

BK Precision Multi-Function Generator

Part No. 01BKMT4051

Back to [Multi-Function Generator](#) Main Page

Specifications	model 4051
Frequency Characteristics	
Wave forms	Sine, Square, Triangle, \pm Pulse, \pm Ramp
Range	0.15 Hz to 20 MHz in 8 ranges
Resolution	0.01, 0.1, 1, 10, 100 Hz Display
Tuning Range	Coarse: 10:1, Fine: \pm 3% of Coarse Setting
Variable Duty Cycle	15:85:15 Continuously variable
Operating Modes	Normal, Sweep, VCG, AM, FM, Single Burst, Multiple Burst
Frequency Stability	\pm 0.2% of the tuning frequency
Output Characteristics	
Impedance	
Level	200 mV to 20 Vp-p Open-circuit, 10 Vp-p into 50 Ω to 10 MHz
Amplitude Control	Variable, 20 dB range typical
DC Offset	Preset: \pm 0.10 V typical, Variable: \pm 10 V open-circuit, \pm 5 V into 50 Ω
Distortion	<1.0% THD from 10 Hz to 100 kHz
Flatness	\pm 3% (0.3 dB) 0.15 Hz to 200 kHz \pm 5% (0.45 dB) 200 kHz to 10 MHz \pm 20% (2.0 dB) 10 MHz to 20 MHz
Square Wave	
Symmetry	<2% 0.15 Hz to 100 kHz
Rise Time	20 ns
Overshoot & Undershoot	6%
Triangle Wave	
Linearity	98% up to 100 kHz
TTL Output (Open-Circuit Condition for Frequencies 2 MHz)	
Max. Logic Low Level Voltage	0.4 V
Min. Logic High Level Voltage	2.6 V
Rise Time	15 ns
Duty Cycle	50% typical
CMOS Output (Open-Circuit Condition for Frequencies 2 MHz)	
Level	Output from 3.0 V to 15.0 V \pm 0.5 Vp-p
Rise Time	120 ns
VCG (Voltage Controlled Generator) Input	
Input Voltage	0-10 V \pm 0.5 V causes a 10:1 frequency change

Impedance		10 k Ω \pm 5%	
Sweep Operation			
Mode	LIN/LOG		
Source	Internal, External		
Width	10:1, continuously variable		
Rate	10 ms to 1 sec, continuously variable		
Sweep Output	0 to 2 V		
Start/Stop Frequency	By digital setting		
AM Modulation Characteristics			
Source	Internal, External		
Modulation Ratio	5% to 100%		
INT. Modulation	1 kHz		
EXT. Modulation	DC to 500 kHz		
EXT. Sensitivity	Less than 10 Vp-p for 100% modulation		
FM Modulation Characteristics			
Source	Internal, External		
Deviation	0 to 5%		
INT. Modulation	1 kHz		
EXT. Modulation	DC to 500 kHz		
EXT. Sensitivity	Less than 10 Vp-p for 100% modulation		
Burst Characteristics			
Mode	Multiple, Single, or Key controlled one shot		
Source	Internal, External		
Burst Width	Continuously variable from 5% to 90% of internal gating frequency		
Repetition Rate	0.5 Hz to 50 Hz, internal or DC to 500 kHz external		
Burst Frequency	Determined by the main generator frequency setting. Tone burst is in integral cycles of gated frequency.		
Frequency Counter (Display shown "EXT. CNTR")			
Range	3.0 Hz to 35 MHz Auto-ranging		
Resolution	0.01, 0.1, 1, 10, 100 Hz		
Max. Display	6 digits		
Input Port	Logic Probe or EXT. CNTR BNC Jack		
Auto-Ranging Counter			
Input Characteristics			
Impedance	1 M Ω /100 pf		
Coupling	AC (Ext. counter BNC input)/DC (logic probe input)		
Max. Overload Protection	\pm 260 V AC/DC		
Sensitivity	0.45 Vrms		
Accuracy	Time base accuracy \pm 1 count \pm trigger		
Triggering Threshold	Selectable for TTL, CMOS, logic threshold or 0 - 3.5 V continuously adjustable triggering level.		
Low Frequency Counter (Display shown "EXT. CNTR TOTAL")			
Range	0.04 Hz to 3 Hz		
Resolution	0.01, 0.001 Hz		

Max. Display	4 digits			
Input Port	Logic Probe only			
Transition (Totalize) Counter (Display shown "TOTAL")				
Frequency Range	up to 5.0 kHz			
Max. Display	6 digits			
Reset Key	"CAL"			
Input Port	Logic Probe for DC coupling or EXT. CNTR BNC Jack when frequency is greater than 3 Hz.			
Auto-Ranging DVM				
Input Range	0 to ± 2.500 V, ± 25.00 V DC, ± 250.0 V Auto-ranging			
Resolution	1 mV, 10 mV, 100 mV			
Accuracy	$\pm 0.75\%$			
Input Protection	Max. ± 260 V DC/AC			
Impedance	1 M Ω			
Max. Display	4 digits			
Universal Logic Probe				
Logic Threshold				
	TTL		CMOS	
High Threshold	2.0 V $\pm 10\%$		70% Vdd* $\pm 15\%$	
Low Threshold	0.8 V $\pm 10\%$		30% Vdd* $\pm 15\%$	
*Vdd is controlled by C-Level				
Max. Repetitive Frequency Response	35 MHz (With probe miniature clip to GND)			
Min. Single Pulse Detection	15 ns (With probe miniature clip to GND)			
Display Format	Logic High, Logic Low, Square clock, Positive Going Pulse, Negative Going Pulse, Tri-state.			
Triple Output DC Power Supply				
		Vcc	+Vs	-Vs
Output Voltage		5 V/3.3 V	0~+24 V	0~-24 V
Output Current	Min.	5.0 A	1.5 A	.5 A*
	Max.	6.5 A	2.0 A	1.5 A*
DVM display		3-digit	4-digit	4-digit
Overload Protection		Short Circuit, Over-current, Over-voltage, Reverse Polarity, Over-temperature		
Ripple & Noise		10 mVrms	10 mVrms	10 mVrms
Dual Tracking**		N/A	YES	YES
* For continuous operation, the output current of -Vs supply reduces as output voltage drops. (see 3.14 for limitations of the -Vs supply)				
** -Vs tracks +Vs or independent adjustment				
Physical Properties				
Dimensions	53" x 9.5" x 10.5"			
Shipping Weight	7.5 lbs (3.4 kg)			
Power Requirements	115 VAC or 230 VAC 10% 50 Hz or 60 Hz, Approximately			
Accessories	Operational manual, AC power cord, BNC cable with clips, Logic Probe			