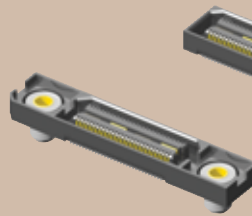


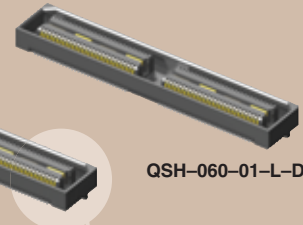
# samtec



QSH-090-01-F-D-A



QSH-030-01-F-D-A-RT1



QSH-060-01-L-D-A

## 0,50mm HI-SPEED SOCKET QSH, CQSH SERIES

### SPECIFICATIONS

For complete specifications and recommended PCB layouts see [www.samtec.com?QSH](http://www.samtec.com?QSH)

#### QSH

**Insulator Material:**

Liquid Crystal Polymer

**Contact Material:**

Phosphor Bronze

**Plating:**

Au over 50µ" (1,27µm) Ni

**Current Rating:**

Contact: 1.0A @ 30°C

Temperature Rise

Ground Plane: 7.8A @ 30°C

Temperature Rise

**Operating Temp Range:**

-55°C to +125°C

**Voltage Rating:**

125 VAC (5mm Stack Height)

**Max Cycles:** 100

**Unmating Force (-RT1 option):**

-RT1 option increases unmating force up to 50%

**RoHS Compliant:** Yes

#### Processing:

**Max Processing Temp:**

230°C for 60 seconds, or

260°C for 20 seconds 3x

**Lead-Free Solderable:** Yes

**SMT Lead Coplanarity:**

(0,10mm) .004" max (030-060)

(0,15mm) .006" max (090-120)

**Board Stacking:**

For applications requiring more

than two connectors per board

or 120 positions or higher,

contact [ipg@samtec.com](mailto:ipg@samtec.com)

**Mates with:**  
QTH, CQTH, HQCD  
(See Application  
Specific note)



**Note:** Some lengths, styles and options are non-standard, non-returnable.

5mm Stack Height	Rated @ -3dB Insertion Loss
Single-Ended Signaling	9 GHz / 18 Gbps
Differential Pair Signaling	8 GHz / 16 Gbps
Performance data for other stack heights available at <a href="http://www.samtec.com?QSH">www.samtec.com?QSH</a>	

Blade & Beam Design

Integral metal plane for power or ground

Polarized

(0,50mm)  
.0197" pitch



### ALSO AVAILABLE

Differential Pair version.  
See QSH-DP Series.  
Board Spacing Standoffs.  
See SO Series.

TYPE STRIP

NO. OF POSITIONS PER ROW

01

PLATING OPTION

D

A

OTHER OPTION

-030, -060, -090, -120  
(60 total positions per bank)

**QSH**  
(Requires -L or -F plating)

**CQSH**  
(Requires -C plating)

**-L**  
= 10µ" (0,25µm) Gold on  
Signal Pins and Ground Plane,  
Matte Tin on tails  
(QSH only)

**-F**  
= Gold Flash on Signal Pins  
and Ground Plane, Matte Tin on tails  
(QSH only)

**-C**  
= Electro-Polished Selective  
(CQSH only)

**-K**  
= (8,25mm) .325" DIA  
Polyimide Film Pick  
& Place Pad

**-TR**  
= Tape & Reel  
(-090 positions  
maximum)  
(QSH Series Only)

**-RT1**  
= Retention Option  
(-090 positions  
maximum)  
(QSH Series Only)

### SPECIFICATIONS

For complete specifications and recommended PCB layouts see [www.samtec.com?CQSH](http://www.samtec.com?CQSH)

#### CQSH

Same as QSH except:

UL & CSA certification pending

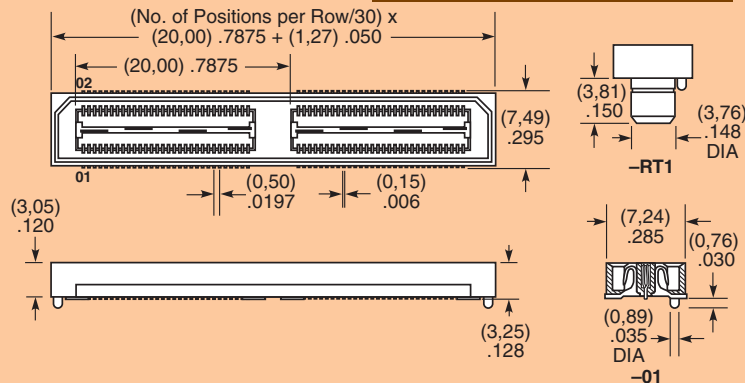
**Plating:**

Electro-Polished Selective

**Max Cycles:** 25

### APPLICATION SPECIFIC OPTION

- 14mm, 15mm, 22mm and 30mm stack height (Caution: Some automatic placement/inspection machines may have component height restrictions. Please consult machinery specifications.)
  - 30µ" (0,76µm) Gold (Specify -H plating for Data Rate cable mating applications. QSH only)
  - Edge Mount & Guide Posts (QSH only)
  - 150 positions per row (QSH only)
- Call Samtec.



### STACK HEIGHTS

QTH LEAD STYLE	MATED HEIGHT WITH QSH
-01	(5,00) .198
-02	(8,00) .315
-03	(11,00) .433
-04	(16,00) .630
-05	(19,00) .748
-07	(25,00) .984

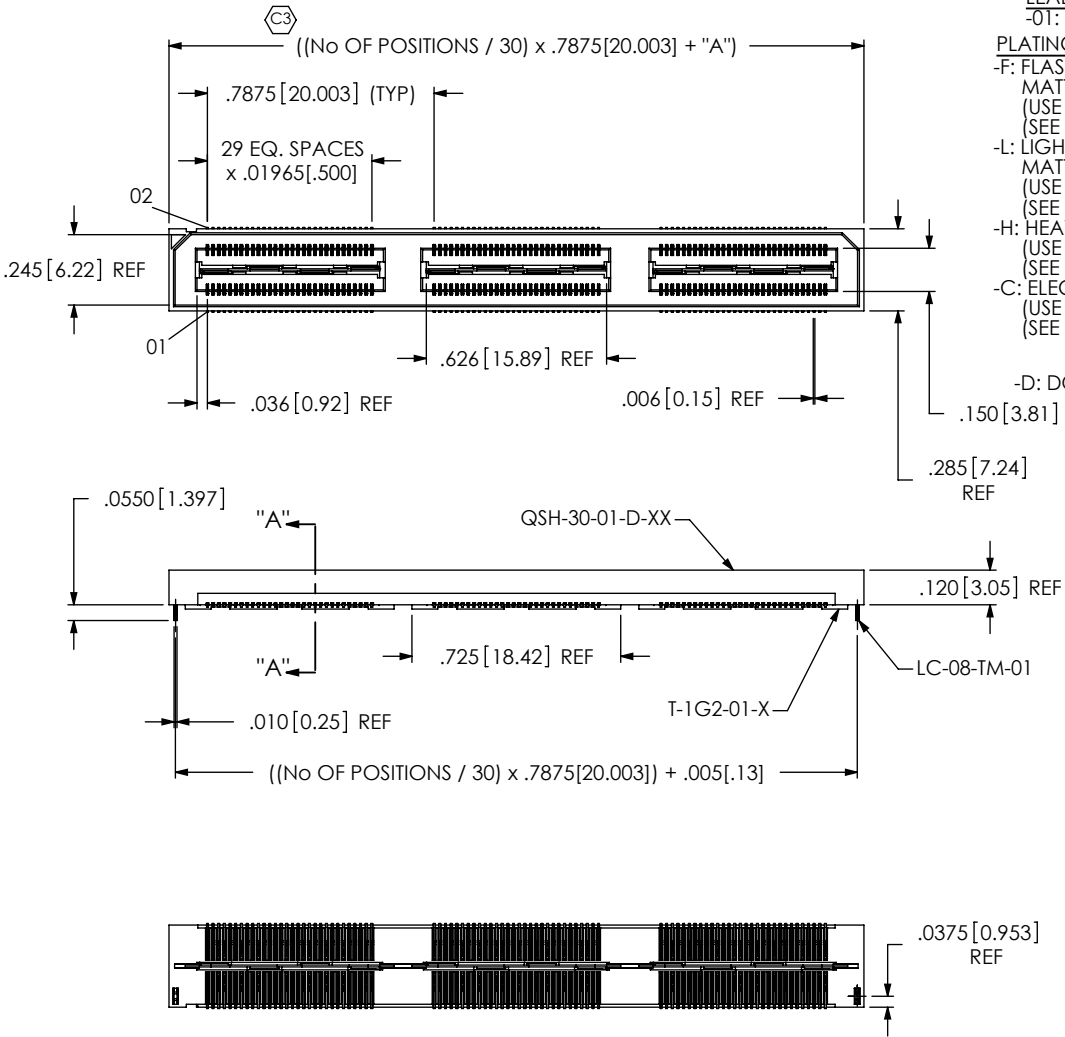
Processing conditions will affect mated height.

Due to technical progress, all designs, specifications and components are subject to change without notice.

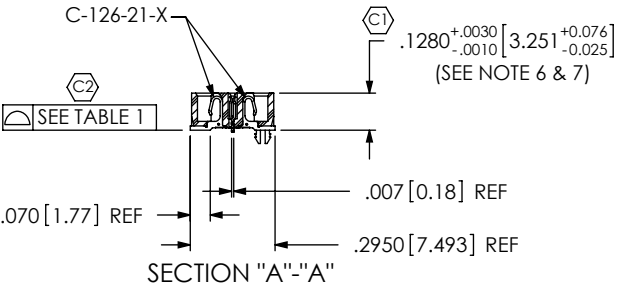
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FIG. 1  
-LC: LOCKING CLIP OPTION SHOWN



- QSH-XXX-01-X-D-XXX**
- No OF POSITIONS**  
-030, -060, -090,  
\* -120, \* -150  
(PER ROW)  
\*SEE NOTE 11
- LEAD STYLE**  
-0T: .1280[3.25]
- PLATING SPECIFICATION**  
-F: FLASH SELECTIVE GOLD WITH  
MATTE TIN TAILS  
(USE C-126-21-F, T-1G2-01-F)  
(SEE NOTE 8 & 10)  
-L: LIGHT SELECTIVE GOLD WITH  
MATTE TIN TAILS  
(USE C-126-21-L, T-1G2-01-L)  
(SEE NOTE 10)  
-H: HEAVY GOLD  
(USE C-126-21-H, T-1G2-01-G)  
(SEE NOTE 10)  
-C: ELECTRO-POLISHED SELECTIVE  
(USE C-126-21-C, T-1G2-01-L)  
(SEE NOTE 10)
- ROW SPECIFICATION**  
-D: DOUBLE (USE QSH-30-01-D-XX)
- OPTION**  
-A: ALIGNMENT PINS  
(USE QSH-30-01-D-XX-A,  
SEE FIG. 2)  
-LC: LOCKING CLIPS  
(USE LC-08-TM-01)  
-GP: GUIDE POSTS  
(USE QSH-30-01-D-XX-X-GP)  
(SEE FIG. 4, SHEET 3)  
(TAPE & REEL FOR -GP, 60 POS MAX)  
-K: POLYIMIDE FILM PAD  
(USE K-DOT-.325-.450-.005, SEE FIG. 3)  
-TR: TAPE & REEL (90 POS MAX)  
-FL: FRICTION LOCKS  
(SEE FIG. 5, SHEET 3)  
(NOT AVAILABLE WITH -GP)  
-RT1: RETENTION (MUST USE -A OPTION)  
(USE QSH-30-01-D-XX-A-RT1  
& SUB-SC-05-01-FF) (SEE FIG. 6, SHEET 3)  
(NOT AVAILABLE WITH -LC, -GP, OR -FL)  
(NOT AVAILABLE WITH -120 & -150 POS)
- No OF BANKS**



- NOTES:
1. Ⓢ REPRESENTS A CRITICAL DIMENSION.
  2. NOTE DELETED.
  3. CONTACT RETENTION: 8 OZ. MINIMUM.
  4. GROUND PLANE RETENTION: 8 OZ. MINIMUM.
  5. BURR ALLOWANCE: .0015[.038] MAX.
  6. MAX VARIANCE: .002[.05].
  7. DIMENSION APPLIES TO CONTACT & GROUND PLANE.
  8. -L PLATING CAN BE SUBSTITUTED FOR -F PLATING, -G PLATED GROUND PLANE CAN BE SUBSTITUTED FOR -F PLATED GROUND PLANE.
  9. SUB-SC-05-01-XX RETENTION TO BE 1.0 LBF IN BODY.
  10. MAY SUB C-126-01 FOR C-126-21.
  11. FOR NEW APPLICATIONS REQUIRING THESE POSITIONS, PLEASE CONTACT SAMTEC INTERCONNECT PROCESSING GROUP.

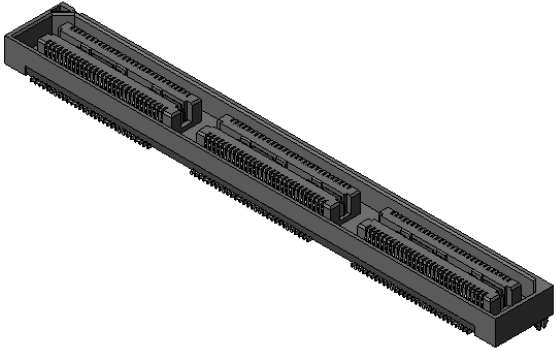


TABLE 1	
No OF POS	COPLANARITY INCLUDING GROUND PLANE
-030 THRU -060	.0040[.102]
-090 THRU -150	.0060[.152]

TABLE 2	
No OF BANKS	"A"
1-2	.0515
3-4	.0540
5	.0535

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES.  
TOLERANCES ARE:  
DECIMALS ANGLES  
.XX: ±.01[.3]  
.XXX: ±.005[.13]  
.XXXX: ±.0020[.051]

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e-Mail: info@SAMTEC.com code: 55322

<b>MATERIAL:</b> DO NOT SCALE DRAWING	SHEET SCALE: 1.5:1	DESCRIPTION: .5mm DOUBLE ROW HS SOCKET ASSEMBLY
INSULATOR: BLACK LCP CONTACT & GROUND PLANE: PHOS BRONZE	DWG. NO. <b>QSH-XXX-01-X-D-XXX</b>	
BY: DEAN P 05/21/1999		SHEET 1 OF 3

FIG. 2

-A: ALIGNMENT PIN OPTION

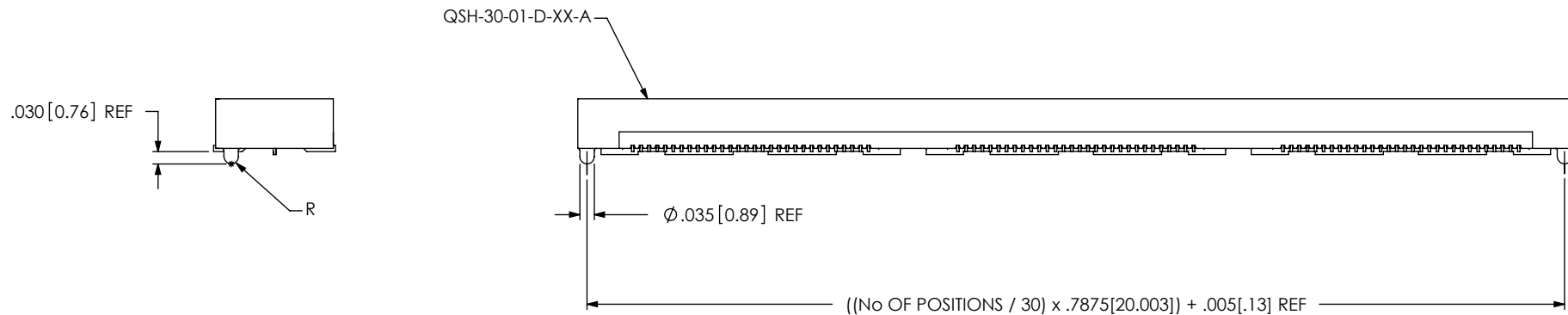
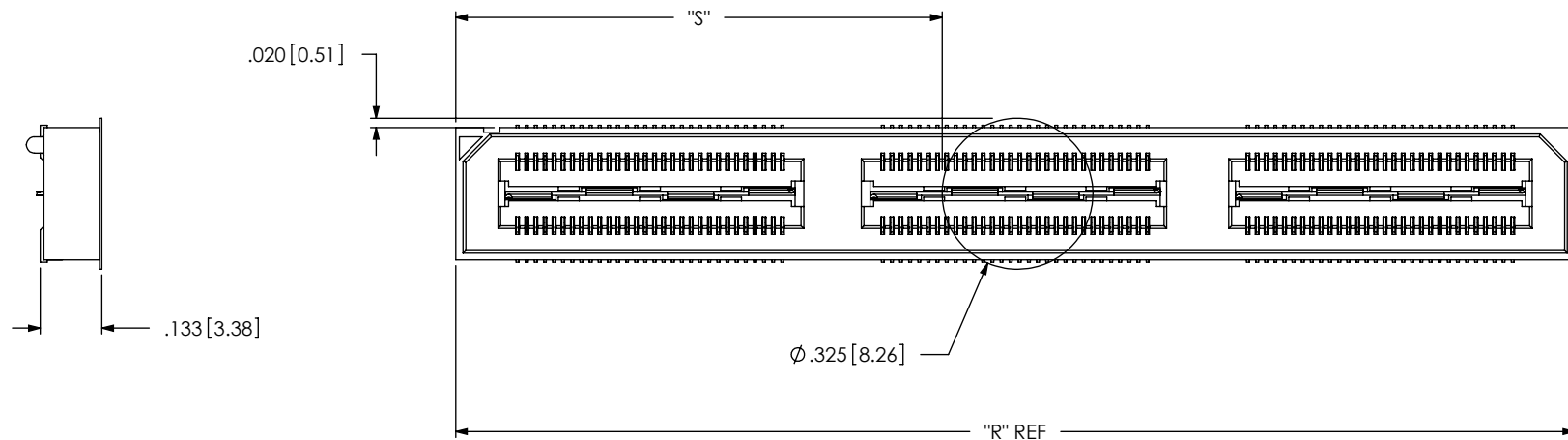


FIG. 3

-K: POLYIMIDE FILM PAD  
[USE K-DOT-.325-.450-.005]



NOTE: "R" =  $((\text{No OF POSITIONS} / 30) \times .7875[20.003]) + .050[1.27]$   
 WITH -RT1 OPTION: "R" =  $((\text{No OF POSITIONS} / 30) \times .7875[20.003]) + .650[16.51] \text{ REF}$   
 WITH -GP OPTION: "R" =  $((\text{No OF POSITIONS} / 30) \times .7875[20.003]) + .4285[10.884] \text{ REF}$   
 "S" =  $((\text{"R"} - .325[8.26]) / 2) \pm .020[.51]$

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SHEET SCALE: 2.5:1

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DESCRIPTION:  
.5mm DOUBLE ROW HS SOCKET ASSEMBLY

DWG. NO.  
QSH-XXX-01-X-D-XXX

BY: DEAN P 05/21/1999 SHEET 2 OF 3

FIG. 4

-GP: GUIDE POSTS  
(SAME AS FIG. 1, UNLESS OTHERWISE STATED)

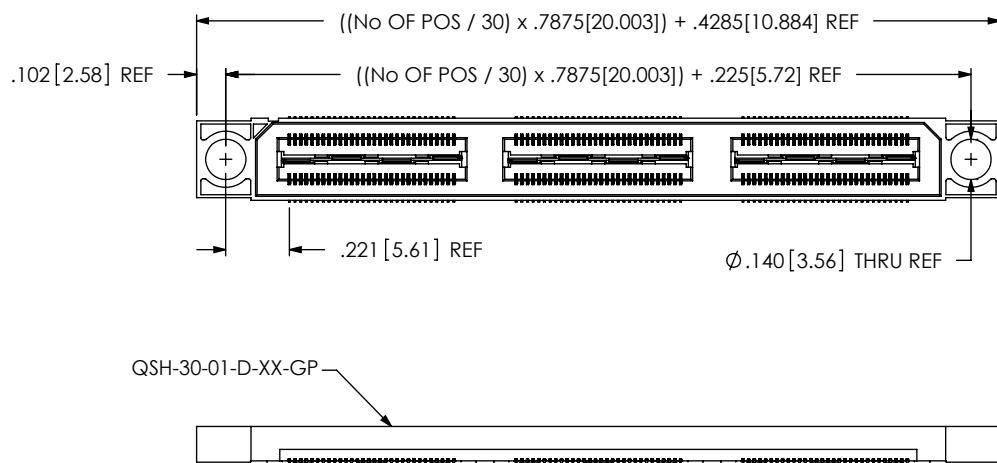


FIG. 5

-FL: FRICTION LOCKS  
(NOT AVAILABLE WITH -GP OPTION)  
(SAME AS FIG. 1, UNLESS OTHERWISE STATED)

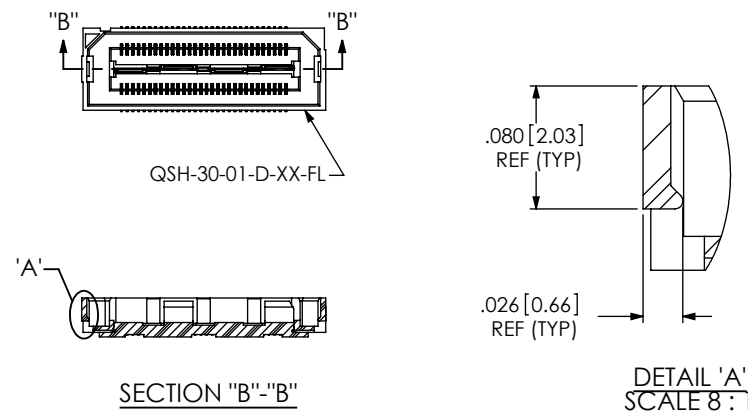
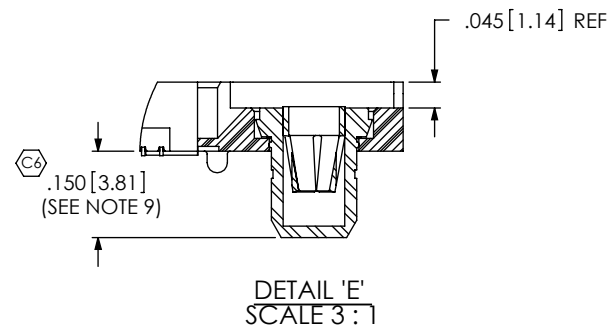
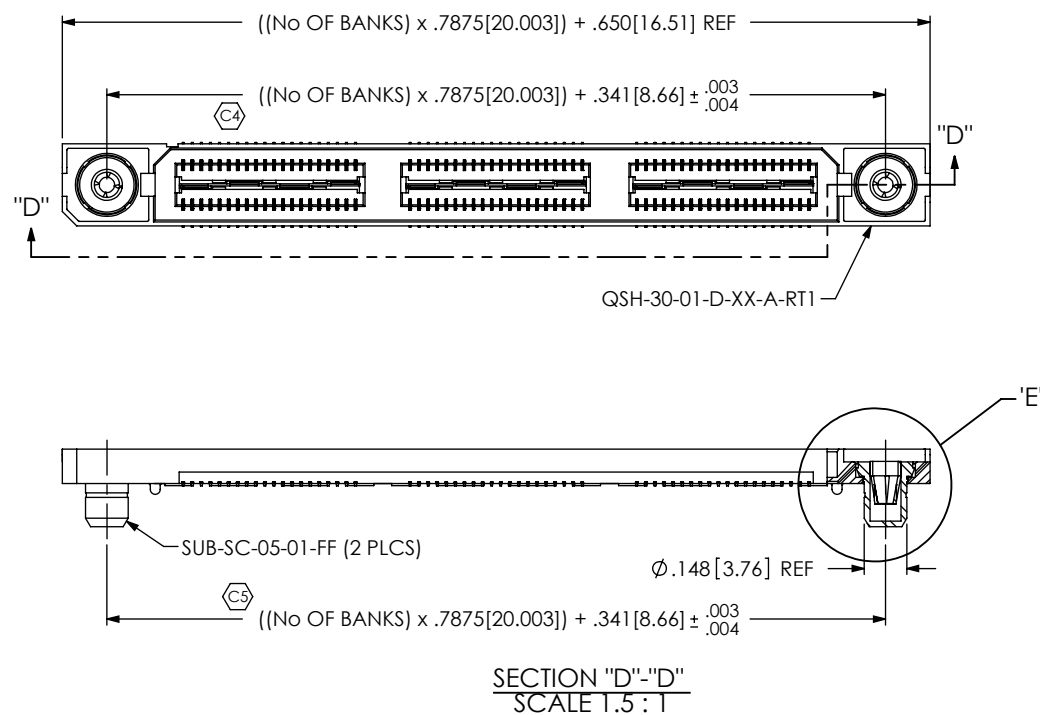


FIG. 6

-RT1: RETENTION OPTION  
(MUST USE -A OPTION)  
(NOT AVAILABLE WITH -LC, -GP, OR -FL OPTIONS)  
(NOT AVAILABLE WITH -120 & -150 POS)  
(SAME AS FIG. 1, UNLESS OTHERWISE STATED)



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SHEET SCALE: 1.5:1

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DESCRIPTION:  
.5mm DOUBLE ROW HS SOCKET ASSEMBLY

DWG. NO. QSH-XXX-01-X-D-XXX

BY: DEAN P 05/21/1999 SHEET 3 OF 3

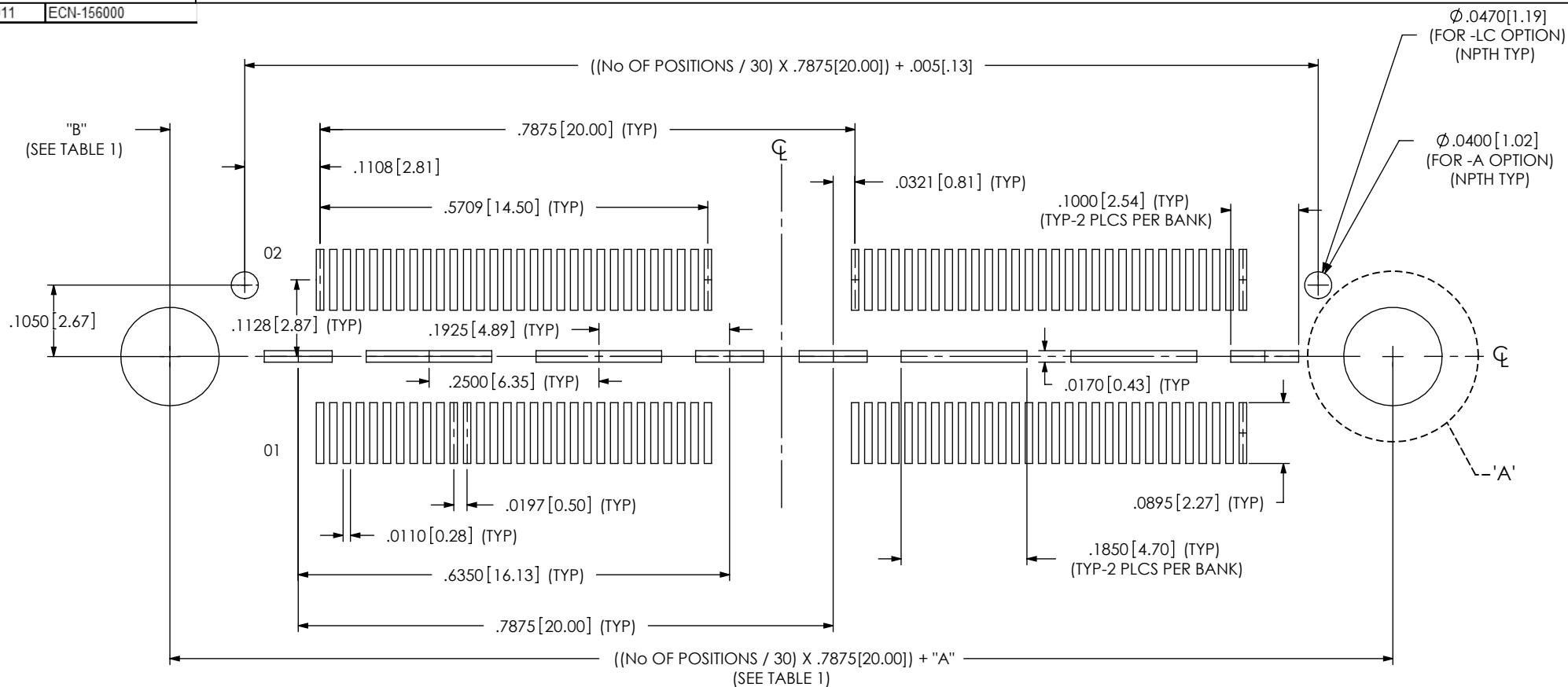
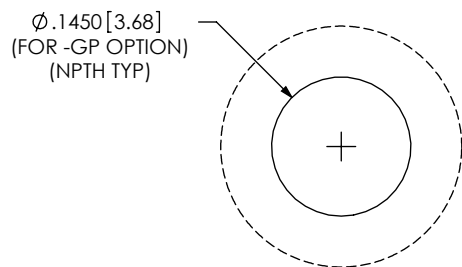
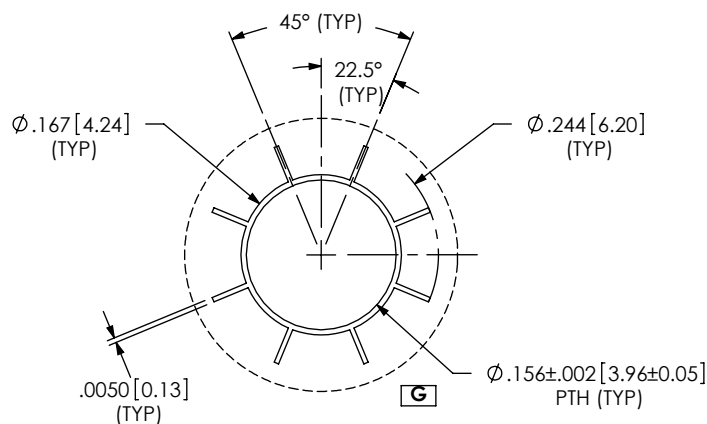


FIG 1



-GP OPTION:

DETAIL 'A'  
SCALE 5:1



-RT1 OPTION:

DETAIL 'A'  
SCALE 5:1

ALL DIMENSIONS ARE SYMMETRIC ABOUT THE CENTERLINE.

TABLE 1

OPTION	"A"	"B"
-GP	.2250 [5.715]	.2208 [5.609]
-RT1	.3410 [8.661]	.2788 [7.082]

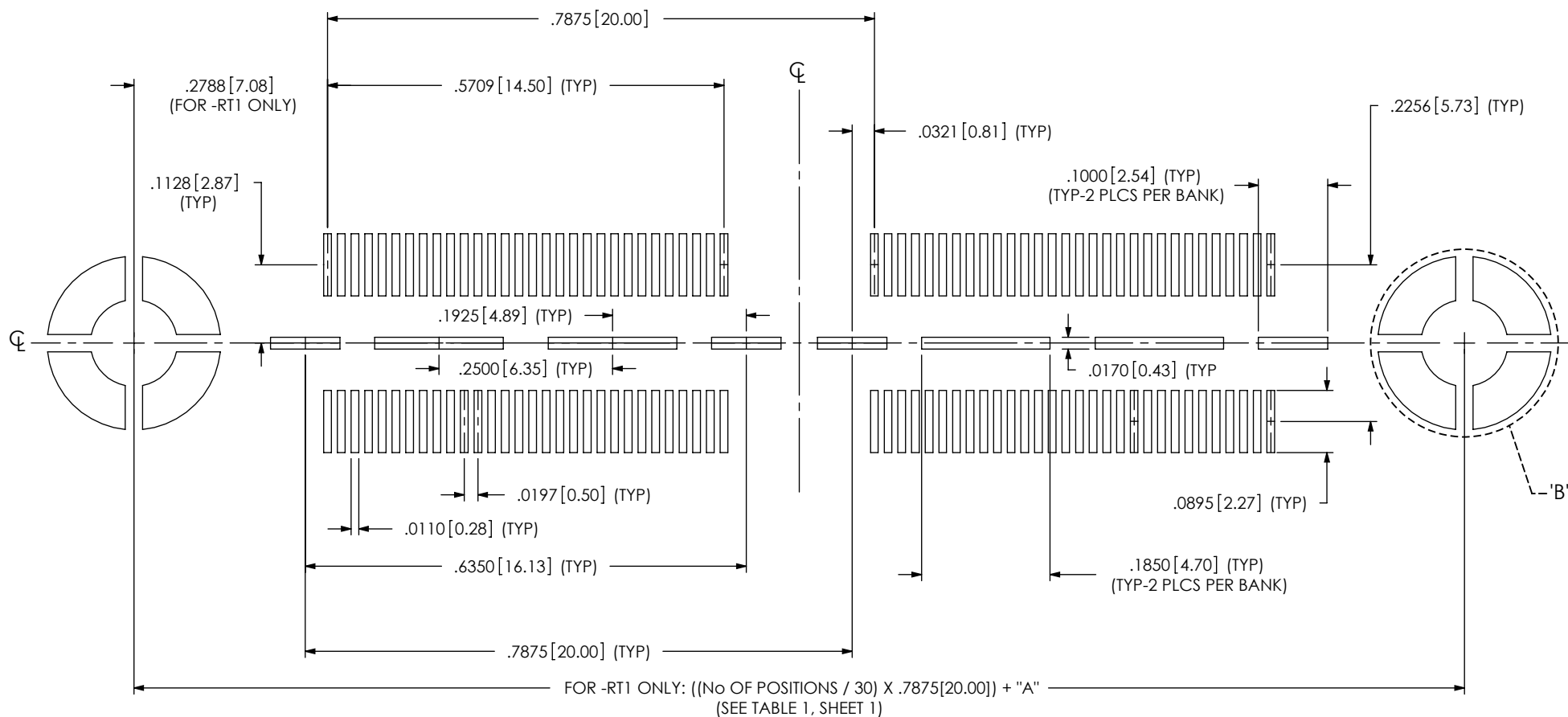
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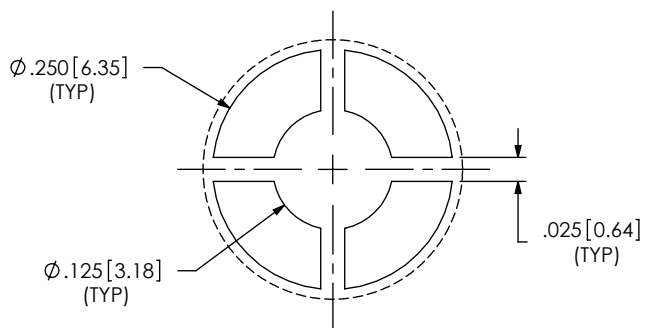
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NOTE:  
STENCIL TO BE .0060[.152] THICK.



FOR -RT1 ONLY:

FIG 2



DETAIL 'B'  
SCALE 5:1

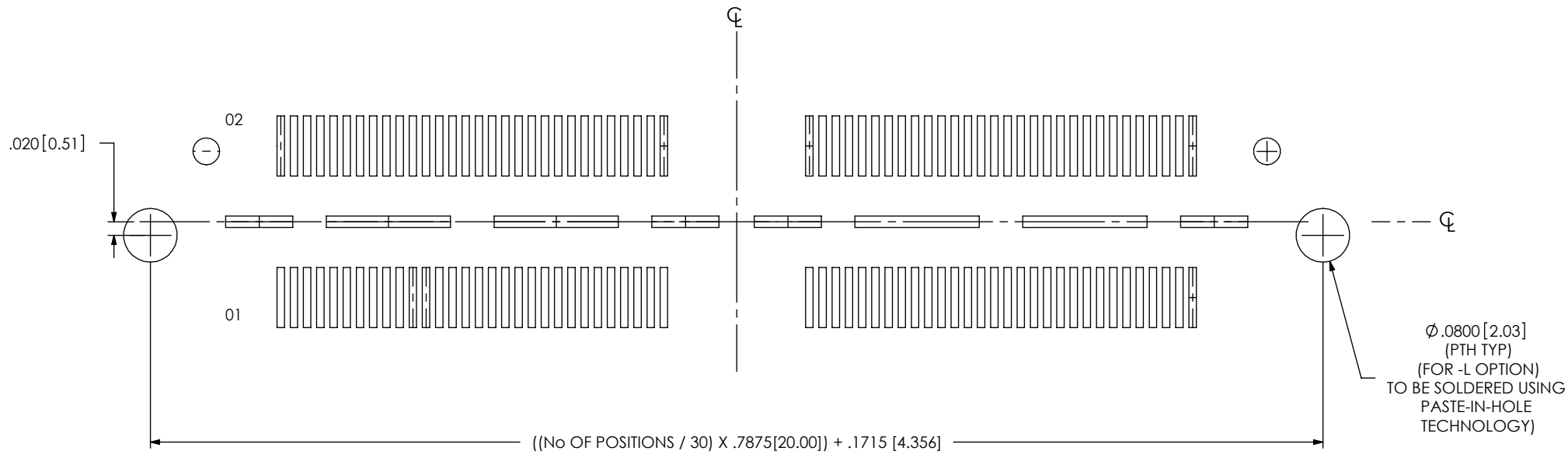
ALL DIMENSIONS ARE SYMMETRIC ABOUT THE CENTERLINE.

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**FIG 3**  
-L OPTION  
ALL DIMENSIONS ARE SYMMETRIC ABOUT THE CENTERLINE.  
(SAME AS FIG 1 EXCEPT AS SHOWN)

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NOTE:  
STENCIL TO BE .0060[.152] THICK

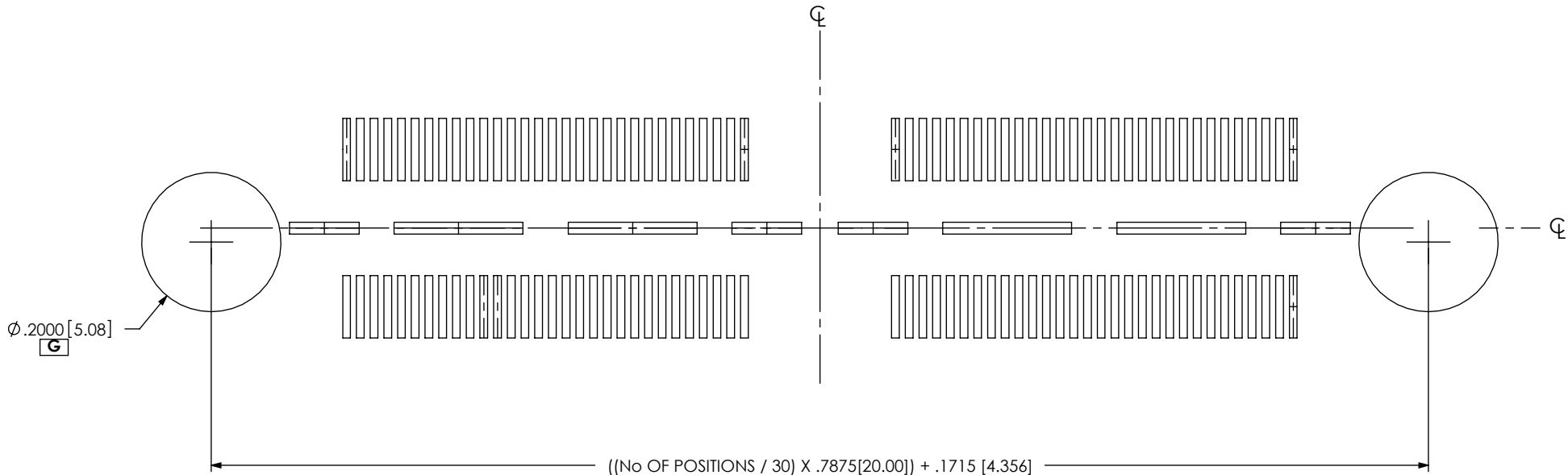


FIG 4  
-L OPTION  
ALL DIMENSIONS ARE SYMMETRIC ABOUT THE CENTERLINE.  
(SAME AS FIG 2 EXCEPT AS SHOWN)

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