

# Versatile Function Generator

**GFG-813 (13MHz)**



## FEATURES

- Built-in Two Function Generators
- Frequency Range 0.1Hz ~ 13MHz
- Output Waveforms Sine, Square, Triangle, Ramp, Pulse, AM, FM, Sweep, Triggered and Gates
- Built-in 6 Digit Counter with Ext Function
- INT/EXT AM, FM Modulation
- GCV output for synchronization
- Three step (-20dB, -40dB, -60dB) and Variable attenuator
- VCF for 1000 EXT Frequency Control
- Output Overload protection



## SPECIFICATIONS

### Main Output

Waveforms	Sine, Square, Triangle, $\pm$ Ramp, Pulse, AM, FM, Sweep, Triggered and Gated
Amplitude	> 20Vpp open circuit; >10Vp-p into 50 $\Omega$ load (at 1kHz)
Impedance	50 $\Omega$ $\pm$ 10%
Attenuator	1:1, 10:1, 100:1, 1000:1 and >10:1 continuous control
DC Offset	< -10V to > +10V; < -5V to > +5V (50 $\Omega$ load)
Variable Symmetry	80:20:80 to 1MHz
Frequency Range	0.1Hz to 13MHz in 8 Decade ranges

### Sine Wave

Distortion	<0.5% (-46dB) THD from 10Hz~50kHz >30dB below fundamental from 50kHz~13MHz
Flatness	< $\pm$ 3% from 10Hz~100kHz, < $\pm$ 10% from 100kHz~10MHz

### Triangle Wave

Linearity Error	<1% at 100Hz
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### Square Wave

Symmetry	<2% 0.1Hz ~ 100kHz
Rise/ Fall Time	<20nS

### SYNC Output

Impedance	50 $\Omega$ $\pm$ 10%
Level	>1Vp-p open circuit

### Modulation Characteristics

Types	AM, FM, Sweep, Trigger, Gate or Burst (INT and EXT)
Wave Forms	Sine, Square, Triangle, Ramp or Variable Symmetry pulse
Frequency Range	0.01Hz ~10kHz in 3 Ranges
Output Level	>1Vp-p into 10k $\Omega$

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### Amplitude Modulation

➤ Depth	0~100%
➤ Modulation Frequency	0.01Hz~10kHz (internal), DC to 1 MHz (external)
➤ Carries -3dB Bandwidth	<100Hz to > 5MHz
➤ External sensitivity	<10Vp-p for 100% modulation

### Frequency Modulation

➤ Deviation	0 to $\pm 5\%$ (internal)
➤ Modulation Frequency	0.01Hz~10kHz (internal), DC to 50kHz(external)

### Sweep Characteristics

➤ Sweep Width	>100:1
➤ Sweep Rate	0.01Hz ~ 10kHz, 90:10 ramp
➤ Sweep Mode	Linear sweep and symmetry control
➤ Ramp Output	0 to > -4Vp-p into 5k $\Omega$

### Gate Characteristics

➤ Start/Stop Phase Range	+90 $\phi$ X to -80 $\phi$ X
➤ Frequency Range	0.1Hz to 1 MHz (Max. to 10MHz)
➤ Ext. Gate Frequency Range	DC to 1MHz, TTL Compatible

### VCF

➤ Range	1000:1 (0 to -2V $\pm 20\%$ )
➤ Input Linearity	<0.5% to 1MHz; <5% to 10MHz (Dial set at 10)
➤ Input Impedance	2.8k $\Omega \pm 5\%$

### GCV.

➤ Output	0 to +2V proportional to dial setting or sweep frequency
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### Frequency Counter

➤ Display	6 Digits(0.3" LED Display)
➤ INT./EXT.	Switch selector
➤ Accuracy	$\pm$ Timebase accuracy $\pm 1$ count
➤ Timebase	Oscillation frequency 10MHz $\pm 10$ PPM (23 $\phi$ XC $\pm 5\phi$ XC)
➤ Resolution	0.1Hz, 1Hz, 10Hz, 100Hz, 1kHz
➤ Range	0.1Hz to 13 MHz (EXT. 5Hz~30MHz)
➤ EXT. Sensitivity	<20m Vrms

<b>Power Source</b>	AC 100V/120V/220V/240V $\pm 10\%$ , 50/60Hz
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<b>Accessories</b>	Power cord x 1, Instruction manual x 1, GTL-101 x 2
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<b>Dimensions &amp; Weight</b>	310(W) x 99(H) x 380(D) mm, Approx 7.2kg
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