OMRON

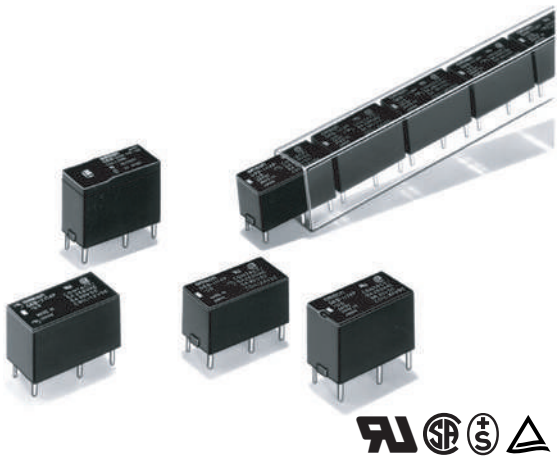
PCB Relay

G6B

Subminiature Relay that Switches up to 5 A

- Subminiature: 20 ×10 ×10 mm (L × W × H).
- Low power consumption: 200 mW.
- Unique moving loop armature reduces relay size, magnetic interference, and contact bounce time.
- Single- and double-winding latching types also available.

RoHS Compliant Refer to pages 16 to 17 for details.



Ordering Information

Classification	Contact form	Straight PCB	Self-clinching PCB
Single-side stable	SPST-NO	G6B-1114P-US	G6B-1114C-US
	SPST-NO+SPST-NC	G6B-2114P-US	G6B-2114C-US
	DPST-NO	G6B-2214P-US	G6B-2214C-US
	DPST-NC	G6B-2014P-US	G6B-2014C-US
Single-winding latching	SPST-NO	G6BU-1114P-US	G6BU-1114C-US
Double-winding latching	SPST-NO	G6BK-1114P-US	G6BK-1114C-US
High-capacity single-side stable	SPST-NO	G6B-1174P-US	G6B-1174C-US

Note: When ordering, add the rated coil voltage to the model number.
Example: G6B-1114P-US 12 VDC
Rated coil voltage

Model Number Legend

G6B □-□ □ □ □ □ - □ □ VDC
1 2 3 4 5 6 7

1. Relay Function
None: Single-side stable
U: Single-winding latching
K: Double-winding latching

2. Contact Form
21: SPST-NO + SPST-NC
22: DPST-NO
20: DPST-NC
11: SPST-NO

3. Contact Type
1: Standard
7: High-capacity

4. Enclosure Ratings
4: Fully sealed

5. Terminals
P: Straight PCB
C: Self-clinching PCB

6. Approved Standards
US: UL/CSA certified

7. Rated Coil Voltage
5, 6, 12, 24 VDC

■ Accessories (Order Separately)

Back Connecting Sockets

Applicable relay	Back connecting socket*
G6B(U)-1114P-US	P6B-04P
G6BK-1114P-US	P6B-06P
G6B-2□□4P-US-P6B	P6B-26P
G6B-1174P-US	P6B-04P

*Not applicable to the self-clinching type.

Removal Tool	P6B-Y1
Hold-down Clips	P6B-C2

Specifications

■ Coil Ratings

Single-side Stable Type

Item		SPST-NO				SPST-NO + SPST-NC, DPST-NO, DPST-NC			
Rated voltage (VDC)		5	6	12	24	5	6	12	24
Rated current (mA)		40	33.3	16.7	8.3	60	50	25	12.5
Coil resistance (Ω)		125	180	720	2,880	83.3	120	480	1,920
Coil inductance (H) (ref. value)	**Armature OFF**	0.28	0.31	1.2	4.9	---	---	---	---
	Armature ON	0.26	0.28	1.1	4.1	---	---	---	---
Must operate voltage		70% max. of rated voltage				80% max. of rated voltage			
Must release voltage		10% min. of rated voltage							
Max. voltage		160% of rated voltage (at 23°C)				140% of rated voltage (at 23°C)			
Power consumption		Approx. 200 mW				Approx. 300 mW			

Single-winding Latching Type

Rated voltage		5 VDC	6 VDC	12 VDC	24 VDC
Rated current		40 mA	33.3 mA	16.7 mA	8.3 mA
Coil resistance		125 Ω	180 Ω	720 Ω	2,880 Ω
Coil inductance (H) (ref. value)	**Armature OFF**	0.28	0.31	1.2	4.9
	Armature ON	0.26	0.28	1.1	4.1
Must operate voltage		70% max. of rated voltage			
Must release voltage		70% min. of rated voltage			
Max. voltage		160% of rated voltage (at 23°C)			
Power consumption		Approx. 200 mW			

Double-winding Latching Type

Rated voltage			5 VDC	6 VDC	12 VDC	24 VDC
Set coil	**Rated current**		56 mA	46.8 mA	23.3 mA	11.7 mA
	Coil resistance		89.2 Ω	128.5 Ω	515 Ω	2,060 Ω
	Coil inductance (H) (ref. value)	**Armature OFF**	0.15	0.18	0.52	1.2
		Armature ON	0.15	0.18	0.52	1.2
Reset coil	**Rated current**		56 mA	46.8 mA	23.3 mA	11.7 mA
	Coil resistance		89.2 Ω	128.5 Ω	515 Ω	2,060 Ω
	Coil inductance (H) (ref. value)	**Armature OFF**	0.15	0.18	0.52	1.2
		Armature ON	0.15	0.18	0.52	1.2
Must set voltage			70% max. of rated voltage			
Must reset voltage			70% min. of rated voltage			
Max. voltage			130% of rated voltage (at 23°C)			
Power consumption			Set coil: Approx. 280 mW Reset coil: Approx. 280 mW			

Note: **1.** The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
2. Operating characteristics are measured at a coil temperature of 23°C.

■ Contact Ratings

Item	SPST-NO		SPST-NO + SPST-NC, DPST-NO, DPST-NC	
Load	Resistive load ($\cos\phi$ = 1)	Inductive load ($\cos\phi$ = 0.4; L/R = 7 ms)	Resistive load ($\cos\phi$ = 1)	Inductive load ($\cos\phi$ = 0.4; L/R = 7 ms)
Rated load	5 A at 250 VAC; 5A at 30 VDC	2 A at 250 VAC; 2 A at 30 VDC	5 A at 250 VAC; 5A at 30 VDC	1.5 A at 250 VAC; 1.5 A at 30 VDC
Contact material	Ag Alloy (Cd free)			
Rated carry current	5 A			
Max. switching voltage	380 VAC, 125 VDC			
Max. switching current	5 A			
Max. switching power	1,250 VA, 150 W	500 VA, 60 W	1,250 VA, 150 W	375 VA, 80 W
Failure rate (reference value)	10 mA at 5 VDC			

Item	SPST-NO (High-capacity)	
Load	Resistive load ($\cos\phi$ = 1)	Inductive load ($\cos\phi$ = 0.4; L/R = 7 ms)
Rated load	8 A at 250 VAC; 8 A at 30 VDC	2 A at 250 VAC; 2 A at 30 VDC
Contact material	Ag Alloy (Cd free)	
Rated carry current	8 A	
Max. switching voltage	380 VAC, 125 VDC	
Max. switching current	8 A	
Max. switching power	2,000 VA, 150 W	
Failure rate (reference value)	10 mA at 5 VDC	

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}$/operation

■ Characteristics

Contact resistance	30 mΩ max.
Operate (set) time	10 ms max. (mean value: 1-pole approx. 3 ms, 2-pole approx. 4 ms)
Release (reset) time	Single-side stable types: 10 ms max. (mean value: 1-pole approx. 1 ms, 2-pole approx. 2 ms) Latching types: 10 ms max. (mean value: approx. 3 ms)
Min. set/reset signal width	Latching type: 15 ms min. (at 23°C)
Max. operating frequency	Mechanical: 18,000 operations/hr Electrical: 1,800 operations/hr (under rated load)
Insulation resistance	1,000 MΩ min. (at 500 VDC, at 250 VDC between set coil and reset coil)
Dielectric strength	3,000 VAC (Latching types: 2,000 VAC), 50/60 Hz for 1 min between coil and contacts 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity 250 VAC, 50/60 Hz for 1 min between set and reset coils 2,000 VAC, 50/60 Hz for 1 min between contacts of different polarity
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)
Shock resistance	Destruction: 1,000 m/s^2 Malfunction: Single-side stable: 100 m/s^2; Latching: 300 m/s^2
Endurance	Mechanical: 50,000,000 operations min. (at 18,000 operations/hr) Electrical: 100,000 operation min. (at 1,800 operations/hr)
Ambient temperature	Operating: −25°C to 70°C (with no icing)
Ambient humidity	Operating: 5% to 85%
Weight	Double-winding latching: Approx. 3.7 g High-capacity: Approx. 4.6 g Double pole: Approx. 4.5 g Other: Approx. 3.5 g

Note: The data shown above are initial values.

■ Approved Standards

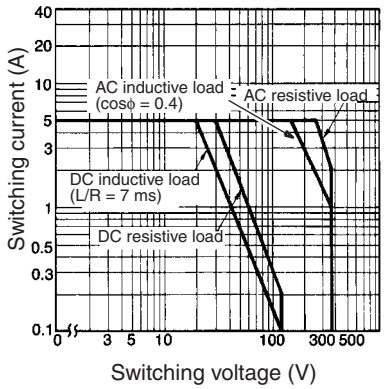
UL508 (File No. E41643)/CSA C22.2 No.14 (File No. LR31928)

Model	Contact form	Coil rating	Contact rating
G6B-1114P-US G6B-1114C-US G6BU-1114P-US G6BU-1114C-US G6BK-1114C-US G6BK-1114C-US	SPST-NO	3 to 24 VDC	5 A, 250 VAC (general use) 5 A, 30 VDC (resistive load)
G6B-1174P-US G6B-1174C-US			8 A, 250 VAC (general use) 8 A, 30 VDC (resistive load)
G6B-2114P-US G6B-2114C-US G6B-2214P-US G6B-2214C-US G6B-2014P-US G6B-2014C-US	SPST-NO + SPST-NC DPST-NO DPST-NC		5 A, 250 VAC (general use) 5 A, 30 VDC (resistive load)

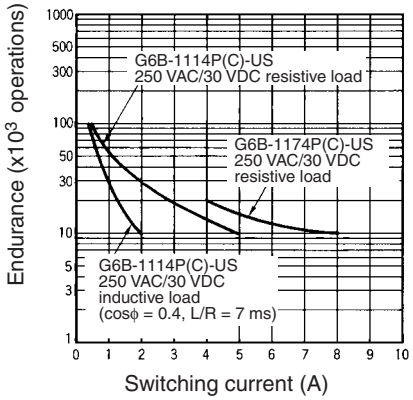
Engineering Data

G6B-1114P-US

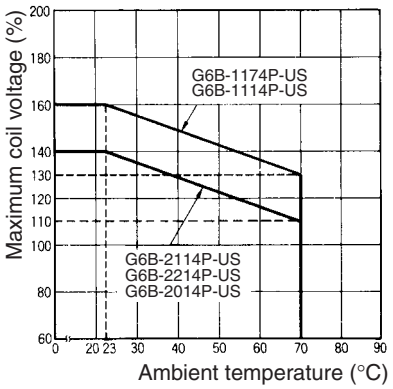
Maximum Switching Power



Endurance

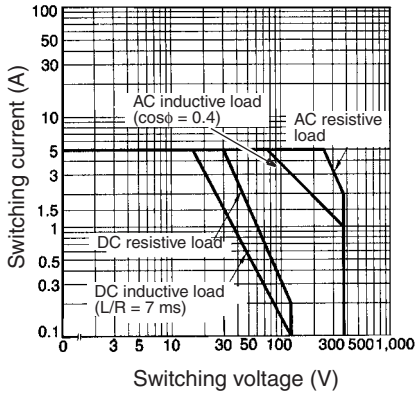


Ambient Temperature vs. Maximum Coil Voltage

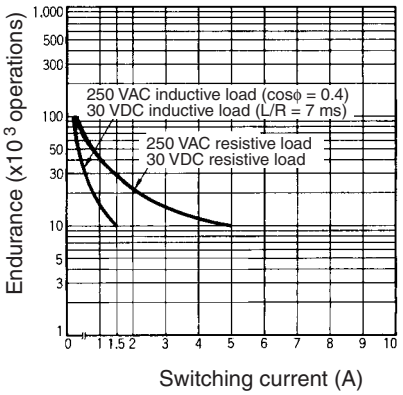


Note: The maximum coil voltage refers to the maxi-mum value in a varying range of operating power voltage, not a continuous voltage.

G6B-2114P-US, G6B-2214P-US
G6B-2014P-US
Maximum Switching Power



Endurance

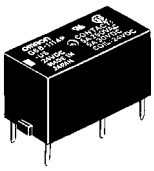


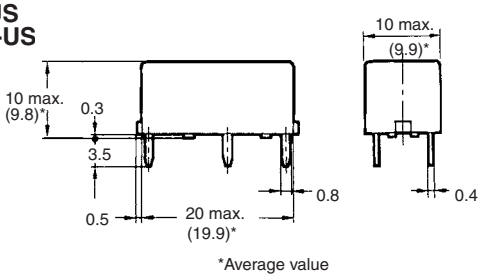
Dimensions

Note: **1.** All units are in millimeters unless otherwise indicated.

2. Orientation marks are indicated as follows:

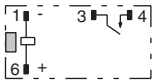
G6B-1114P-US
G6BU-1114P-US



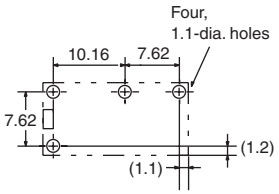


*Average value

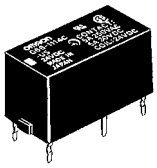
Terminal Arrangement/Internal Connections (Bottom View)
G6B-1114P, -1114C

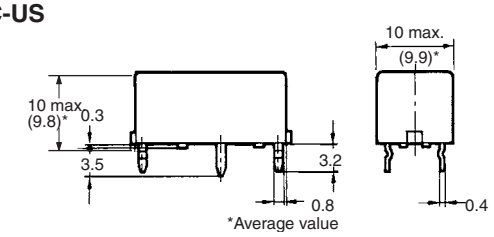


Mounting Holes (Bottom View)
G6B-1114P, -1114C
G6BU-1114P, -1114C



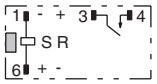
G6B-1114C-US
G6BU-1114C-US



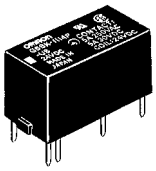


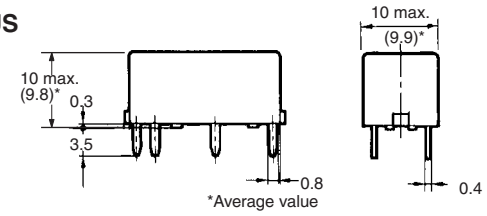
*Average value

G6BU-1114P, -1114C



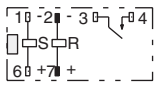
G6BK-1114P-US



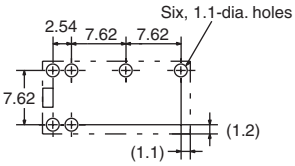


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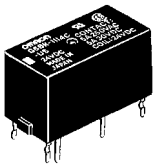
Terminal Arrangement/Internal Connections (Bottom View)
G6BK-1114P, -1114C

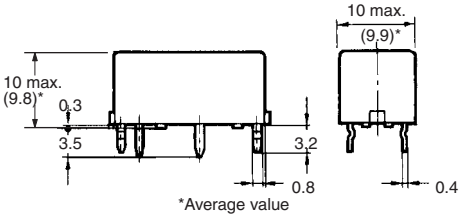


Mounting Holes (Bottom View)
G6BK-1114P, -1114C



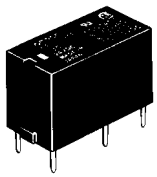
G6BK-1114C-US

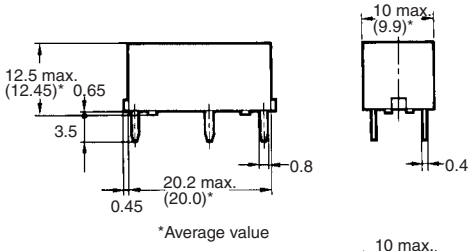




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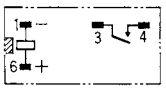
G6B-1174P-US



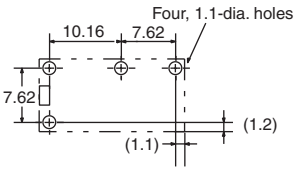


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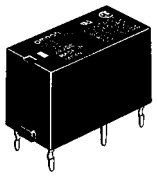
Terminal Arrangement/Internal Connections (Bottom View)
G6B-1174P, -1174C

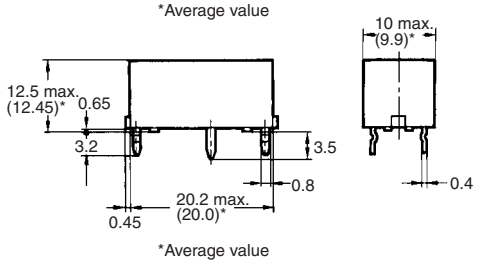


Mounting Holes (Bottom View)



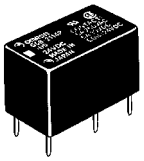
G6B-1174C-US

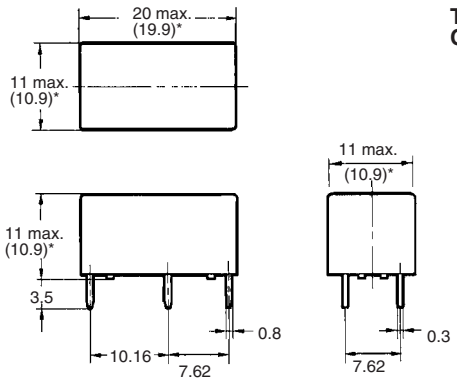




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G6B-2114P-US
G6B-2214P-US
G6B-2014P-US

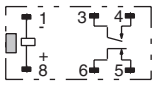




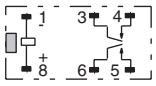
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Terminal Arrangement/Internal Connections (Bottom View)

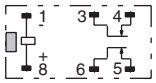
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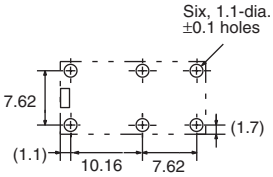
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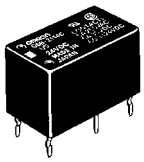
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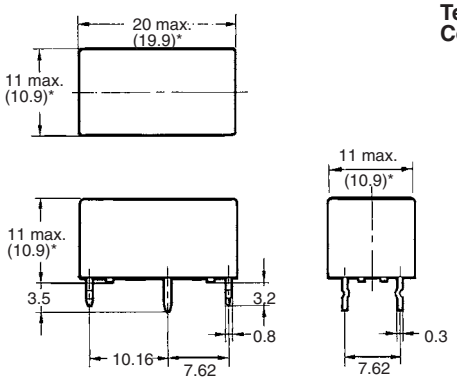


Mounting Holes (Bottom View)
Tolerance: ±0.1



G6B-2114C-US
G6B-2214C-US
G6B-2014C-US

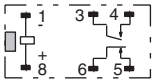




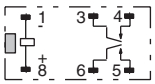
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Terminal Arrangement/Internal Connections (Bottom View)

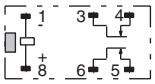
G6B-2114C-US



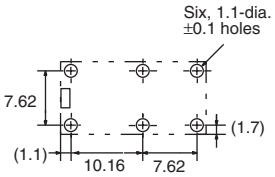
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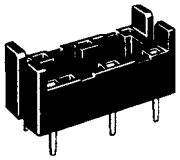
G6B-2014C-US

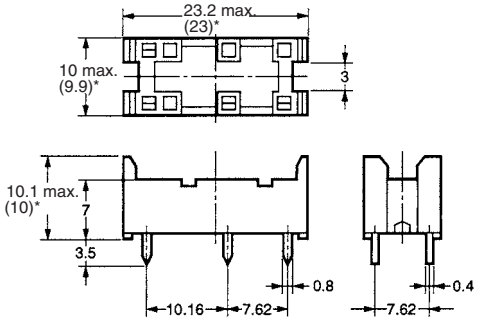


Mounting Holes (Bottom View)
Tolerance: ±0.1



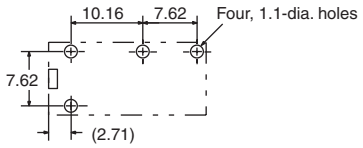
Back Connecting Socket
P6B-04P



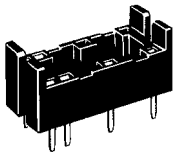


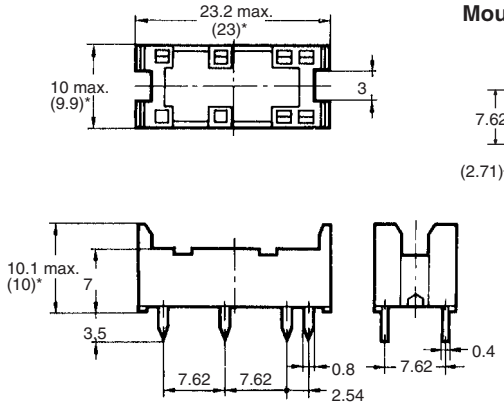
*Average value

Mounting Holes (Bottom View)

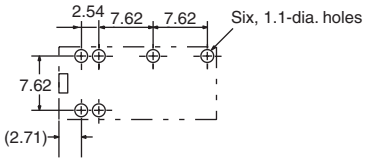


P6B-06P



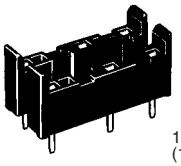


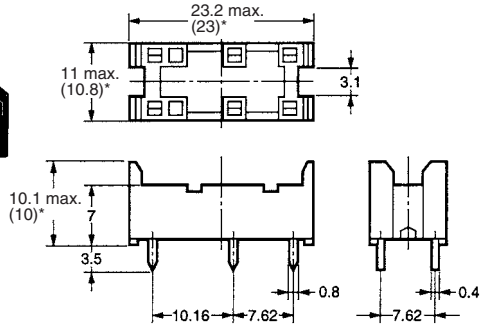
Mounting Holes (Bottom View)



*Average value

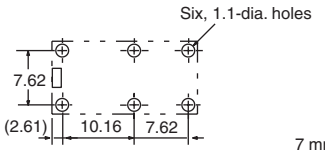
P6B-26P





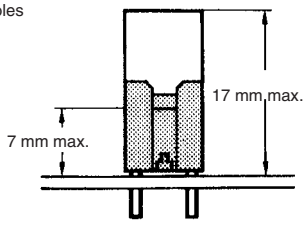
*Average value

Mounting Holes (Bottom View)



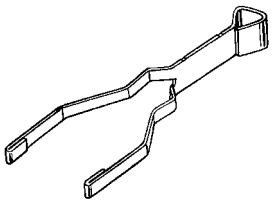
Note: Rated current of socket is 5 A max.

Mounting Height of Relay with Connecting Socket

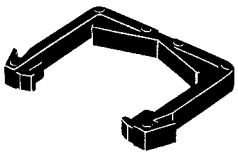


Note: Height of G6B-1174P-US is 19.5 mm max.

Removal Tool
P6B-Y1



Hold-down Clips
P6B-C2



Note: P6B-C2 Hold-down Clips cannot be used for G6B-1174P-US.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. K021-E1-06