

EIA RS-192-A

EIA STANDARD

*Holder Outlines and
Pin Connections for
Quartz Crystal Units*

RS-192-A
(Revision of RS-192)



February 1967

Engineering Department
ELECTRONIC INDUSTRIES ASSOCIATION



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HOLDER OUTLINES AND PIN CONNECTIONS FOR QUARTZ CRYSTAL UNITS

(From RETMA Standard RS-192 and Standards Proposal No. 899 formulated under the cognizance of EIA Committee TR-26 on Quartz Crystals.)

INTRODUCTION

This standard, which shows quartz crystal unit holder outlines and pin connections, includes the outlines previously shown in RETMA Standard RS-192, July 1957; those of interest to the U. S. published in International Electrotechnical Commission (I.E.C.) publication 122-3; those being considered by I.E.C. committee TC-49; and the latest outlines now in commercial use reviewed by EIA committee TR-26. These outlines have been regrouped, and different number assignments have been made from those given in RS-192 in order to place all plastic, vacuum tube type, and metal type holders in a more logical sequence.

A cross reference is given to show the similarities between the numbered holders in this standard and the military types.

The dimensional letters and arrangements are essentially in conformance with the recommended practice for preparation of outline drawings of electron tubes as set forth in EIA Standard RS-202-A, January 1964. Millimeter-inch conversions and tolerances have been assigned in accordance with I.E.C. 39 (CO) 135 dated Nov 63.

The list of pin connections for crystal vibrators in the various holder types are the same as those accepted by I.E.C. committee TC-49 as set forth in I.E.C. 49 (CO) 9 dated Feb 64.

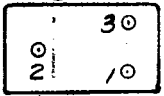
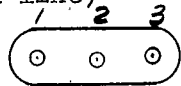
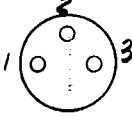
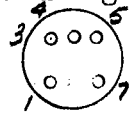
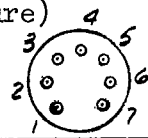
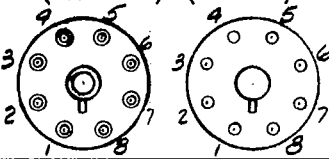
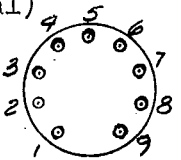


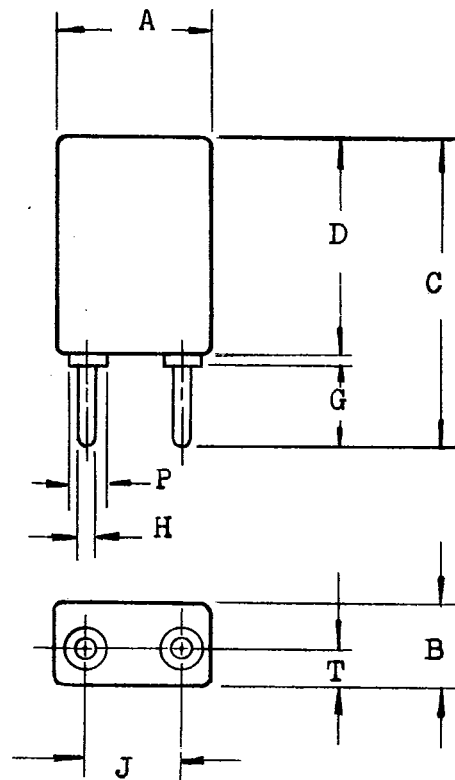
CROSS REFERENCE TO MILITARY CRYSTAL UNIT HOLDERS AND VACUUM TUBE OUTLINE TYPES

Holder Outline	Basically the same as:
1	that used for FT-243 Crystal Unit
2	that used for CR-2, CR-3, and CR-4 Crystal Units
3	that used for CR-1 Crystal Unit
8	HC-21/U, except (1) requires 0.084 inch additional clearance at top and (2) materials are not specified. Same as holder outline 9 except (1) above
9	HC-21/U, except HC-21/U is metal with glass seal
10	metal vacuum tube (HC-16/U)
11-15	that used for loctal vacuum tubes
16-19	that used for 0.400 inch diameter vacuum tubes
20-27	that used for 0.500 inch diameter vacuum tube
28	T 5 1/2 vacuum tube, except leads are flexible (HC-30/U)
29-36	that used for 7-pin miniature vacuum tubes
37-44	that used for 9-pin noval vacuum tubes
45	that used for 8-pin octal vacuum tubes (HC-15/U)
46-52	Same as holder outline 45 except height is increased
54	HC-14/U
55	HC-6/U, except pins are not undercut
56	HC-13/U, except pins are not undercut
57	HC-6/U
58	HC-13/U
59	HC-14/U, except leads are 0.030 inch diameter x 1.500 inch minimum long, flexible
60	HC-6/U, except leads are 0.030 inch diameter x 1.500 inch minimum long, flexible
61	HC-13/U, except leads are 0.030 inch diameter x 1.500 inch minimum long, flexible

Holder Outline	Basically the same as:
62	HC-6/U, except 3 leads, which are 0.030 inch diameter x 1.500 inch minimum long, flexible. Same as holder outline 60 except 3 leads
63	HC-13/U, except 3 leads, which are 0.030 inch diameter x 1.500 inch minimum long, flexible. Same as holder outline 61 except 3 leads
64	HC-27/U (glass version of HC-6/U)
65	HC-18/U
66	HC-25/U (plug-in version of HC-18/U)
67	HC-10/U
68	TO-39 transistor holder, except lead length is increased
69-72	TO-39 transistor holder, except height and lead length are increased
73	TO-8 transistor holder
74-77	TO-8 transistor holder, except height is increased

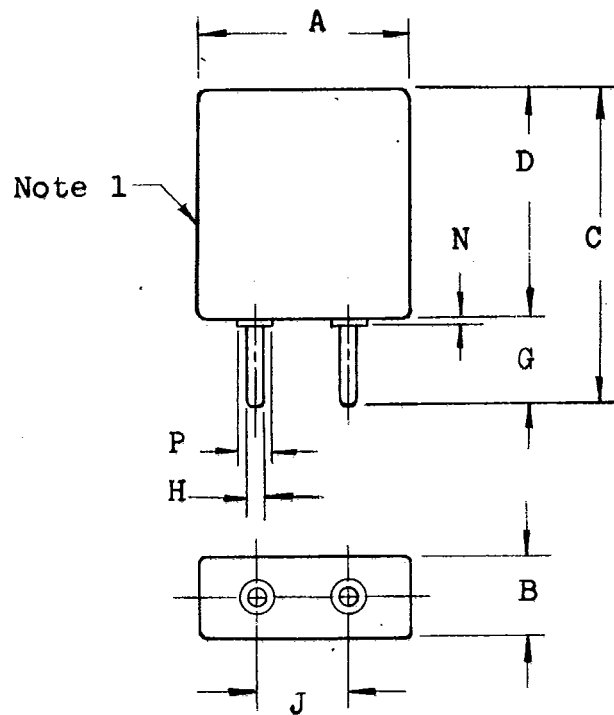
Pin Connections

no. of terminals and base configuration	no. of vibrators in holder	connect				
		vibrator number			heater, if any, to	ground, if any, to
		1 to	2 to	3 to		
2	1	1 & 2				
2 (with no. 1 identified)	2	1 & Holder	2 & Holder			
3 (not in line, rectangular) 	1 2	2 & 3 2 & 3	1 & 3		1 & 3	3
3 (in line)  (no. 3 identified)	1 2	1 & 3 1 & 2	2 & 3			
3 (small printed circuit grid) 	1	1 & 3				2
5 (medium printed circuit grid) 	1 2	1 & 5 1 & 5	3 & 7			4 4
7 (miniature) 	1 2 3	1 & 5 1 & 5 1 & 5	3 & 7 3 & 7 3 & 7	2 & 6	2 & 6 2 & 6	4 4 4
8 (loctal) (octal) 	1 2 3	1 & 5 1 & 5 1 & 5	3 & 7 3 & 7 3 & 7	2 & 6	2 & 6 2 & 6	4 4 4
9 (noval) 	1 2 3	1 & 6 1 & 6 1 & 6	3 & 8 3 & 8 3 & 8	2 & 7	4 & 9 4 & 9 4 & 9	5 5 5



1

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	0.797	0.812	0.827	20.25	20.62	21.00
B	0.407	0.437	0.447	10.34	11.10	11.35
C	1.548		1.638	39.32		41.60
D	1.110	1.125	1.140	28.20	28.58	28.95
G	0.370		0.430	9.40		10.92
H	0.091	0.093	0.095	2.312	2.362	2.413
J	0.481		0.491	12.22		12.47
P			0.187			4.75
T		0.183			4.65	



2

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.115	1.125	1.135	28.33	28.58	28.82
B	0.428	0.438	0.448	10.88	11.13	11.37
C		1.625			41.28	
D	1.155	1.187	1.209	29.34	30.15	30.70
G	0.423		0.453	10.75		11.50
H	0.091	0.093	0.095	2.312	2.362	2.413
J	0.481		0.491	12.22		12.47
N			0.038			0.96
P			0.187			4.74

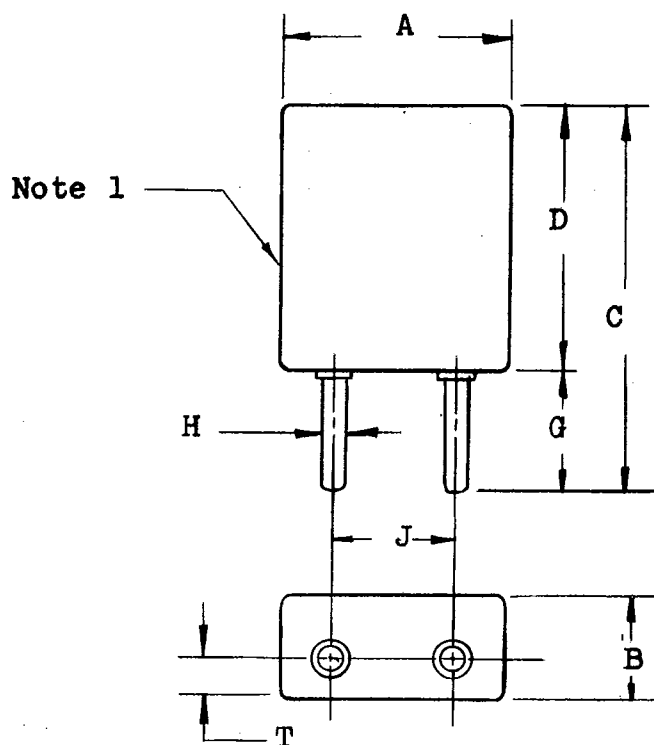
3

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.115	1.125	1.135	28.33	28.58	28.82
B	0.428	0.438	0.448	10.88	11.13	11.37
C		1.812			46.02	
D	1.155	1.187	1.209	29.34	30.15	30.70
G	0.610		0.640	15.50		16.25
H	0.123	0.125	0.127	3.125	3.175	3.225
J	0.495		0.505	12.58		12.82
N			0.038			0.96
P			0.375			9.52

Note:

- Holder 2 is shown to scale.





4

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.172	1.187	1.202	29.77	30.15	30.53
B	0.510	0.535	0.560	12.96	13.59	14.22
C			2.015			51.18
D	1.360	1.375	1.390	34.55	34.93	35.30
G	0.595		0.625	15.12		15.87
H	0.122	0.125	0.128	3.099	3.175	3.251
J	0.745		0.755	18.93		19.17
T	0.182		0.192	4.63		4.87

5

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.172	1.187	1.202	29.77	30.15	30.53
B	0.510	0.535	0.560	12.96	13.59	14.22
C			2.015			51.18
D	1.360	1.375	1.390	34.55	34.93	35.30
G	0.595		0.625	15.12		15.87
H	0.122	0.125	0.128	3.099	3.175	3.251
J	0.620		0.630	15.75		16.00
T	0.271		0.281	6.89		7.13

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6

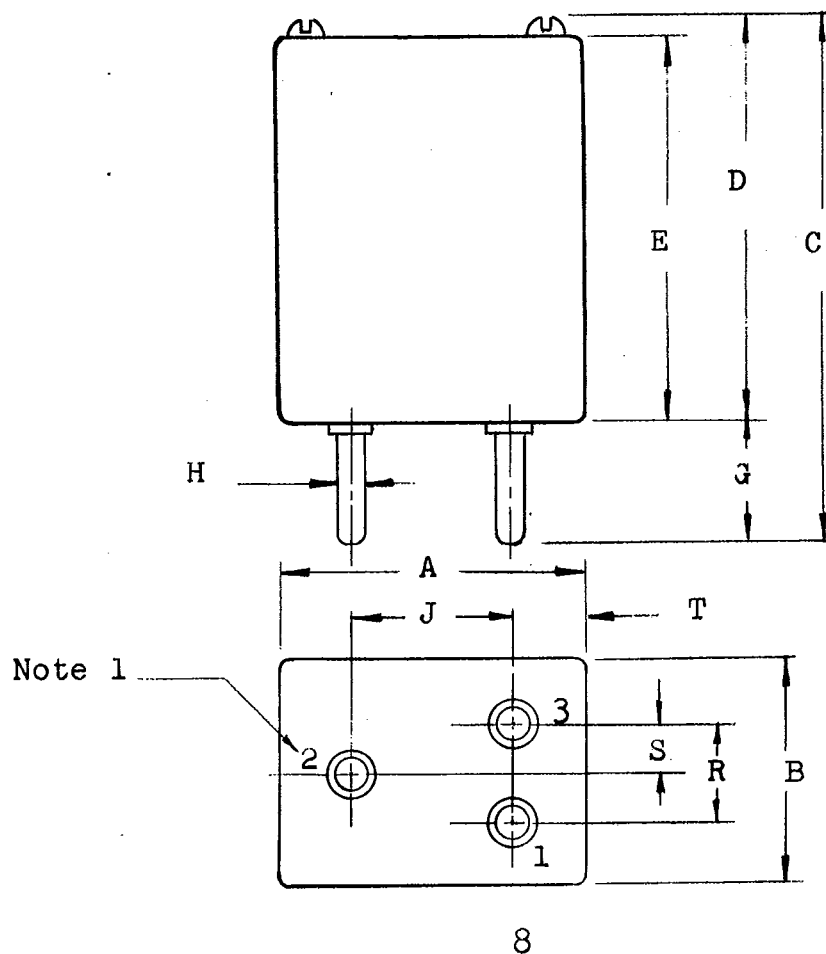
ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.172	1.187	1.202	29.77	30.15	30.53
B	0.510	.535	0.560	12.96	13.59	14.22
C			2.015			51.18
D	1.360	1.375	1.390	34.55	34.93	35.30
G	0.595		0.625	15.12		15.87
H	0.122	0.125	0.128	3.099	3.175	3.251
J	0.495		0.505	12.58		12.82
T	0.271		0.281	6.89		7.13

7

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.172	1.187	1.202	29.77	30.15	30.53
B	0.510	0.535	0.560	12.96	13.59	14.22
C			1.795			45.59
D	1.360	1.375	1.390	34.55	34.93	35.30
G	0.375		0.405	9.53		10.28
H	0.090	0.093	0.096	2.286	2.362	2.438
J	0.481		0.491	12.22		12.47
T	0.271		0.281	6.89		7.13

Note:

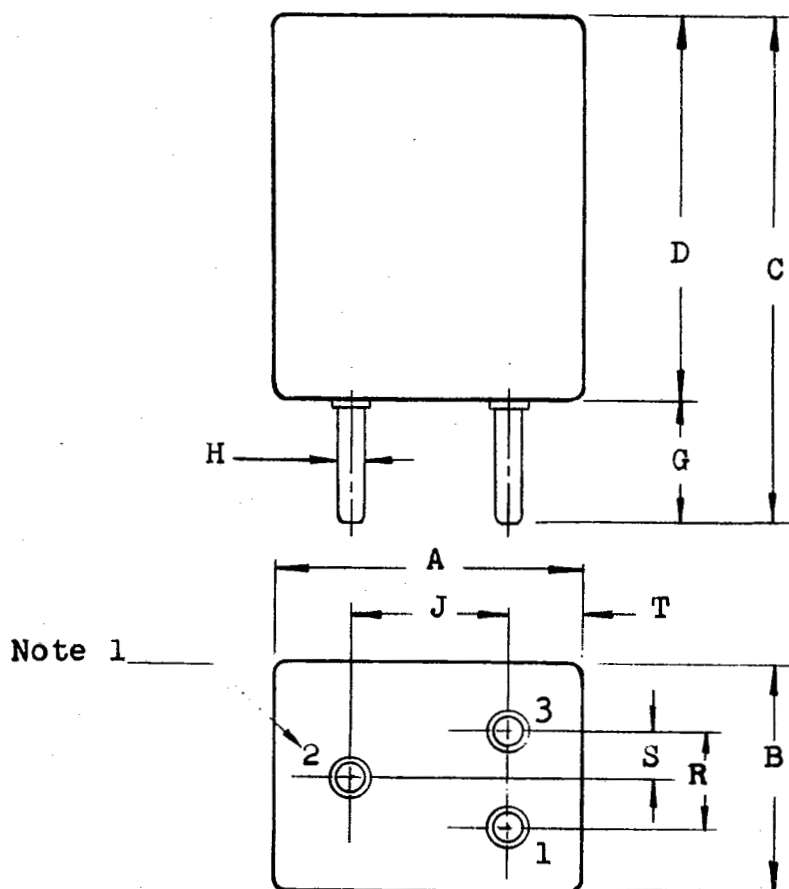
- Holder 5 is shown to scale.



ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.579	1.594	1.609	40.11	40.49	40.86
B	1.172	1.187	1.202	29.77	30.15	30.53
C			2.827			71.80
D	2.063	2.109	2.155	52.41	53.57	54.73
E	1.986		2.064	50.45		52.42
F	0.578		0.672	14.69		17.06
G	0.153	0.156	0.159	3.887	3.962	4.038
H	0.807		0.817	20.50		20.75
J	0.495		0.505	12.58		12.82
R	0.247		0.253	6.274		6.426
S	0.386		0.396	9.81		10.05

Note:

1. Pin numbers are for reference and need not appear on the apparatus.

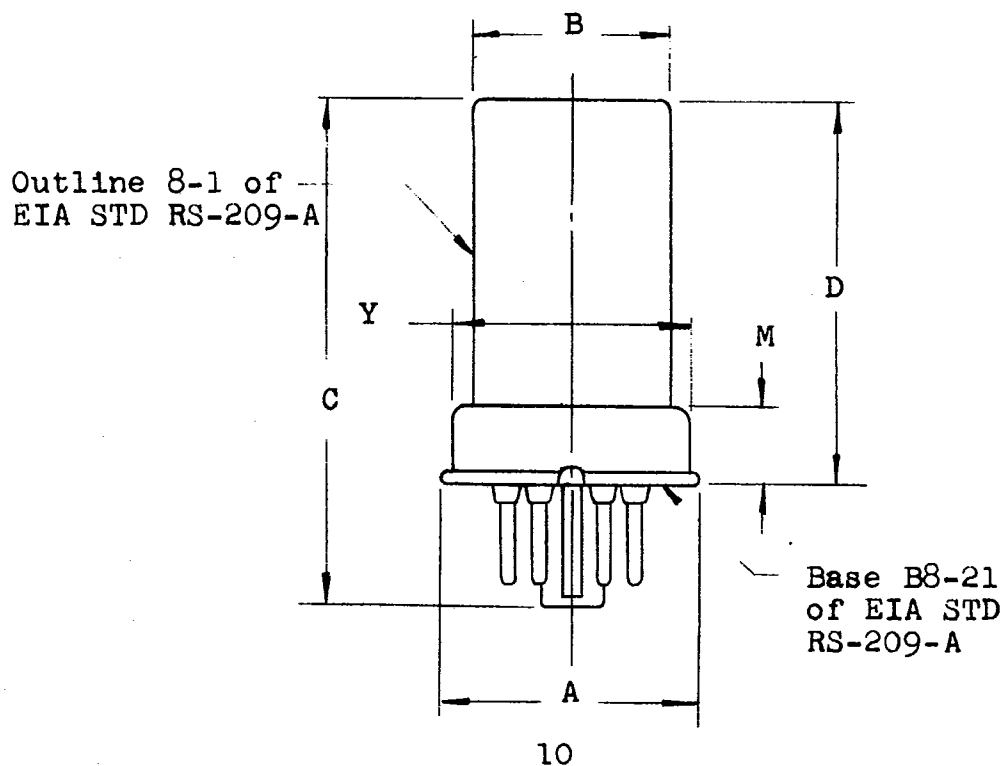


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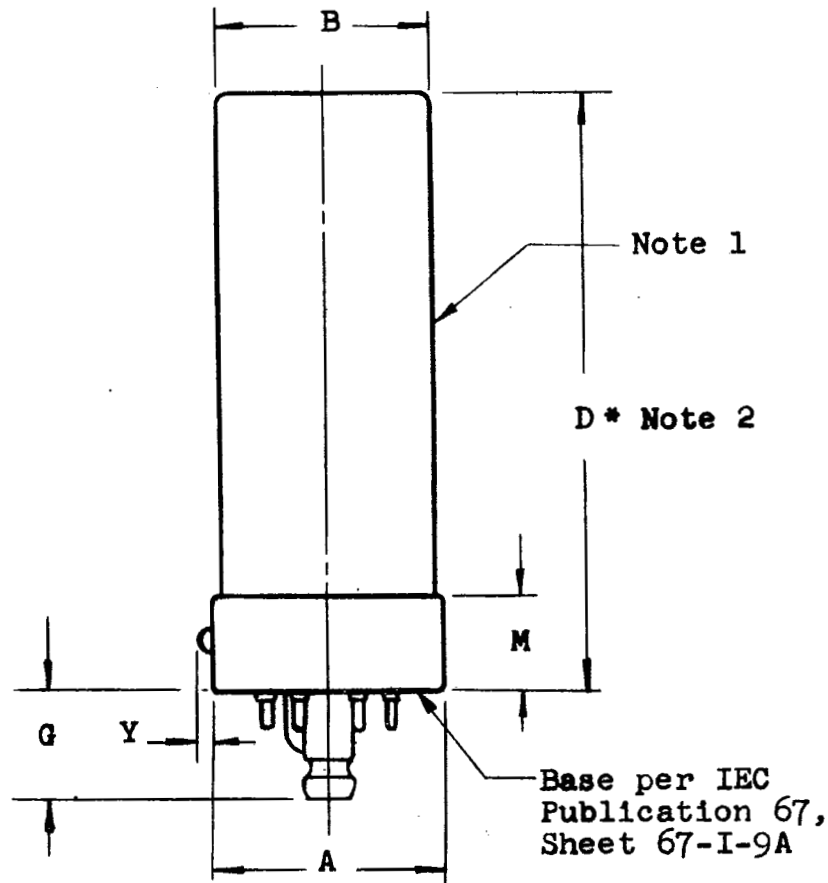
ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.579	1.594	1.609	40.11	40.49	40.86
B	1.172	1.187	1.202	29.77	30.15	30.53
C			2.736			69.49
D	1.986	2.025	2.064	50.45	51.44	52.42
E	0.578		0.672	14.69		17.06
F	0.153	0.156	0.159	3.887	3.962	4.038
G	0.807		0.817	20.50		20.75
H	0.495		0.505	12.58		12.82
J	0.247		0.253	6.274		6.426
T	0.386		0.396	9.81		10.05

Note:

1. Pin numbers are for reference and need not appear on the apparatus.



ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A			1.312			33.32
B			1.031			26.18
C			2.625			66.67
D	1.875	1.968	2.062	47.7	50.0	52.3
M	0.375		0.437	9.53		11.09
Y	1.187		1.250	30.15		31.75



11

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.170		1.187	29.72		30.14
B			1.120			28.44
D			1.535			39.00
G		0.534			13.56	
M	0.364	0.500		9.3	12.7	
Y			0.040			1.01

12

ref.	inches			millimeters		
	min.	nom.	max.	min.	nom.	max.
A	1.170		1.187	29.72		30.14
B			1.120			28.44
D			2.321			59.00
G		0.534			13.56	
M	0.364	0.500		9.3	12.7	
Y			0.040			1.01

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