

Bill of Materials

#	Part Name	Quantity	Part Number	Supplier
1	Calendar Button	42	49-0578-11	Happ
2	Small Round Button	2	49-0577-01	Happ
3	Square Button	3	54-0004-35	Happ
4	Power Button	1	54-0004-55	Happ
5	Rocker Switch	3	480-2138-ND	Digi-Key
6	Cover	1	8586K37	McMaster-Carr
7	Speaker	1	GF0576-ND	Digi-Key
8	Enclosure	1	75065K14	McMaster-Carr
9	Bolts M4x18	4	92005A227	McMaster-Carr / Hardware Store
10	Nuts M4	4	94150A335	McMaster-Carr / Hardware Store
11	Velcro	As Needed	-	Fabric Store
12	Glue	As Needed	-	Hardware Store



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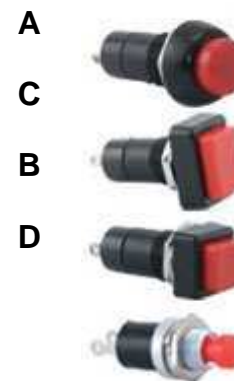
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Miniature Momentary Contact Pushbuttons

PUSHBUTTONS

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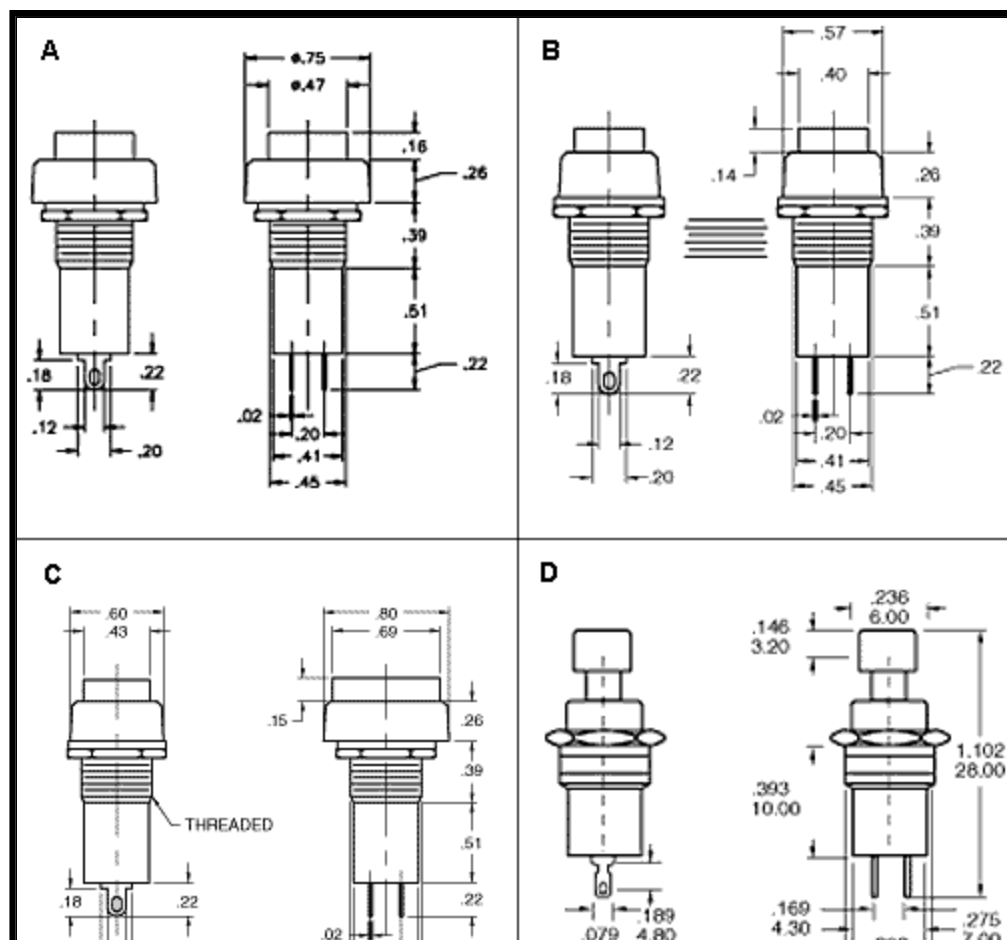
- Small size to allow use in numerous applications
- Momentary Contact



Part Number	Type		Price per ea.		
49-0577-00	A	Miniature Round Pushbutton, Black Bezel, Red Center	1+	\$0.91	<input type="button" value="Add to Cart"/>
			100+	\$0.80	
49-0577-01	A	Miniature Round Pushbutton, Black Bezel, White Center	1+	\$0.85	<input type="button" value="Add to Cart"/>
			100+	\$0.75	
49-0577-05	A	Miniature Round Pushbutton, Black Bezel, Yellow Center	1+	\$0.85	<input type="button" value="Add to Cart"/>
			100+	\$0.81	
49-0578-00	B	Miniature Square Pushbutton, Black Bezel, Red Center	1+	\$0.85	<input type="button" value="Add to Cart"/>
			100+	\$0.75	

Video Surveillance

		BLACK BEZEL, RED CENTER	100+	\$0.75	
49-0578-11	B	Miniature Square Pushbutton, Black Bezel, White Center	1+	\$0.85	<input type="button" value="Add to Cart"/>
			100+	\$0.75	
49-3037-00	C	Miniature Rectangle Pushbutton, Black Bezel, Red Center	1+	\$0.96	<input type="button" value="Add to Cart"/>
			100+	\$0.91	
95-0011-00	D	Mini-Round Pushbutton, Red	1+	\$1.30	<input type="button" value="Add to Cart"/>
			100+	\$1.20	



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Large Square

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All Happ Illuminated Pushbuttons:

- Made with highest quality materials
- Fits wood or metal control panels
- Polycarbonate lens cap for optical clarity
- Heat resistant plastic
- Microswitch reliability tested to 10,000,000 cycles
- Wedge base, T-3¹/₄ DC #161 incandescent lamp standard
- Custom legend lettering designs and artwork available at nominal charge
- [Installation Instructions](#)
- [Identification Key](#)



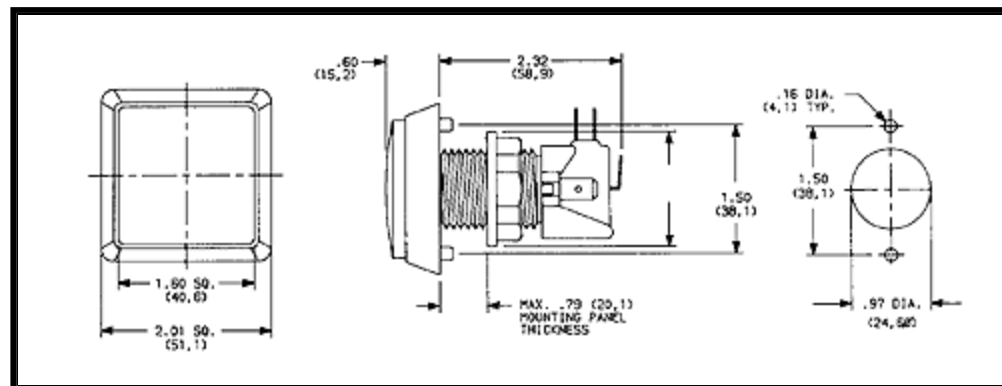
Available Options:

- Long life # 658 14 V DC, lamp optional 15,000 hrs
- #555 6 V DC, 28 V DC lamp and [LED optional](#)
- Chrome or brass plating available on bezel at nominal charge
- Can be used as lighted indicators with optional indicator washer (plunger will not depress)
- [Custom printing](#) on legends available for a nominal charge
- For illuminated pushbutton accessories, see Associated Products below

UL INFORMATION[IPB](#)
[VLT](#)**Associated Products**[LED for Illuminated Pushbuttons](#)
[Pushbutton Wrench](#)
[Pushbutton Covers](#)

[Pushbutton Covers](#)
[Custom Artwork](#)
[Button Plugs](#)

Part Number		Color	Price per ea.
54-0004-30	Large Square, 14V #161 lamp, .250 micro.	Red	1+ \$7.15 <input type="button" value="Add to Cart"/> 100+ \$5.90
54-0004-31	Large Square, 14V #161 lamp, .250 micro.	White	1+ \$6.25 <input type="button" value="Add to Cart"/> 100+ \$5.90
54-0004-32	Large Square, 14V #161 lamp, .250 micro.	Blue	1+ \$7.30 <input type="button" value="Add to Cart"/> 100+ \$5.90
54-0004-33	Large Square, 14V #161 lamp, .250 micro.	Green	1+ \$7.30 <input type="button" value="Add to Cart"/> 100+ \$5.90
54-0004-35	Large Square, 14V #161 lamp, .250 micro.	Yellow	1+ \$7.30 <input type="button" value="Add to Cart"/> 100+ \$5.90
54-0004-37	Large Square, 14V #161 lamp, .250 micro.	Amber (Orange)	1+ \$7.30 <input type="button" value="Add to Cart"/> 100+ \$5.90



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Rectangle Illuminated Pushbutton

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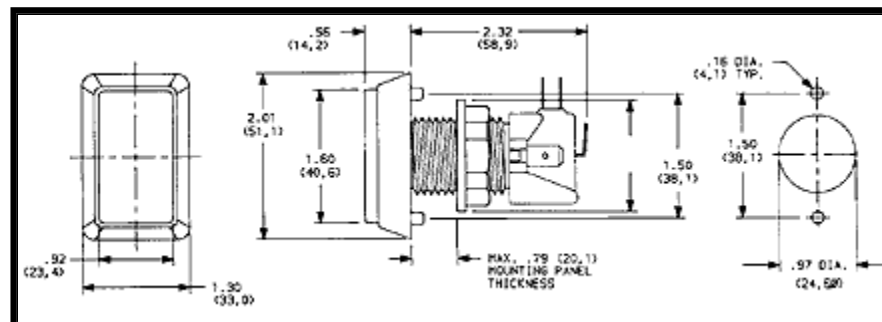
Available Options:

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[VLT](#)**Associated Products**[LED for Illuminated Pushbuttons](#)
[Pushbutton Wrench](#)
[Pushbutton Covers](#)

[Pushbutton Covers](#)
[Custom Artwork](#)

Part Number		Color	Price per ea.
54-0004-50	Rectangular, 14V #161 lamp, .250 micro.	Red	1+ \$6.60 <input type="button" value="Add to Cart"/> 100+ \$6.05
54-0004-52	Rectangular, 14V #161 lamp, .250 micro.	Blue	1+ \$6.60 <input type="button" value="Add to Cart"/> 100+ \$6.05
54-0004-53	Rectangular, 14V #161 lamp, .250 micro.	Green	1+ \$6.60 <input type="button" value="Add to Cart"/> 100+ \$6.05
54-0004-55	Rectangular, 14V #161 lamp, .250 micro.	Yellow	1+ \$6.60 <input type="button" value="Add to Cart"/> 100+ \$6.05



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**Keywords:**

480-2138-ND

- Items in Stock
 Lead Free
 RoHS Compliant

[Advanced](#)


Digi-Key Part Number	480-2138-ND	Price Break	Unit Price	Price
Manufacturer Part Number	FRN91-17BB	1	8.76000	8.76
Description	SWITCH NON-ILLUM ROCKER SPDT	10	6.57200	65.72
Quantity Available	128	100	5.47650	547.65
		500	5.11140	2555.70
		1000	4.83758	4837.58
All prices are in US dollars				

Quantity

[Item Number](#)[Reference \(optional\)](#)
 480-2138-ND

 You may submit a [request for quotation](#) on larger quantities

Technical/Catalog Information	480-2138-ND
Standard Package	16
Category	Switches
Family	Rocker
Vendor	Honeywell Sensing and Control
Mounting	Panel Mount, Snap-In
Switch Function	SPDT
Switch Feature	Black Actuator
Switch Circuit	Mom-Off-Mom
Current Rating	20A
Lead Free Status	Lead Free
RoHS Status	RoHS Compliant
Other Names	480-2138

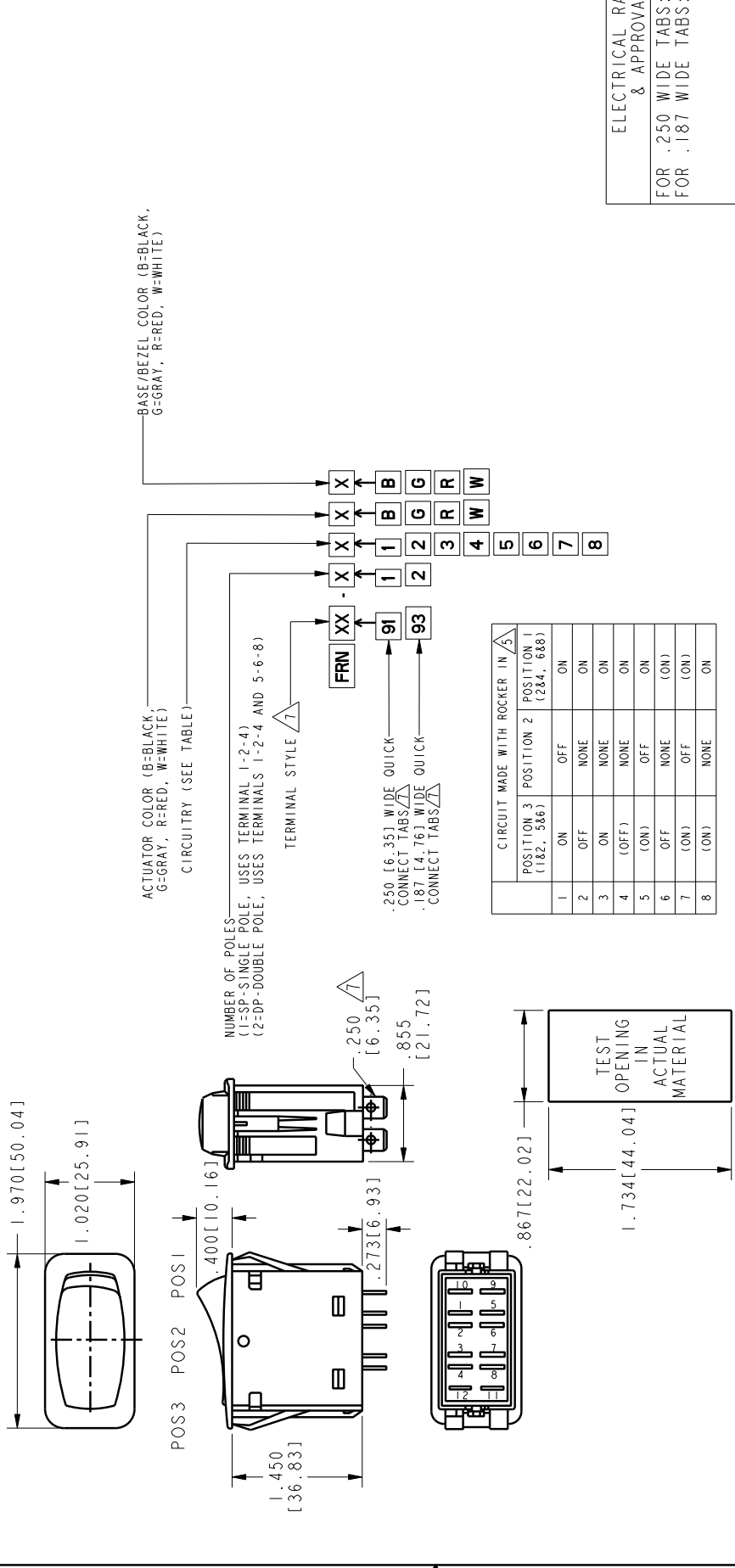
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4		A	0016296	LKM 240CT05	VA



POSITION 1 (1&2, 5&6)	POSITION 2	POSITION 3	POSITION 4
1 ON	OFF	ON	ON
2 OFF	NONE	ON	ON
3 ON	NONE	ON	ON
4 (OFF)	NONE	ON	ON
5 (ON)	OFF	ON	ON
6 OFF	NONE	(ON)	(ON)
7 (ON)	OFF	(ON)	(ON)
8 (ON)	NONE	ON	ON

DESIGN UNITS: INCH
TOLERANCES UNLESS NOTED:

NO PLACE X ±
ONE PLACE .X ±
TWO PLACE .XX ±
THREE PLACE .XXX ±
FOUR PLACE .XXXX ±
ANGLES X ±

THIRD ANGLE PROJECTION

1 - OPERATING TEMPERATURE RANGE: -40°F TO +185°F (-40°C TO +85°C)
2 - ELECTRICAL LIFE: 50,000 CYCLES MOMENTARY, 100,000 CYCLES MAINTAINED
3 - MECHANICAL LIFE: 250,000 CYCLES MIN
4 - SEE DIAGRAM FOR CATALOGING SCHEME
5 - PARENTHESES DENOTE MOMENTARY ACTION
6 - SEALED TO IP67
7 - TERMINAL WIDTH AND ELECTRICAL RATING DEPENDENT ON STYLE SELECTED

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DRAWING NAME FRN SERIES CHART 1

SIZE B

TITLE SWITCH, ROCKER

Honeywell

ELECTRICAL RATING & APPROVALS

FOR .250 WIDE TABS: 20A, 12V
FOR .187 WIDE TABS: 15A, 12V

13 JUN 05 CR
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2

4

3



About NEMA and IP Enclosure Ratings

NEMA Ratings

NEMA (National Electrical Manufacturer's Association) has a standard, NEMA 250-1997, to designate the degree of protection provided by electrical enclosures.

Environments:	NEMA 1	NEMA 3R	NEMA 4	NEMA 4X	NEMA 5	NEMA 6	NEMA 6P	NEMA 12	NEMA 13
Indoor use only	✓				✓			✓	✓
Indoor and outdoor use		✓	✓	✓		✓	✓		
Falling liquids and light splashing		✓	✓	✓		✓	✓	✓	✓
Nonhazardous dust, lint, fibers			✓	✓	✓	✓	✓	✓	✓
Washdowns and splashing water			✓	✓		✓	✓		
Oil and coolant seepage								✓	✓
Oil and coolant spraying and splashing									✓
Corrosive agents				✓			✓		
Occasional temporary submersion						✓	✓		
Occasional prolonged submersion							✓		

NEMA 7 and **NEMA 9** enclosures are rated for hazardous locations; both are for indoor use. **NEMA 7** enclosures meet Class I, Division 1, Group A, B, C, and D. They're designed to contain an internal explosion without causing an external hazard. **NEMA 9** enclosures meet Class II, Division 1, Group E, F, and G. They're designed to prevent the ignition of combustible dust.

IP Ratings

The IEC (International Electrotechnical Commission) developed their own IP (Ingress Protection) Standards, IEC 60529, for the degree of protection provided by enclosures. IEC designations consist of the letters "IP" followed by a two-digit number:

First Digit—Protection with respect to ingress of solid foreign objects.

- 1** — Protection from solid objects greater than 50 mm dia.
- 2** — Protection from solid objects greater than 12.5 mm dia.
- 4** — Protection from solid objects greater than 1 mm dia.
- 5** — Protection from dust that would interfere with equipment operation
- 6** — Dust tight

Second Digit—Protection with respect to harmful ingress of water.

- 0** — No protection
- 2** — Protection from vertically dripping water
- 4** — Protection from splashed water
- 5** — Protection from water projected from a nozzle
- 6** — Protection from heavy seas or power jets of water
- 7** — Protection from temporary submersion
- 8** — Protection from continuous submersion

Indoor Steel Enclosures (NEMA 1)

Versatile and economical, these enclosures are the perfect choice for indoor applications that don't require dust- or oil-tight enclosures. All are 16-ga. steel, unless noted. Color is gray. UL listed and CSA certified.

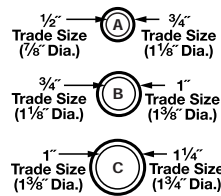
Standard

Covers have steel hinges. Working depth (area available for component mounting) is approximately 1/2" less than overall depth. Opening size is approximately 1" less than overall height and width. All have 1/4-turn coin-slot latch and four 0.28" mounting holes, unless noted.

Steel panels for component mounting are sold separately.



With Knockouts



Knockouts

No need to use special tools to punch holes—knockouts in the top, bottom, and sides of these enclosures save you time. The quick-access cover comes off without removing the screws—just slide it off the keyhole slots. Enclosures have four 1/4" mounting holes.

Overall Size, Ht. x Wd. x Dp.	Enclosures		Panels	
	Each	Each	Ht. x Wd.	Each
6" x 6" x 4"	7561K22	\$33.85	4 1/4" x 4 1/4"	7561K811 \$2.93
8" x 6" x 4"	7561K23	36.95	6 1/4" x 4 1/4"	7561K821 3.46
8" x 6" x 6"	7561K24	41.64	6 1/4" x 4 1/4"	7561K821 3.46
8" x 8" x 4"	7561K26	41.00	6 1/4" x 6 1/4"	7561K89 4.06
8" x 8" x 6"	7561K63	46.16	6 1/4" x 6 1/4"	7561K89 4.06
10" x 8" x 4"	7561K27	45.02	8 1/4" x 6 1/4"	7561K841 4.76
10" x 8" x 6"	7561K28	50.86	8 1/4" x 6 1/4"	7561K841 4.76
10" x 10" x 6"	7561K29	56.13	8 1/4" x 8 1/4"	7561K321 5.54
12" x 10" x 4"	7561K39	54.14	10 1/4" x 8 1/4"	7561K871 6.45
12" x 10" x 6"	7561K36	61.24	10 1/4" x 8 1/4"	7561K871 6.45
12" x 12" x 4"	7561K38	59.29	10 1/4" x 10 1/4"	7561K861 7.68
12" x 12" x 6"	7561K41	67.23	10 1/4" x 10 1/4"	7561K861 7.68
14" x 12" x 6"	7561K42	73.25	12 1/4" x 10 1/4"	7561K881 8.62
14" x 12" x 8"	7561K43	81.87	12 1/4" x 10 1/4"	7561K881 8.62
16" x 12" x 6"	7561K44	79.32	14 1/4" x 10 1/4"	7561K912 9.17
16" x 12" x 8 5/8"	7561K48	120.99	13" x 10 1/2"	7561K913 8.74
20" x 12" x 6"	7561K57	91.15	18 1/4" x 10 1/4"	7561K331 12.10
20" x 16" x 6 5/8"	7561K49	137.28	17" x 14 1/2"	7561K921 14.94
20" x 16" x 8 5/8"	7561K55	144.23	17" x 14 1/2"	7561K921 14.94
20" x 20" x 6 5/8"	7561K58	150.78	17" x 18 1/2"	7561K341 19.87
20" x 20" x 8 5/8"	7561K59	165.02	17" x 18 1/2"	7561K341 19.87
24" x 20" x 6 5/8"	7561K61	166.81	21" x 18 1/2"	7561K341 22.44
24" x 20" x 8 5/8"	7561K62	182.42	21" x 18 1/2"	7561K931 22.44
24" x 24" x 8 5/8"	7561K64	186.26	21" x 22 1/2"	7561K351 43.06
30" x 24" x 8 5/8"	7561K69	207.18	26" x 22 1/2"	7561K941 56.93
30" x 24" x 10 5/8"	7561K76	224.09	26" x 22 1/2"	7561K941 56.93
36" x 24" x 8 5/8"	7561K77	239.88	32" x 22 1/2"	7561K951 58.52
36" x 30" x 12 5/8"	7561K78	309.85	32" x 28 1/2"	7561K961 84.11

■ Mounting holes are 0.31". ▲ 14-ga. steel.
• Mounting holes are 0.44".

Overall Size, Ht. x Wd. x Dp.	Knockout Style (No.)		Each
	Each Side	Top and Bottom	
4" x 4" x 4"	A(1), B(1)	A(1), B(1)	75065K22 \$9.13
6" x 4" x 4"	A(2), B(1)	A(1), B(1)	75065K23 11.99
6" x 6" x 3"	A(2), B(1)	A(2), B(1)	75065K21 14.49
6" x 6" x 4"	A(2), B(1)	A(2), B(1)	75065K11 12.91
6" x 6" x 6"	A(2), B(1)	A(2), B(1)	75065K35 15.28
8" x 6" x 4"	A(2), B(2)	A(2), B(1)	75065K12 16.42
8" x 8" x 4"	A(2), B(2)	A(2), B(2)	75065K13 17.99
8" x 8" x 6"	A(2), B(2)	A(2), B(2)	75065K36 21.46
8" x 8" x 8"	A(2), B(2)	A(2), B(2)	75065K37 29.84
10" x 8" x 4"	A(2), B(2), C(1)	A(2), B(2)	75065K14 21.93
10" x 10" x 4"	A(2), B(2), C(1)	A(2), B(2), C(1)	75065K24 22.72
10" x 10" x 6"	A(2), B(2), C(1)	A(2), B(2), C(1)	75065K38 28.12
12" x 6" x 4"	A(2), B(2), C(1)	A(2), B(1)	75065K15 23.23
12" x 8" x 4"	A(2), B(2), C(1)	A(2), B(2)	75065K16 24.99
12" x 10" x 4"	A(2), B(2), C(1)	A(2), B(2), C(1)	75065K25 29.44
12" x 12" x 4"	A(2), B(2), C(1)	A(2), B(2), C(1)	75065K17 29.63
12" x 12" x 6"	A(2), B(2), C(1)	A(2), B(2), C(1)	75065K39 35.03
12" x 12" x 8"	A(2), B(2), C(1)	A(2), B(2), C(1)	75065K41 46.52
16" x 12" x 4"	A(4), B(2), C(1)	A(2), B(2), C(1)	75065K18 43.07
16" x 12" x 8"	A(4), B(2), C(1)	A(2), B(2), C(1)	75065K42 56.89
18" x 12" x 4"	A(4), B(4), C(1)	A(2), B(2), C(1)	75065K26 47.38
18" x 18" x 8"	A(4), B(4), C(1)	A(4), B(4), C(1)	75065K43 76.36
24" x 18" x 8"	A(4), B(4), C(1)	A(4), B(4), C(1)	75065K44 125.52
24" x 24" x 8"	A(4), B(4), C(1)	A(4), B(4), C(1)	75065K45 140.53

▲ 14-ga. steel.

Cast Acrylic & ABS

For information about plastics and plastic hardness, see page 3438.

Additional Information: For additional information about the products on this page including mechanical and physical properties, go to our web site, www.mcmaster.com, and search for the number specified in the presentations below (for example, **8586KAC**), or fax us at 630-782-3800 and request the number specified.

Cast Acrylic (Material continued from previous page)



Clear Hollow Rods

- Hardness: Rockwell M98

Meet UL 94HB for flammability. Length tolerance is $\pm 1"$. Wall thickness tolerance is $\pm 10\%$. OD tolerance for 1 1/2" to 3" OD is $\pm .020"$; for 3 1/4" to 3 1/2" OD is $\pm .025"$; for 4" to 6" OD is $\pm .030"$; and for 7" to 8" OD is $\pm .045"$. **To Order:** Please specify 1-, 3-, or 5-ft. lengths.

OD	ID	Wall Thick.	Per Ft.	OD	ID	Wall Thick.	Per Ft.	OD	ID	Wall Thick.	Per Ft.
1 1/2"	1 1/4"	1/8"	8486K331 \$11.00	3"	2 3/4"	1/8"	8486K361 \$15.45	5"	4 5/8"	3/16"	8486K485 \$27.04
1 1/2"	1 1/8"	3/16"	8486K431 14.87	3"	2 5/8"	3/16"	8486K461 18.91	5"	4 1/2"	1/4"	8486K581 25.65
1 1/2"	1"	1/4"	8486K531 15.92	3"	2 1/2"	1/4"	8486K555 19.75	5"	4 1/4"	3/8"	8486K641 71.95
1 3/4"	1 1/2"	1/8"	8486K335 12.21	3 1/4"	3"	3/16"	8486K365 16.62	5 1/2"	5 1/4"	3/8"	8486K391 19.79
1 3/4"	1 3/8"	3/16"	8486K435 16.61	3 1/4"	2 7/8"	3/16"	8486K465 19.66	5 1/2"	5"	1/4"	8486K585 25.72
1 3/4"	1 1/4"	1/4"	8486K931 16.44	3 1/4"	2 3/4"	1/4"	8486K561 19.98	5 1/2"	4 3/4"	3/8"	8486K645 76.31
2"	1 3/4"	1/8"	8486K341 12.55	3 1/2"	3 1/4"	1/8"	8486K371 17.06	6"	5 3/4"	1/8"	8486K395 20.92
2"	1 5/8"	3/16"	8486K441 16.86	3 1/2"	3 1/8"	3/16"	8486K471 21.10	6"	5 5/8"	3/16"	8486K495 29.60
2"	1 1/2"	1/4"	8486K535 17.87	3 1/2"	3"	1/4"	8486K565 20.94	6"	5 1/2"	1/4"	8486K935 26.32
2 1/4"	2"	1/8"	8486K345 13.19	4"	3 3/4"	1/8"	8486K375 16.45	6"	5 1/4"	3/8"	8486K651 81.14
2 1/4"	1 7/8"	3/16"	8486K445 17.16	4"	3 5/8"	3/16"	8486K475 23.25	7"	6 3/4"	1/8"	8486K731 36.79
2 1/4"	1 3/4"	1/4"	8486K541 18.22	4"	3 1/2"	1/4"	8486K571 22.34	7"	6 5/8"	3/16"	8486K831 39.23
2 1/2"	2 1/4"	1/8"	8486K351 14.15	4"	3 1/4"	3/8"	8486K631 62.42	7"	6 1/2"	1/4"	8486K591 42.26
2 1/2"	2 1/8"	3/16"	8486K451 18.41	4 1/2"	4 1/4"	1/8"	8486K381 16.38	7"	6 1/4"	3/8"	8486K655 148.18
2 1/2"	2"	1/4"	8486K545 18.58	4 1/2"	4 1/8"	3/16"	8486K481 25.65	8"	7 3/4"	1/8"	8486K735 41.44
2 3/4"	2 1/2"	1/8"	8486K355 15.06	4 1/2"	4"	1/4"	8486K575 23.49	8"	7 5/8"	3/16"	8486K835 41.40
2 3/4"	2 3/8"	3/16"	8486K455 18.81	4 1/2"	3 3/4"	3/8"	8486K635 65.27	8"	7 1/2"	1/4"	8486K595 51.13
2 3/4"	2 1/4"	1/4"	8486K551 19.25	5"	4 3/4"	1/8"	8486K385 17.51	8"	7 1/4"	3/8"	8486K661 163.48



Large Diameter Clear Hollow Rods

- Hardness: Rockwell M80-M103

Length tolerance is $\pm .0625"$; OD tolerance is $\pm .065"$ (except 14" OD rods, which have a length tolerance of $+ .25"$ and an OD tolerance of $\pm .080"$).

OD	ID	Wall Thick.	Thick.	2-ft. Length Each	4-ft. Length Each	OD	ID	Wall Thick.	Thick.	2-ft. Length Each	4-ft. Length Each
10"	9 3/4"	1/8"	$\pm .020"$	84865K311 \$117.98	84865K331 \$217.65	10 1/2"	10"	1/4"	$\pm .025"$	84865K412 \$265.56	84865K432 \$495.14
10"	9 1/2"	1/4"	$\pm .025"$	84865K411 229.56	84865K431 427.99	12"	11 3/4"	1/8"	$\pm .020"$	84865K315 171.48	84865K335 302.94
10"	9"	1/2"	$\pm .045"$	84865K511 533.89	84865K531 984.36	12"	11 1/2"	1/4"	$\pm .025"$	84865K415 301.40	84865K435 562.61
10 1/2"	10 1/4"	1/8"	$\pm .020"$	84865K312 118.88	84865K332 224.09	14"	13"	1/2"	$\pm .065"$	84865K516 765.06	84865K536 1530.12

ABS

- Color: Opaque beige or black
- Maximum Temp.: 160° F
- Softening Temp.: 175° to 220° F, unless noted

- Tensile Strength: Good
- Impact Strength: Excellent
- Good electrical insulator, unless noted

- Use indoors, unless noted
- Machine with standard tooling, unless noted
- Hardness: Rockwell R105

Tough, impact-resistant ABS (acrylonitrile-butadiene-styrene) works well for protective applications such as small appliance housings. It meets UL 94HB for flammability.

Additional Information: **8586KAC** (See top of page for details)

ABS Sample Sheet—Size is 6" x 6" x 1/2".

8586K76 Each \$6.11



Rectangular Bars

- Color: Opaque Beige

Width and length tolerances are $\pm .125"$. Sold in 2-ft. lengths.

Thick.	Thickness Tolerance	1" Wide Each	1 1/2" Wide Each	2" Wide Each	2 1/2" Wide Each	3" Wide Each	4" Wide Each
1/4"	$\pm .025"$	8712K11 \$2.85	8712K21 \$4.25	8712K33 \$5.60	8712K45 \$7.05	8712K57 \$8.45	8712K69 \$11.25
3/8"	$\pm .038"$	8712K12 4.25	8712K23 7.05	8712K34 8.20	8712K46 11.25	8712K58 14.05	8712K71 16.90
1/2"	$\pm .050"$	8712K13 5.60	8712K24 8.45	8712K35 11.25	8712K47 14.05	8712K59 16.90	8712K73 22.55
3/4"	$\pm .075"$	8712K15 8.45	8712K25 12.70	8712K36 16.90	8712K48 21.15	8712K61 25.30	8712K74 33.75
1"	$\pm .100"$	8712K16 11.25	8712K26 16.90	8712K37 22.55	8712K49 28.15	8712K63 33.75	8712K75 45.05
1 1/4"	$\pm .125"$	8712K17 15.45	8712K27 23.90	8712K38 31.00	8712K51 39.40	8712K64 46.35	8712K76 61.90
1 1/2"	$\pm .150"$	8712K18 28.15	8712K28 33.75	8712K39 45.05	8712K53 56.30	8712K65 67.55	8712K77 90.05
1 3/4"	$\pm .175"$	8712K18 28.15	8712K29 42.20	8712K41 56.30	8712K54 70.35	8712K66 84.45	8712K78 112.60
2"	$\pm .200"$			8712K43 67.55	8712K55 84.45	8712K67 101.35	8712K79 140.70



Sheets

Meet FDA 21CFR181.32. Width and length tolerances are $\pm 1/16"$. **To Order:** Please specify color: beige or black.

Thick.	Thickness Tolerance	12" x 12" Each	12" x 24" Each	24" x 24" Each	24" x 48" Each	36" x 36" Each
1/16"	$\pm .006"$	8586K151 \$3.36	8586K351 \$6.39	8586K451 \$11.54	8586K251 \$20.54	8586K551 \$25.34
1/8"	$\pm .013"$	8586K161 6.69	8586K361 12.80	8586K461 22.85	8586K261 39.69	8586K561 50.66
1/4"	$\pm .025"$	8586K171 11.45	8586K371 22.80	8586K471 45.54	8586K271 79.48	8586K571 86.70
3/8"	$\pm .038"$	8586K181 17.14	8586K381 34.06	8586K481 68.24	8586K281 118.96	8586K581 124.58
1/2"	$\pm .050"$	8586K191 23.60	8586K391 45.02	8586K491 86.24	8586K291 157.19	8586K591 165.07
3/4"	$\pm .075"$	8586K211 33.00	8586K411 62.98	8586K511 108.09	8586K311 197.00	8586K611 226.73
1"	$\pm .100"$	8586K221 43.81	8586K421 83.64	8586K521 160.02	8586K321 273.52	8586K621 292.33
1 1/2"	$\pm .150"$	8586K231 67.44	8586K431 126.70			8586K631 413.29

(Material continued on following page)



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Digi-Key Part Number	GF0576-ND	Price Break	Unit Price	Price
		1	3.10000	3.10
Manufacturer Part Number	GF0576	10	2.48000	24.80
		50	2.17000	108.50
Description	SPEAKER 8 OHM .5W 57MM SQUARE	100	2.06580	206.58
		500	1.86000	930.00
Quantity Available	1676	1000	1.65292	1652.92
All prices are in US dollars				

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Technical/Catalog Information	GF0576-ND
Standard Package	1000
Category	Audio Products
Family	Speaker
Vendor	CUI Inc
Resistance In Ohms	8.0
Power	0.25 W Nominal, 0.5 W Max
Size / Dimension	57mm
Impedance	8
Frequency Range	380Hz - 8.1kHz
Shape	Speaker - Round/Frame - Square
Features	Apply to Wide Variety of Needs
Sound Pressure Level	86dB
Type	Speaker - Ferrite Magnet/Paper Cone
Lead Free Status	Request Inventory Verification
RoHS Status	Request Inventory Verification

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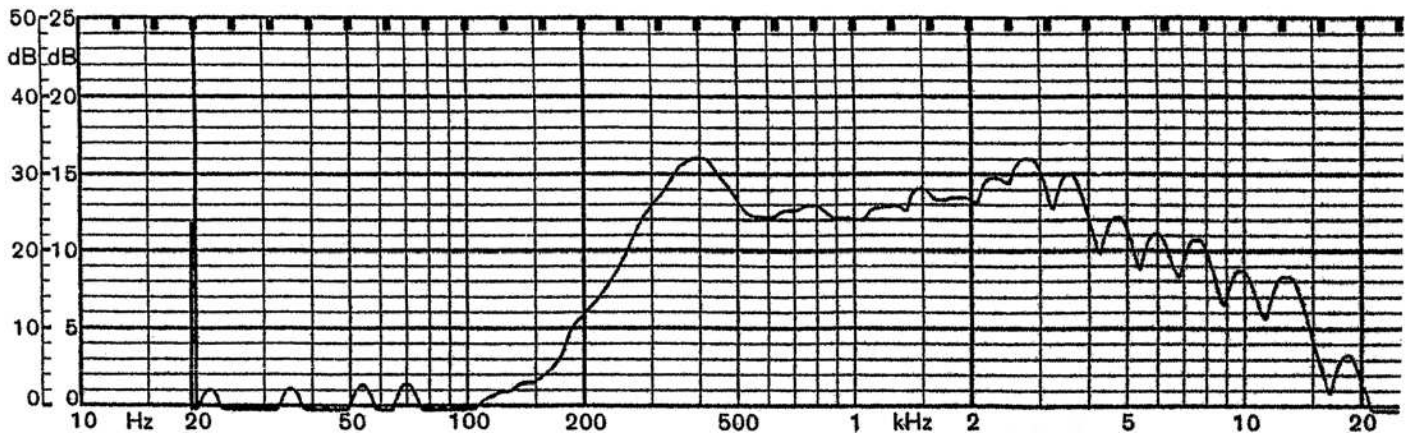


Specifications

Nominal Size	57 mm (2.25 in)	(See attached drawing)
Impedance	8 Ohm \pm 15%	at 800 Hz 1 V
Resonant frequency	380 Hz \pm 76 Hz	at 1 V
Sound pressure level	86 dB/w \pm 3 dB	0.25 w 50 cm ave. at 1.0K, 1.4K, 1.7K, 2.0K Hz
Response	Fo Hz ~ 8.1 KHz max 10 dB	
Input power	Nominal 0.25 W	Handling capacity 0.5 W
Operation	must be normal at program source 0.25 W	
Buzz, rattle, etc.	must be normal at sine wave 1.41 V	
Magnet	Size: 32 x 18 x 6 mm	
Load test	White noise 0.25 W for	5 hours
Heat test	70 \pm 2° C	20-50% R.H. 5 hours
Humidity test	40 \pm 2° C	90-95% R.H. 5 hours

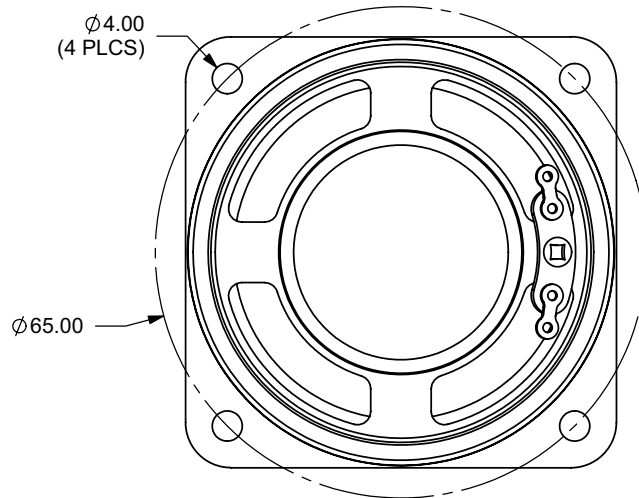
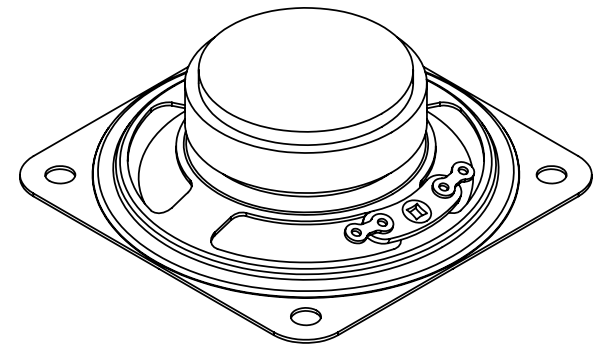
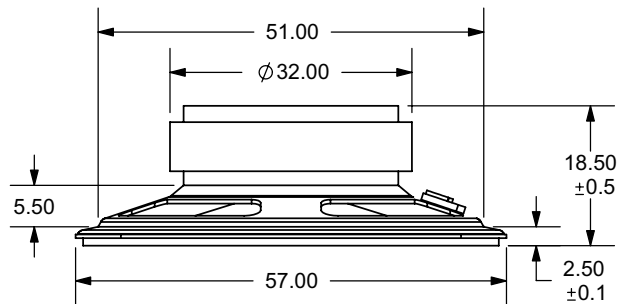
Frequency Response Curve

Potentiometer range	50 dB
Rectifier	RMS
Lower limit frequency	20 Hz
Wr. speed	100 mm/sec



Zero level 60 dB

REV.	DESCRIPTION	DATE
A	NEW DRAWING	8/8/2006



TOLERANCE:
±0.3mm UNLESS OTHERWISE
SPECIFIED



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Tualatin, OR 97062
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Fax: 503-372-1266
Website: www.cui.com

TITLE: Square frame paper cone - ferrite magnet		REV: A
PART NO. GF0576	UNITS: MM [INCHES]	
DRAWN BY: ZRJ	APPROVED BY:	SCALE: 1:1

PC FILE NAME:
GF0576

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