C) 15 pF (f0≤125 MHz/-20 °C to +70°C) 25 pF (f0≤66.7 MHz/-20 °C to+70°C)	2.0 ns Max. (0.8 V to 2.0 V, CL=Max.) 4.0 ns Max. (0.4 V to 2.4 V, CL=Max.)	45 % to 55 %(1.4 V,CL=5 TTL+15 pF,F0≤66.7 MHz/-20°C to+70 °C) 40 % to 60 %(1.4 V,CL=5 TTL+15 pF,F0≤90.0 MHz/-20°C to+70 °C) ↑ (1.4 V,CL=25 pF,F0≤66.7 MHz/-20°C to +70 °C) ↑ (1.4 V,CL=15 pF,F0≤125 MHz/-20 °C to +70 °C)	OE
		ST						ST
		PH			15 pF (f0≤125 MHz/-20 °C to+70°C) 25 pF (f0≤90 MHz/-20°C to+70 °C) 50 pF (f0≤66.7 MHz/-20°C to+70 °C)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL<25) 4.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=25 pF,F0≤66.7 MHz/-20°C to +70 °C) 40 % to 60 %(50 % V_{DD},CL=15 pF,F0≤125 MHz/-20°C to +70 °C) ↑ (50 % V_{DD},CL=25 pF,F0≤90 MHz/-20°C to +70°C) ↑ (50 % V_{DD},CL=50 pF,F0≤50 MHz/-20°C to +70°C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF (f0≤66.7 MHz/2.7 to 3.6 V) 15 pF (f0≤125 MHz/3.0 to 3.6 V) 30 pF (f0≤40 MHz/3.0 to3.6 V)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL≤15) 4.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=30 pF,V_{DD}=3.0 V to 3.6 V,F0≤40 MHz) 40 % to 60 %(50 % V_{DD},CL=15 pF,V_{DD}=3.0 V to 3.6 V,F0≤125 MHz) ↑ (50 % V_{DD},CL=15 pF,V_{DD}=2.7 V to 3.6 V,F0≤66.7 MHz)	OE
		SC						ST
37	SG-8002JF (SOJ 4-pin)	PT	45 mA Max.	4.5 V to 5.5 V	15 pF (f0≤125 MHz/-20°C to +70°C) 25 pF (f0≤66.7 MHz/-20°C to+70 °C) 5TTL + 15 pF (f0≤ 90 MHz/-20 °C to +70 °C) 15 pF (f0≤40 MHz/-40°C to +85 °C)	2.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL<25) 4.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(1.4 V,CL=5 TTL+15 pF,F0≤66.7 MHz/-20 °C to+70 °C) 40 % to 60 %(1.4 V,CL=5 TTL+15 pF,F0≤90 MHz/-20°C to +70 °C) ↑ (1.4 V, CL=25 pF,F0≤66.7 MHz/-20°C to +70°C) ↑ (1.4 V, CL=15 pF,F0≤125 MHz/-20°C to +70°C) ↑ (1.4 V, CL=15 pF,F0≤40 MHz/-40°C to +85°C)	OE
		ST						ST
		PH			15 pF (f0≤125 MHz/-20°C to+70°C) 25 pF (f0≤90 MHz/-20 °C to+70 °C) 50 pF (f0≤50 MHz/-20°C to+70 °C) 15 pF (f0≤40 MHz/-40 °C to+85 °C)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL<25) 4.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=25 pF,F0≤66.7 MHz/-20 °C to +70 °C) 40 % to 60 %(50 % V_{DD},CL=25 pF,F0≤90.0 MHz/-20 °C to +70 °C) ↑ (50 % V_{DD},CL=50 pF,F0≤50.0 MHz/-20°C to+70 °C) ↑ (50 % V_{DD},CL=15 pF,F0≤125 MHz/-20 °C to+70°C) ↑ (50 % V_{DD},CL=15 pF,F0≤40 MHz/-40 °C to+85 °C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF(f0≤66.7 MHz/2.7 to 3.6 V) 15 pF(f0≤125 MHz/3.0 to 3.6 V) 30 pF(f0≤40 MHz/3.0 to 3.6 V)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL≤15) 4.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=30 pF,V_{DD}=3.0 V to 3.6 V,F0≤40 MHz) 40 % to 60 %(50 % V_{DD},CL=15 pF,V_{DD}=3.0 V to 3.6 V,F0≤125 MHz) ↑ (50 % V_{DD},CL=15 pF,V_{DD}=2.7 V to 3.6 V,F0≤66.7 MHz)	OE
		SC						ST
35	SG-8002CE (DCC)	PT	40 mA Max.	4.5 V to 5.5 V	5 TTL+15 pF (f0≤125 MHz/-20 °C to + 70°C) 5 TTL+15 pF (f0≤27 MHz/-40°C to +85°C)	2.0 ns Max. (0.8 V to 2.0 V, CL=Max.) 4.0 ns Max. (0.4 V to 2.4 V, CL=Max.)	45 % to 55 %(1.4 V,CL=5 TTL+15 pF,F0≤66.7 MHz/-20°C to +70°C) ↑ (1.4 V,CL=5 TTL+15 pF,F0≤27.0 MHz/-40°C to + 85 °C) 40 % to 60 %(1.4 V,CL=5 TTL+15 pF,F0≤125 MHz/-20 °C to +70°C)	OE
		ST						ST
		PH			15 pF (f0≤125 MHz/-20 °C to +70°C) 25 pF (f0≤100 MHz/-20°C to+70°C) 25 pF (f0≤27 MHz/-40°C to +85°C)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=25 pF,F0≤66.7 MHz/-20 °C to +70°C) ↑ (50 % V_{DD},CL=25 pF,F0≤27.0 MHz/-40°C to + 85°C) 40 % to 60 %(50 % V_{DD},CL=15 pF,F0≤125 MHz/-20°C to +70°C)	OE
		SH						ST
		PC	28 mA Max.	3.0 V to 3.6 V (2.7 V to 3.6 V)	15 pF (f0≤66.7 MHz/2.7 to 3.6 V) 15 pF (f0≤125 MHz/3.0 to 3.6 V)	3.0 ns Max. (20 % V_{DD} to 80 % V_{DD}, CL=Max.)	45 % to 55 %(50 % V_{DD},CL=15 pF,V_{DD}=3.0 V to 3.6 V,F0≤40 MHz) 40 % to 60 %(50 % V_{DD},CL=15 pF,V_{DD}=3.0 V to 3.6 V,F0≤125 MHz) ↑ (50 % V_{DD},CL=15 pF,V_{DD}=2.7 V to 3.6 V,F0≤66.7 MHz)	OE
		SC						ST

■SG-8002 series and HG-8002 series

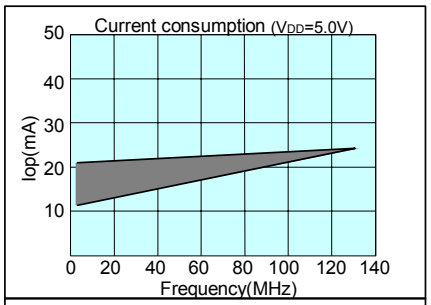
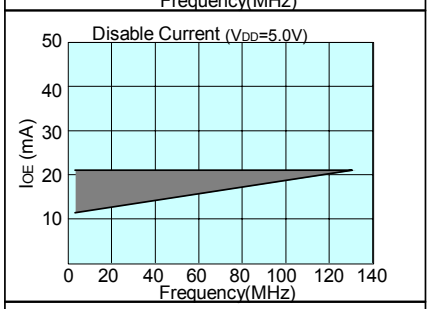
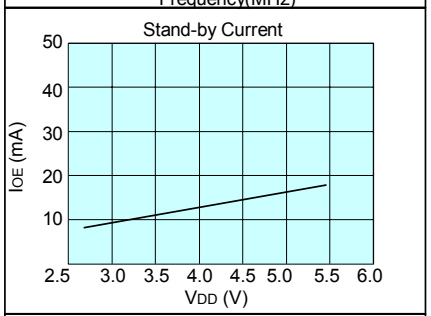
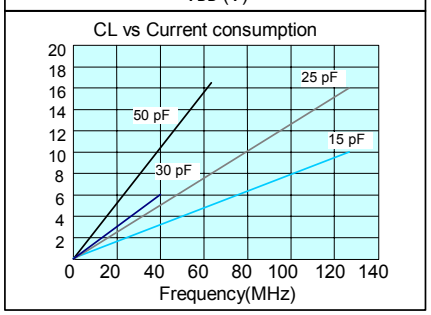
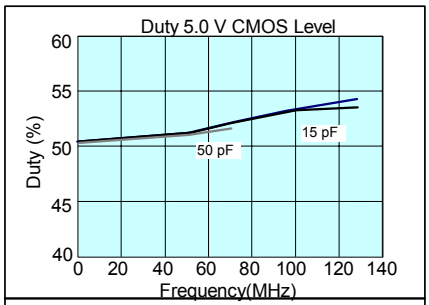
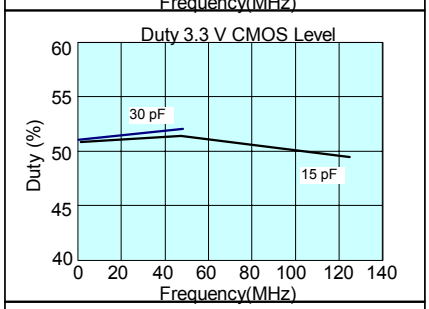
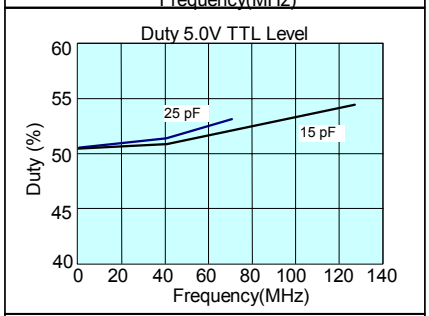
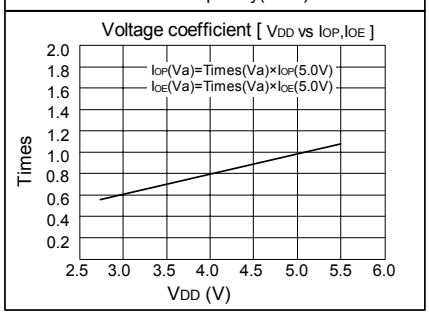
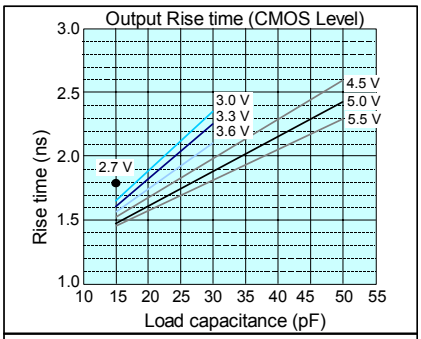
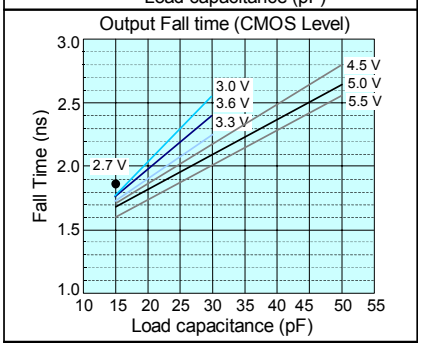
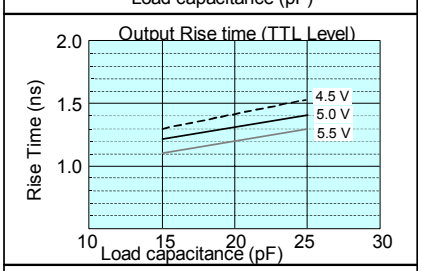
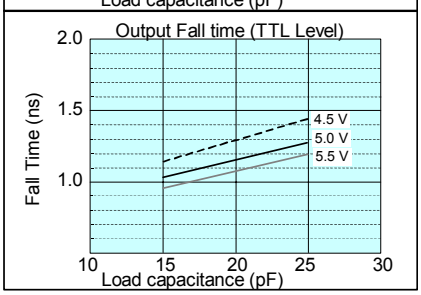
■PLL-PLL connection

Because we use PLL technology, there are a few case that the jitter value will increase when SG-8002 is connected to other PLL-oscillators.
In our experience, we are unable to recommend these products for applications such as telecom carrier use or video clock use.
Please be careful checking in advance for these applications (Jitter specification is Max.250 ps/CL=15 pF)

■Remarks on noise management for power supply line

We recommend not to insert the filter and or another devices in the power supply line as counter measure of EMI noise reduction.
This device insertion might cause high-frequency impedance high in the power supply line and it affects oscillator stable drive.
When this measure is required, pPlease evaluate circuity and device behaviour in the circuit and verify that it won't affect oscillation.
Start up time (0 % V_{DD} to 90 % V_{DD})of power source should be more than 150 µs.

■Jitter Specifications

Model	Operating Voltage	Jitter Item	Specifications	Remarks
PT / PH ST / SH	5 V ±0.5 V	Cycle to cycle	150 ps Max.	33 MHz ≤ f_0 ≤ 125 MHz, C_L=15 pF
			200 ps Max.	1.0 MHz ≤ f_0 < 33 MHz, C_L=15 pF
		Peak to peak	200 ps Max.	33 MHz ≤ f_0 ≤ 125 MHz, C_L=15 pF
			250 ps Max.	1.0 MHz ≤ f_0 < 33 MHz, C_L=15 pF
SC / PC	3.3 V ±0.3 V	Cycle to cycle	200 ps Max.	1.0 MHz ≤ f_0 ≤ 125 MHz, C_L=15 pF
		Peak to peak	250 ps Max.	1.0 MHz ≤ f_0 ≤ 125 MHz, C_L=15 pF

■SG-8002 series Characteristics chart