STANFORD RESEARCH SYSTEMS

CG635

The Stanford Research Systems CG635 is a synthesized clock generator capable of producing extremely low-jitter clock signals across a broad frequency range from 1 µHz to 2.05 GHz. With sub-picosecond jitter performance, flexible output levels, and highly stable optional internal timebases, it is a premier reference source for telecom, semiconductor testing, and precision timing applications.

SPECIFICATIONS

General

Interfaces	GPIB, RS-232
Display	16-character alphanumeric LED display

Physical

Power Supply	90 to 264 VAC, 47 to 63 Hz, <50 W
Operating Temperature	0 °C to 40 °C °C
Dimensions (W×H×D)	216 mm × 89 mm × 330 mm mm
Weight	4.1 kg kg

Frequency Characteristics

Frequency Range (Q & -Q)	1 µHz to 2.05 GHz
Frequency Range (CMOS)	1 µHz to 250 MHz
Frequency Resolution	1 µHz
Standard Timebase Stability	±5 ppm (0 °C to 40 °C)
Standard Timebase Aging	<5 ppm/year

Q & -Q Outputs

Q & -Q Output Logic Levels	PECL, LVPECL, ECL, LVDS, +7 dBm RF, or Custom (Variable)
Q & -Q Rise/Fall Time	<100 ps (20% to 80%)
Q & -Q RMS Jitter	<1 ps rms (any frequency), typically <250 fs rms above 100 MHz
Q & -Q Random Jitter	<80 fs rms (typical at 622.08 MHz, 12 kHz to 20 MHz band)
Q & -Q Output Connector Type	SMA (female)

Custom Q & -Q Levels

Custom Q & -Q Amplitude Range	0.2 V to 1.0 V into 50 Ω
Custom Q & -Q Offset Range	-2.00 V to +3.00 V
Custom Q & -Q Resolution	10 mV

CMOS Output

CMOS Amplitude Range	0.25 V to 3.0 V into 50 Ω (0.5 V to 6.0 V into high impedance)
CMOS Rise/Fall Time	<1 ns (typically 300 ps, 20% to 80%)
CMOS Output Impedance	50 Ω
CMOS Output Connector	BNC (female)

Phase Control

Phase Range	-360.00° to +360.00°
Phase Resolution	0.01°
Phase Delay Range	-100 ns to +100 ns
Phase Delay Resolution	1 ps

Timebase Options

Option 01 OCXO Temperature Stability	0.005 ppm (0 °C to 40 °C)
Option 01 OCXO Aging Rate	<0.2 ppm/year
Option 02 Rubidium Temperature Stability	0.0001 ppm (0 °C to 40 °C)
Option 02 Rubidium Aging Rate	<0.05 ppb/month (<0.5 ppb/year)

Reference Clock Input/Output

External Reference Input Frequency	10 MHz (accepts ±10 ppm)
External Reference Input Level	0.1 Vpp to 5 Vpp
External Reference Input Impedance	50 Ω
Reference Output Frequency	10 MHz
Reference Output Level	1.0 Vpp into 50 Ω

Spectral Purity

Spurious Noise (Non-Harmonic)	<-70 dBc
Harmonics	<-40 dBc

Expansion & Options

Rear Panel Expansion Slots	Two slots for optional CG640–CG649 series output translators

Performance

SSB Phase Noise (10 MHz, 100 Hz offset)	-130 dBc/Hz (typical)
SSB Phase Noise (10 MHz, 10 kHz offset)	-143 dBc/Hz (typical)
SSB Phase Noise (100 MHz, 100 Hz offset)	-110 dBc/Hz (typical)
SSB Phase Noise (100 MHz, 10 kHz offset)	-135 dBc/Hz (typical)
SSB Phase Noise (622.08 MHz, 100 Hz offset)	-95 dBc/Hz (typical)
SSB Phase Noise (622.08 MHz, 10 kHz offset)	-118 dBc/Hz (typical)
SSB Phase Noise (2.025 GHz, 100 Hz offset)	-85 dBc/Hz (typical)
SSB Phase Noise (2.025 GHz, 10 kHz offset)	-108 dBc/Hz (typical)
Sub-harmonics	None (≤ 1.025 GHz), <-40 dBc (> 1.025 GHz)

Outputs

Q & -Q Output Impedance	50 Ω
Reference Output Impedance	50 Ω

Features

PRBS Generator (Option 03)	PRBS7, PRBS10, PRBS15, PRBS23, PRBS31
Instrument State Storage	9 setup locations

Option 04 Rear-Panel CMOS Outputs

Option 04 Output Channels	4
Option 04 Frequency Range	1 µHz to 250 MHz
Option 04 Amplitude Range (Hi-Z)	0.5 V to 4.0 V
Option 04 Amplitude Range (50 Ω)	0.25 V to 2.0 V
Option 04 Amplitude Resolution	10 mV
Option 04 Rise/Fall Time	< 1.5 ns
Option 04 Source Impedance	50 Ω
Option 04 Connector Type	BNC

Option 03 PRBS Generator

PRBS Polynomial Patterns	2^7-1, 2^10-1, 2^15-1, 2^23-1, 2^31-1
PRBS Data Format	NRZ

Clock Outputs (Q & -Q)

LVDS Differential Swing	350 mV
LVDS Common-Mode Voltage	1.25 V
CML Output Swing	400 mV (0 V to -0.4 V)

Reference Input

External Reference Lock Range	±10 ppm

TECHNOLOGY

Synthesized Clock Generator

APPLICATIONS

Precision Timing, Telecom Clocking, Phase Noise Measurement, Semiconductor Testing

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.