

FUNCTION GENERATOR

GA1652 Series



Main Feature

- Accurate pulse and square waveform, the lowest Edge jitter is 70ps rms (nominal value)
- The lowest total harmonic distortion of 0.05%
- Both output of 2 channels and Signal amplitude are 1mVpp ~ 10Vpp(50Ω)
- Frequency stability is ± 1 ppm, Phase noise is 125dBc/Hz,
- Sample rate is 200MSa/s, Vertical resolution is 14bits
- Output waveform: Sine, Square, Ramp, Pulse, Noise and Arbitrary
- Complete digital modulation: AM, DSS CAM, FM, PM, PWM, ASK, FSK, BPSK
- Multiple connector: USB(Device, Host USB flash disk)
- 4.3-inchTFT LCD display

Product overview

GA1652 series function generator uses Extend Precision Difference Value Technology (similar to Keysight TrueForm Technology), which is superior to DDS technology. It can output waveform with high precision, high stability, low distortion, and low jitter. Arbitrary wave signal generation module is built in which makes it a versatile waveform generator. Its outstanding performance and system features make it perfect solution for your testing requirement

Specifications

Model	GA1652A	GA1652B	GA1652C
Sine wave frequency range	1μHz ~ 40	1μHz ~ 60 MHz	1μHz ~ 80 MHz
Frequency Stability	$< \pm 1 \times 10^{-6}$; 1μHz (resolution)		
Harmonic distortion	< -70 dBc (< 20 kHz) < -50 dBc (20kHz ~ 1MHz) < -45 dBc (1MHz ~ 30MHz) < -40 dBc (30MHz ~ 80MHz)		
THDv	$\leq 0.05\%$ ($20\text{Hz} \leq f \leq 100$ kHz)		
Phase noise	0dBm , 10kHz (offset) : ≤ -125 dBc/Hz		
Spurious signal (non harmonic)	≤ -70 dBc (< 10 MHz typical value) , ≤ -60 dBc (10MHz ~ 40MHz typical value) ≤ -50 dBc (40MHz ~ 70MHz typical value) , ≤ -45 dBc (70MHz ~ 80MHz typical value)		
Square	1μHz ~ 20 MHz Resolution: 1μHz		
Rise/Fall edge	13ns fixed value		
Duty ratio	0.01% ~ 99.99% Resolution: 0.01%		
Overshoot (50Ω)	$\leq 2\%$		
Jitter (nominal value)	≤ 70 ps rms		
Ramp	1μHz ~ 1 MHz Resolution: 1μHz		
symmetry	0.00% ~ 100.00% Resolution: 0.01% (0% means negative Ramp , 100% means positive Ramp, 50% means triangular wave)		
nonlinearity	$\leq 0.1\%$ from signal's 5% to95%		
Impulse Wave	1μHz ~ 20 MHz Resolution: 1μHz		
Rising/Falling edge	13ns ~ 1us can be changed independent resolution ratio: 0.1ns		
Duty ratio	0.01% ~ 99.99% Resolution: 0.01%		
Pulse width	Cycle: 21.3 ns Resolution: 0.1ns		
Overshoot (50Ω)	$\leq 2\%$		
Jitter (nominal value)	≤ 70 ps rms		

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Model	GA1652A	GA1652B	GA1652C
Noise	30 MHz Band white noise(-3 dB)		
	More than 50 years repetition period		
Arbitrary sampling rate	1 μ Sa/s ~ 50 MSa/s		Resolution: 1 μ Sa/s
	8~16384 Samples		Resolution: 1Sample
Vertical resolution	14 bits		
Range Characteristics			
Amplitude range	2mVpp~ 20Vpp (High Z) \leq 80MHz		1mVpp~ 10Vpp (50 Ω) \leq 80MHz
Flatness (1kHz)	<100kHz : \pm 0.1dB		
	100kHz ~ 10MHz : \pm 0.3dB		
	10MHz ~ 75MHz : \pm 0.5dB ; 75MHz ~ 80MHz : -3.0dB		
Accuracy	\pm 1% set value \pm 1mVpp , 1kHz 时		
Unit	Vpp, Vrms or dBm		
Modulation Characteristic			
AM frequency range	Internal: 1 μ Hz ~ 100 kHz; External: DC ~100 kHz (-3dB)		
AM depth	0.0%~ 120.0% Resolution: 0.1%; accuracy: \pm 1.0%		
FM frequency range	Internal: 1 μ Hz ~ 100 kHz ; External: DC ~100 kHz (-3dB)		
FM frequency offset	0 ~ (carrier frequency)/2(\leq max frequency of waveform+100KHz) ,		
PM frequency range	Internal: 1 μ Hz ~ 100 kHz; External: DC ~100 kHz (-3dB)		
PM offset	0.0° ~ 360.0° Resolution: 0.1°		
FSK	1 μ Hz ~ Fsinemax (Sine); 1 μ Hz ~ 15 MHz (Square/Pulse); 1 μ Hz ~ 1 MHz		
BPSK	Hop phase: 0.0° ~ 360.0°; switch rate: DC ~1 MHz		
ASK	Hop amplitude: 2mVpp~ 20Vpp (High Z) ; switch rate: DC ~1 MHz		
Frequency sweeping Characteristic			
Scanning frequency range	1 μ Hz ~ Fsinemax (Sine) ; 1 μ Hz ~ 15 MHz (Square/Pulse) ; 1 μ Hz ~ 1 MHz (Ramp)		
Scanning mode	Linear/logarithm		
Scanning time	0.001 s ~ 1000 s Resolution: 1mSec		
Trigger source	inside/outside/once (Imm / Ext/ Bus)		
Offset characteristic			
Offset level range	\pm (10 VDC -AC peak value/2) (High Z)		
	\pm (5 VDC -AC peak value/2) (50 Ω)		
Resolution	4 significant figures		
Accuracy	\pm 1% offset set value \pm 0.25% amplitude set value \pm 2 mV		
Unit	V		
Counter			
Measuring function	Frequency, Cycle, Count, Pulse width, Duty ratio		
Frequency range	Count: \leq 300MHz		
	Frequency/Cycle: 0.1Hz ~ 300 MHz DC coupling		
Input voltage range	50mVrms ~ 1.5Vrms frequency \leq 100MHz; 100mVrms ~ 1.5Vrms frequency >300MHz		