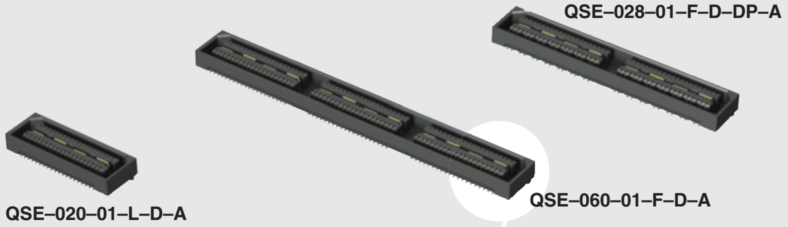
F-215 (Rev 13JUL15)

samtec

QSTRIP®



(0.80 mm) .0315"

QSE SERIES

HIGH SPEED GROUND PLANE SOCKET

SPECIFICATIONS

For complete specifications and recommended PCB layouts see www.samtec.com?QSE

Insulator Material:
Liquid Crystal Polymer
Terminal Material:
Phosphor Bronze
Plating:
Au or Sn over
50µ" (1.27 µm) Ni
Current Rating:
Contacts:
2 A per pin
(1 pin powered per row)
Ground Plane:
23 A per ground plane
(1 ground plane powered)
Operating Temp Range:
-55°C to +125°C
Voltage Rating:
225 VAC (5 mm Stack Height)
Max Cycles: 100
RoHS Compliant: Yes

Processing:

Lead–Free Solderable: Yes
SMT Lead Coplanarity:
(0.10 mm) .004" max (020-060)
Board Stacking:
For applications requiring more than two connectors per board contact ipg@samtec.com

RECOGNITIONS

For complete scope of recognitions see www.samtec.com/quality

FILE NO. E111594 FILE NO: 090871_0_000

ALSO AVAILABLE
(MOQ Required)

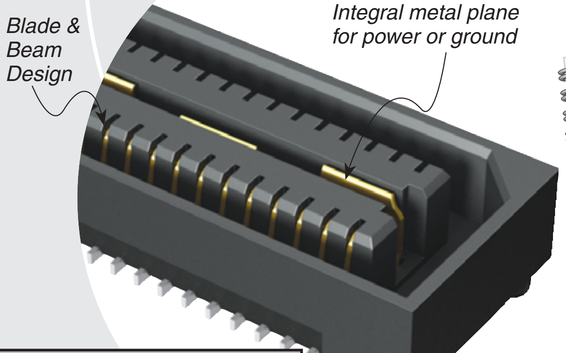
- 15 mm, 22 mm and 30 mm stack height (Caution: Some automatic placement/inspection machines may have component height restrictions. Please consult machinery specifications.)
- 30µ" (0.76 µm) Gold (Specify -H plating for Data Rate cable mating applications.)
- Edge Mount
- 56 (-DP), 80, 100 positions per row
- Guide Posts and Friction Lock options.
- Retention Option

Contact Samtec.

Board Mates:
QTE

Cable Mates:
EQCD, EQDP, EQRF
(See Also Available note)

E.L.P.™
EXTENDED LIFE PRODUCT
10 year Mixed Flowing Gas with 50µ" Gold
Call Samtec for maximum mated cycles



Protocols Supported
100 GbE
XAUI
PCI Express®
SATA
MGT (Rocket I/O)
InfiniBand™
Download app notes at www.samtec.com/appnote
Contact SIG @ samtec.com for questions on protocols

QTE/QSE 5 mm Stack Height	Type	Rated @ 3dB Insertion Loss	
		with PCB effects*	w/o PCB effects**
Single-Ended Signaling	–D	9 GHz / 18 Gbps	9 GHz / 18 Gbps
Differential Pair Signaling	–D	8 GHz / 16 Gbps	14 GHz / 28 Gbps
Differential Pair Signaling	–DP	8.5 GHz / 17 Gbps	13.5 GHz / 27 Gbps

*Performance data includes effects of a non-optimized PCB.
**Test board losses de-embedded from performance data.

Performance data for other stack heights and complete test data available at www.samtec.com?QSE or contact sig@samtec.com

Final Inch® CERTIFIED | 28+ Gbps

QSE – PINS PER ROW NO. OF PAIRS – 01 – PLATING OPTION – TYPE – A – OTHER OPTION

PINS PER ROW / NO. OF PAIRS

–020, –040, –060
(40 total pins per bank = –D)

–014, –028, –042
(14 pairs per bank = –D–DP)

PLATING OPTION

–F
= Gold Flash on Signal Pins and Ground Plane, Matte Tin on tails

–L
= 10µ" (0.25 µm) Gold on Signal Pins and Ground Plane, Matte Tin on tails

–C*
= Electro-Polished Selective 50µ" (1.27 µm) min Au over 150µ" (3.81 µm) Ni on Signal Pins in contact area, 10µ" (0.25 µm) min Au over 50µ" (1.27 µm) Ni on Ground Plane in contact area, Matte Tin over 50µ" (1.27 µm) min Ni on all solder tails

TYPE

–D
= Single-Ended

–D–DP
= Differential Pair
(–01 only)

QTE LEAD STYLE	MATED HEIGHT WITH QSE*
–01	(5.00) .197
–02	(8.00) .315
–03	(11.00) .433
–04	(16.00) .630
–05	(19.00) .748
–07	(25.00) .984
–09	(14.00) .551

*Processing conditions will affect mated height.

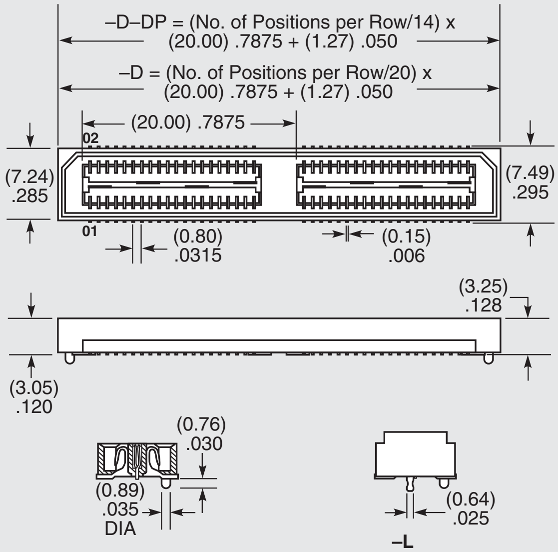
OTHER OPTION

–GP
= Guide Post
(–020 only)

–K
= (8.25 mm) .325" DIA Polyimide Film Pick & Place Pad

–TR
= Tape & Reel Packaging

–L
= Latching Option
(N/A on –042 & –060 positions)



***Note:** –C Plating passes 10 year MFG testing

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

OTHER SOLUTIONS

- Board Spacing Standoffs. See SO Series

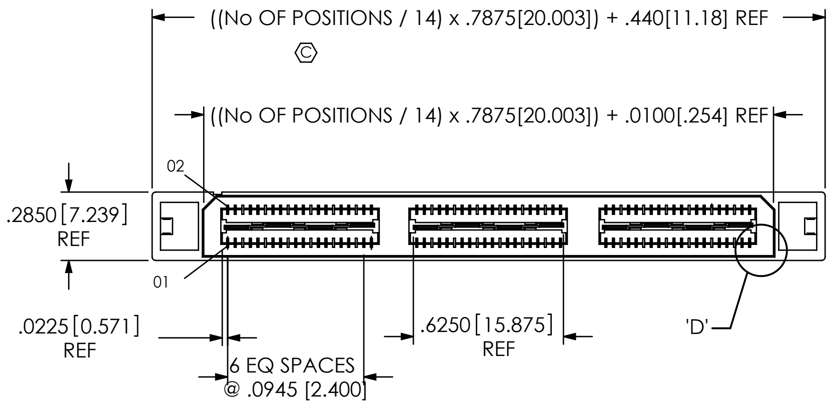
REVISION Y

FIG 1

QSE-042-01-X-D-DP-EMX SHOWN

ASO ONLY (APPLICATION SPECIFIC ORDER)

DO NOT SCALE FROM THIS PRINT



QSE-XXX-01-X-D-DP-EMX-XX

No OF PAIRS
-014, -028, -042
** -056, **-070
(PER ROW)
** SEE NOTE 13

LEAD STYLE
-01: .1380[3.505]

PLATING SPECIFICATION
PLATING THICKNESSES ARE FOR SIGNAL PINS ONLY. FOR GROUND PLANE THICKNESSES, SEE PP-T-1G13-XX-X.
-F: 3μ" FLASH SELECTIVE GOLD IN CONTACT AREA MATTE TIN ON TAIL (SEE NOTE 6) (USE C-162-XX-F & T-1G13-01-F)
-L: 10μ" LIGHT SELECTIVE GOLD IN CONTACT AREA WITH MATTE TIN ON TAIL (USE C-162-XX-L & T-1G13-01-L)
-H: 30μ" HEAVY GOLD IN CONTACT AREA, 3μ" FLASH GOLD ON TAIL (USE C-162-XX-H & T-1G13-01-G)
-TL: TIN/LEAD (90/10±5%) CONTACT AND TAIL
-S: 30μ" SELECTIVE GOLD IN CONTACT AREA, (USE C-162-XX-S & T-1G13-01-L) MATTE TIN ON TAIL

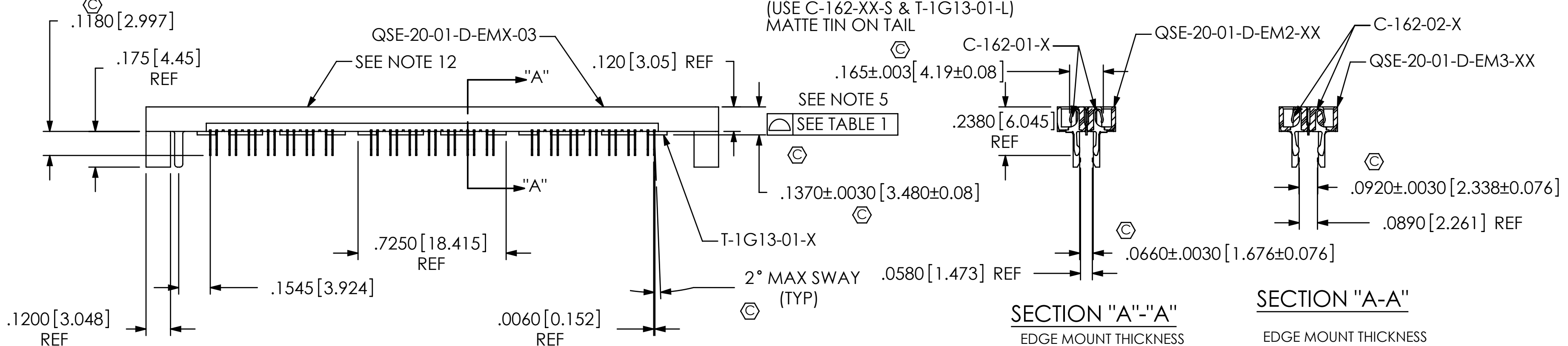
ROW SPECIFICATION
-D: DOUBLE (USE QSE-20-01-D-EMX-XX)

No OF BANKS

DIFFERENTIAL PAIR

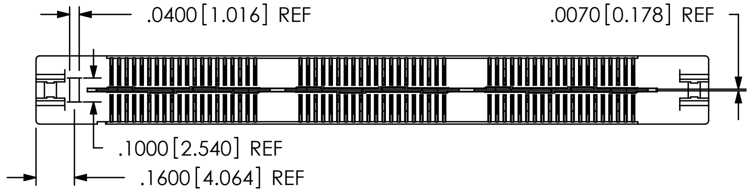
EDGE MOUNT THICKNESS
-EM2: .064[1.63] +/-.004 PCB (USE QSE-20-01-D-EM2-XX & C-162-01-X)
-EM3: (USE QSE-20-01-D-EM3-XX & C-162-02-X) (SEE NOTE 10)

OPTION
* -GP: GUIDE POST (SEE FIG 3, SHEET 2)
* EM3-GP=NOT TOOLED



SECTION "A"-"A"
EDGE MOUNT THICKNESS
-EM2: .064 [1.63] +/-.004 PCB

SECTION "A-A"
EDGE MOUNT THICKNESS
-EM3:
(DIFFERENT AS SHOWN, OTHERWISE SAME AS -EM2 PCB THICKNESS)
(SEE NOTE 10)



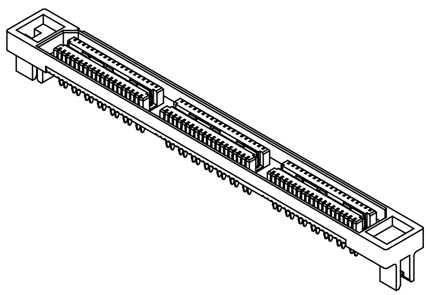


TABLE 1

No OF PAIRS	Ⓒ GND PLANE COPLANARITY	ASSEMBLY BOW
-014 THRU -042	.004 [0.10]	.004 [0.10]
**-056 THRU **-070	.005[1.27]	.005[1.27]

** = SEE NOTE 13

NOTES:

1. Ⓒ REPRESENTS A CRITICAL DIMENSION.
2. MINIMUM CONTACT RETENTION: 6 OZ
3. MINIMUM GROUND PLANE RETENTION: 8 OZ
4. PARTS ARE MOLD TO POSITION.
5. MAXIMUM VARIANCE OF .002[0.05]
6. -L PLATING CAN BE SUBSTITUTED FOR -F PLATING.
7. NOTE DELETED.
8. BOARD THICKNESS TO BE MEASURED FROM SOLDER PAD TO SOLDER PAD.
9. SEE http://www.samtec.com/processing/edgemt_tectalk/index.htm FOR INFORMATION ON PROCESSING EDGE MOUNT PARTS.
10. -EM3 IS NOT A STANDARD OFFERING; AVAILABLE AS AN ASP ONLY. PLEASE CONTACT SAMTEC INTERCONNECT PROCESSING GROUP WITH ORDER INQUIRIES
11. NOTE DELETED.
12. SIDE WALLS ARE RIBBED AS NECESSARY TO CONTROL BOW.
13. AVAILABLE FOR EXISTING CUSTOMERS ONLY.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.
TOLERANCES ARE:

DECIMALS	ANGLES
.XX: ±.01[.3]	2°
.XXX: ±.005[.13]	
.XXXX: ±.0020[.051]	

PROPRIETARY NOTE

samtec
520 PARK EAST BLVD, NEW ALBANY, IN 47150
PHONE: 812-944-6733 FAX: 812-948-5047
e-Mail info@SAMTEC.com code 55322

MATERIAL: DO NOT SCALE DRAWING SHEET SCALE: 1.25:1
INSULATOR: LCP, UL 94VO
COLOR: BLACK

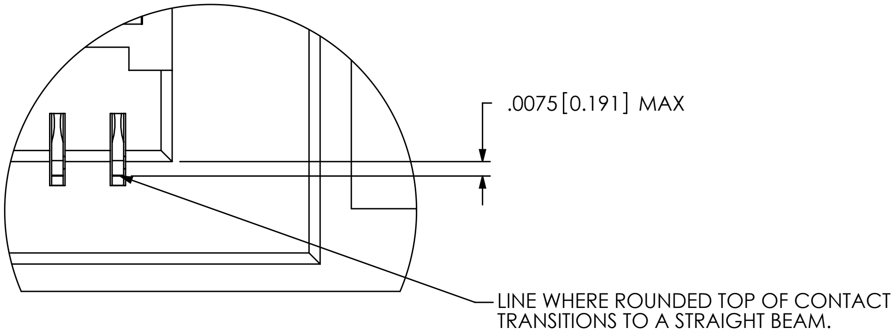
CONTACT: PHOS BRONZE
GROUND PLANE: PHOS BRONZE
F:\DWG\MISC\MKTG\QSE-XXX-01-X-D-DP-EMX-XX-MKT.SLDDRW

DESCRIPTION:
.8mm EDGEMOUNT DIFF PAIR HS SOCKET ASSEMBLY

DWG. NO.
QSE-XXX-01-X-D-DP-EMX-XX

BY: DEAN P 4/10/2001 SHEET 1 OF 2

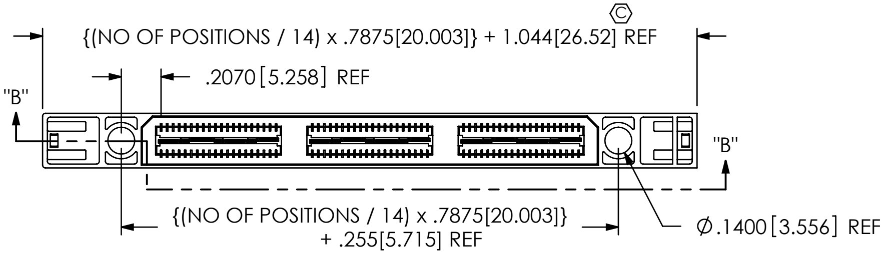
REVISION Y

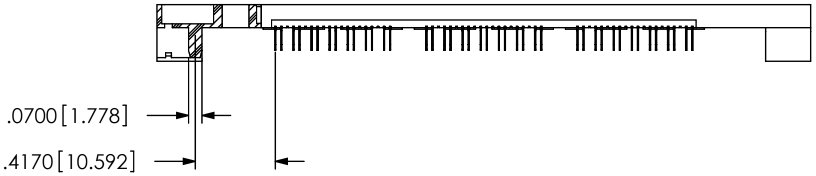


DETAIL 'D'
SCALE 10 : 1

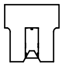
FIG 3

-GP OPTION
(SAME AS FIG 1, UNLESS OTHERWISE STATED)
(42 POSITION MAX)
(ONLY AVAILABLE WITH -EM2 OPTION)





SECTION "B"-"B"
SCALE 1 : 1



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PROPRIETARY NOTE

DO NOT SCALE DRAWING

SHEET SCALE: 2:1

samtec
520 PARK EAST BLVD, NEW ALBANY, IN 47150
PHONE: 812-944-6733 FAX: 812-948-5047
e-Mail info@SAMTEC.com code 55322

DESCRIPTION:
.8mm EDGEMOUNT DIFF PAIR HS SOCKET ASSEMBLY

DWG. NO.
QSE-XXX-01-X-D-DP-EMX-XX

BY: DEAN P 4/10/2001 SHEET 2 OF 2

REVISION AD

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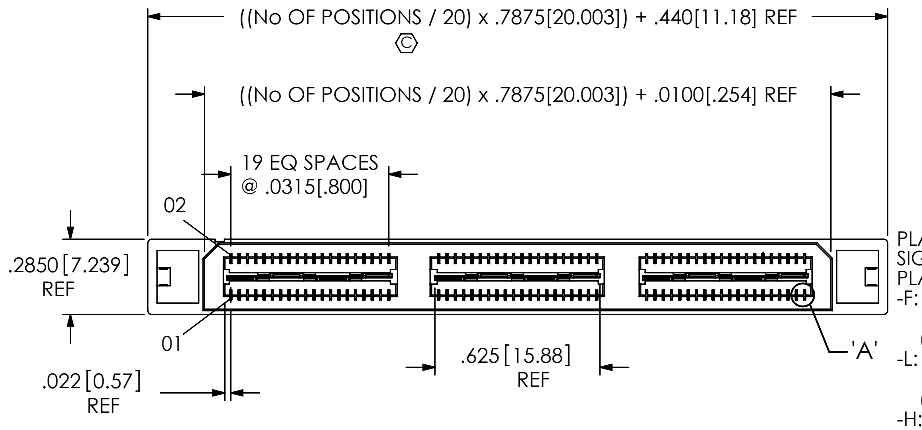


QSE-XXX-01-X-D-EMX-XX

No OF POSITIONS
-020, -040, -060
**-080, **-100
(PER ROW)

LEAD STYLE
-01: .1380 [3.505]

PLATING SPECIFICATION
PLATING THICKNESSES ARE FOR SIGNAL PINS ONLY. FOR GROUND PLANE THICKNESSES, SEE PP-T-1G13-XX-X.
-F: 3µ" FLASH SELECTIVE GOLD IN CONTACT AREA MATTE TIN ON TAIL (SEE NOTE 6)
(USE C-162-XX-F & T-1G13-01-F)
-L: 10µ" LIGHT SELECTIVE GOLD IN CONTACT AREA WITH MATTE TIN ON TAIL
(USE C-162-XX-L & T-1G13-01-L)
-H: 30µ" HEAVY GOLD IN CONTACT AREA 3µ" FLASH GOLD ON TAILS
(USE C-162-XX-H & T-1G13-01-G)
-TL: TIN/LEAD (90/10±5%) CONTACT AND TAIL
-S: 30µ" SELECTIVE GOLD IN CONTACT AREA, MATTE TIN ON TAIL
(USE C-162-XX-S & T-1G13-01-L)

OPTION
* -GP: GUIDE POST (60 POS MAX)
(SEE FIG 2, SEE SHEET 2)
-TY: TRAY PACKAGING
* EM3-GP = NOT TOOLED

EDGE MOUNT THICKNESS
-EM2: .064[1.63] +/-.004 PCB
(USE QSE-20-01-D-EM2-XX & C-162-01-X)
-EM3:
(USE QSE-20-01-D-EM3-XX & C-162-02-X)
(SEE NOTE 10)

ROW SPECIFICATION
-D: DOUBLE (USE QSE-20-01-D-EMX-XX)

No OF BANKS

*** = SEE NOTE 10**
**** = SEE NOTE 13**

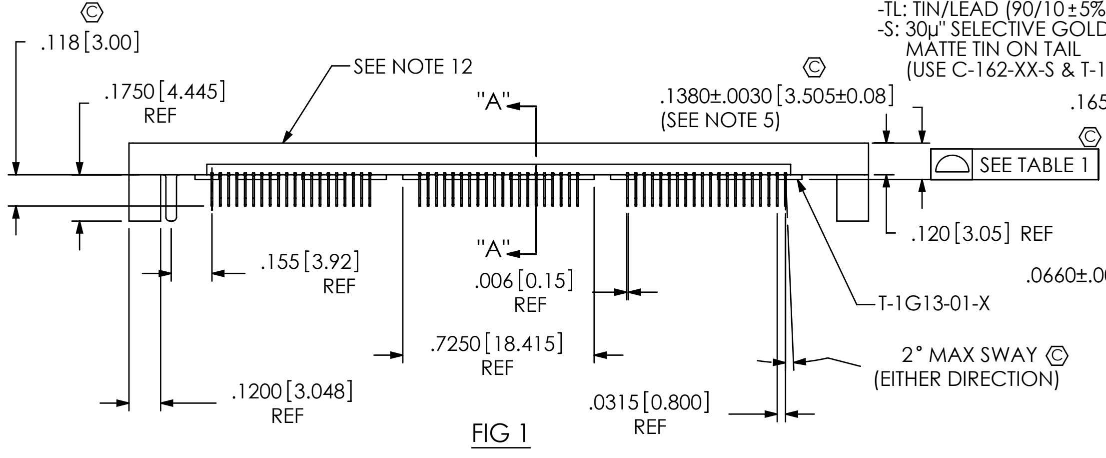
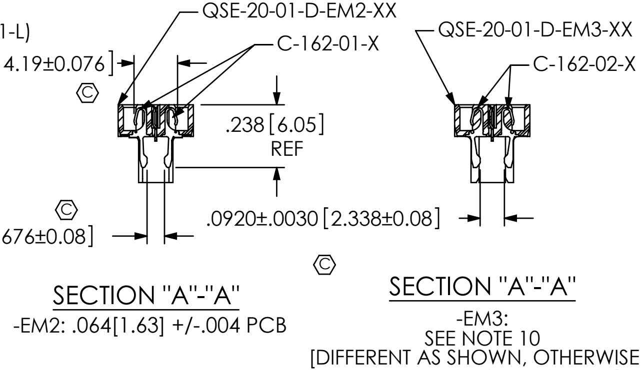
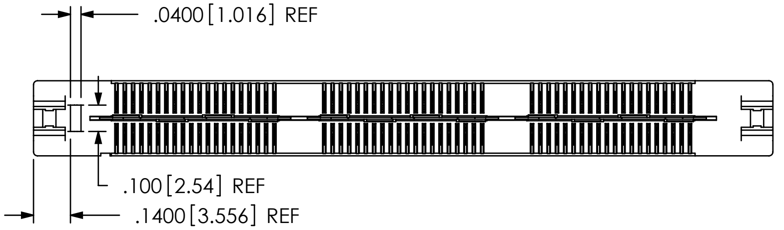


FIG 1



SECTION "A"-"A"
-EM2: .064[1.63] +/-.004 PCB

SECTION "A"-"A"
-EM3:
SEE NOTE 10
[DIFFERENT AS SHOWN, OTHERWISE SAME AS -EM2 PCB THICKNESS]



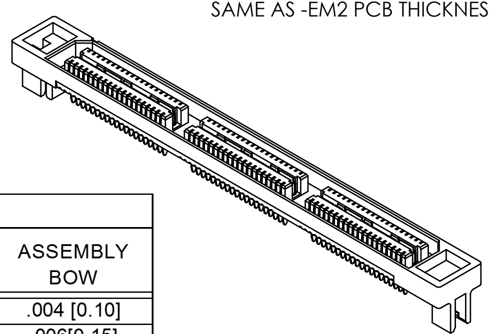


TABLE 1

No OF POSITIONS	GND PLANE COPLANARITY	ASSEMBLY BOW
-020 THRU -060	.004 [0.10]	.004 [0.10]
**-080 THRU **-100	.005[1.27]	.006[0.15]

** = SEE NOTE 13

NOTES:
1. Ⓒ REPRESENTS A CRITICAL DIMENSION.
2. MINIMUM CONTACT RETENTION: 6 OZ
3. MINIMUM GROUND PLANE RETENTION: 8 OZ
4. PARTS ARE MOLD TO POSITION.
5. MAXIMUM VARIANCE OF .002[0.05]
6. -L PLATING CAN BE SUBSTITUTED FOR -F PLATING.
7. NOTE DELETED.
8. BOARD THICKNESS TO BE MEASURED FROM SOLDER PAD TO SOLDER PAD.
9. SEE WWW.SAMTEC. COM/PROCESSING/ EDGEMOUNT_TECTALK/INDEX.HTM FOR INFORMATION ON PROCESSING EDGEMOUNT PARTS TO BOARDS.
10. -EM3 IS NOT A STANDARD OFFERING; AVAILABLE AS AN ASP ONLY. PLEASE CONTACT SAMTEC INTERCONNECT PROCESSING GROUP WITH ORDER INQUIRIES
11. NOTE DELETED.
12. SIDE WALLS ARE RIBBED AS NECESSARY TO CONTROL BOW.
13. AVAILABLE FOR EXISTING CUSTOMERS ONLY.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.
TOLERANCES ARE:

DECIMALS	ANGLES
.XX: ±.01[.3]	2°
.XXX: ±.005[.13]	
.XXXX: ±.0020[.051]	

PROPRIETARY NOTE

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520 PARK EAST BLVD, NEW ALBANY, IN 47150
PHONE: 812-944-6733 FAX: 812-948-5047
e-Mail info@SAMTEC.com code 55322

MATERIAL: DO NOT SCALE DRAWING SHEET SCALE: 1.375:1

INSULATOR: LCP, UL 94VO
-EM2 COLOR: BLACK
-EM3 COLOR: NATURAL
CONTACT & GROUND PLANE: PHOS BRONZE
F:\DWG\MISC\MKTG\QSE-XXX-01-X-D-EMX-XX-MKT.SLDDRW

DESCRIPTION:
.8mm EDGE MOUNT HS SOCKET ASSEMBLY

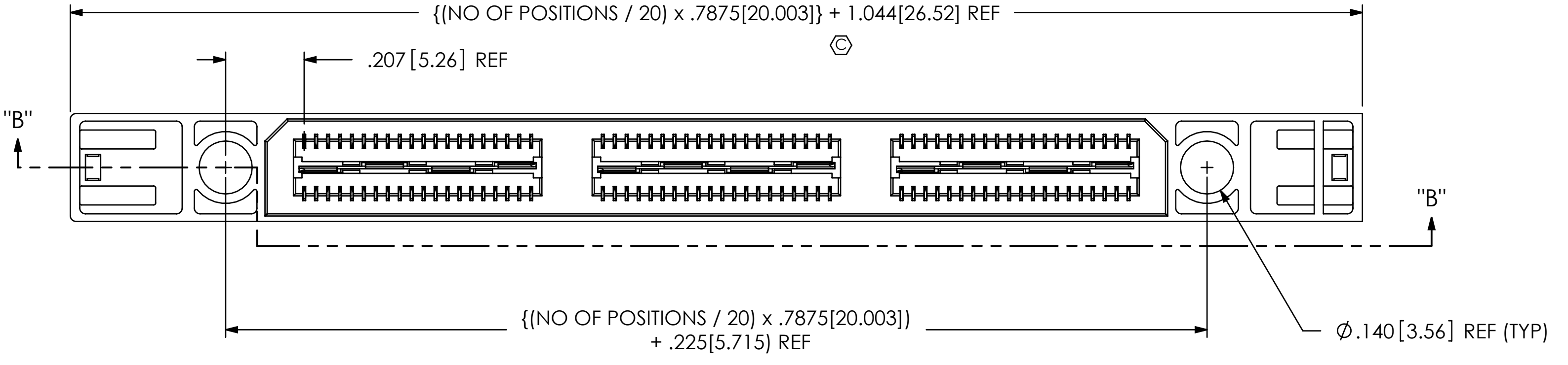
DWG. NO.
QSE-XXX-01-X-D-EMX-XX

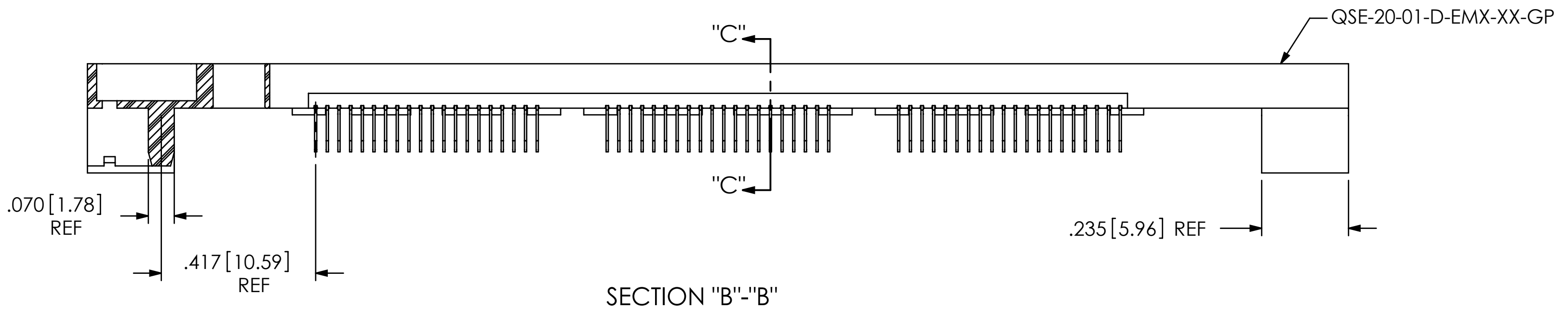
BY: DEAN P 5/24/2000 SHEET 1 OF 2

REVISION AD

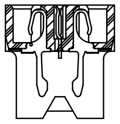
FIG 2

-GP: GUIDE POST
(DIFFERENT AS SHOWN, OTHERWISE SAME AS FIG 1)
(60 POSITION MAX)
(ONLY AVAILABLE WITH -EM2 OPTION)

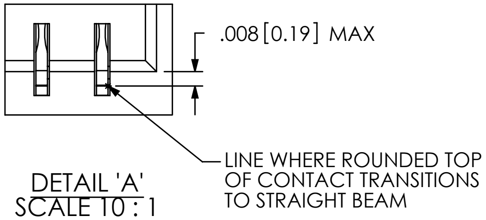




SECTION "B"-"B"



SECTION "C"-"C"



DETAIL 'A'
SCALE 10 : 1

CRITICAL DIMENSION INSPECTION INSTRUCTION TABLE	
ASSEMBLY OPERATION	IN-PROCESS INSPECTION
FILL C-162-XX-X	C1, C2, C4*, C5*, C7, C8
FILL T-1G13-01-X	C6
WHERE APPLICABLE *	

DO NOT SCALE DRAWING

SHEET SCALE: 2:1

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520 PARK EAST BLVD, NEW ALBANY, IN 47150
PHONE: 812-944-6733 FAX: 812-948-5047
e-Mail info@SAMTEC.com code 55322

DESCRIPTION:
.8mm EDGE MOUNT HS SOCKET ASSEMBLY

DWG. NO.
QSE-XXX-01-X-D-EMX-XX

BY: DEAN P 5/24/2000 SHEET 2 OF 2

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