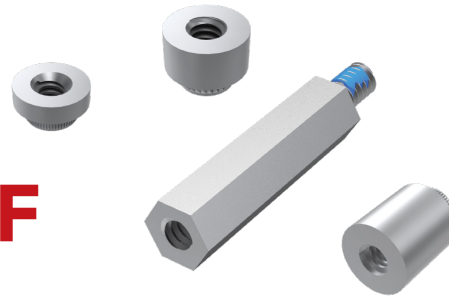


# PRECISION BOARD STACKING STANDOFF



## SO SERIES

### SO

#### Use With:

QXH, QXE, QXS,  
QXSS, QRX8, ERX5,  
ERX6, ERX8, LSHM,  
LSS, LSEM, SX4, SX5, XLH

### SPECIFICATIONS

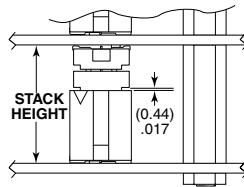
#### Material:

Aluminum

#### Locking Compound:

Nylon

### INDUSTRY STANDARD SOLUTIONS



Requires Standoff  
SO-1524-03-01-01-L or  
JSOM-1524-02 for 15.24 mm  
or SO-2200-03-01-01-L  
for 22 mm board spacing.

Connectors designed to not  
fully seat when mated.

For more information on the JSOM,  
visit [samtec.com?JSOM](http://samtec.com?JSOM)

INDUSTRY STANDARD	INTERCONNECTS			
	TERMINAL	SOCKET	BANKS	STACK HEIGHT
SUMIT™	ASP-129637-01	ASP-129646-01	1	15.24 mm
PCI/104-Express™	ASP-129637-03	ASP-129646-03	3	15.24 mm
PCI/104-Express™	ASP-129637-13	ASP-129646-22	1	15.24 mm
PCI/104-Express™	ASP-142781-01	ASP-129646-01	1	22 mm
PCI/104-Express™	ASP-142781-02	ASP-129646-02	2	22 mm
PCI/104-Express™	ASP-142781-03	ASP-129646-03	3	22 mm

**-01**  
= Female Thread/Press-In  
(-0515 thru -0865 only)

**-02**  
= Male/Male Thread  
(-0515 and  
-1115 thru -2515 only)

**-03**  
= Male/Female Thread  
(-0815 thru -2515 only)

**-05**  
= Female/Female Thread  
(-0515 thru -2515 only)

**-01**  
= #4-40  
Thread

**-02**  
= M3 x 0.5  
Thread°

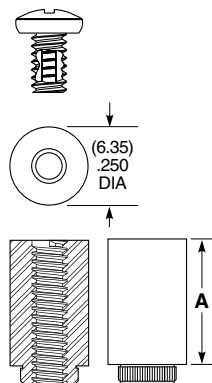
**-L**  
= -02 & -03  
Lead Style  
thread locking  
compound  
(Leave blank for  
-01 Lead Style)

BOARD STACKER	A	BOARD STACK HEIGHT
-0515	(5.15) .203	5 mm
-0715	(7.15) .282	7 mm
-0815	(8.15) .321	8 mm
-0865	(8.65) .341	8.5 mm
-1115	(11.15) .439	11 mm
-1215	(12.15) .478	12 mm
-1524	(15.24) .600	15.09 mm
-1615	(16.15) .636	16 mm
-1890	(18.90) .744	18.75 mm
-1915	(19.15) .754	19 mm
-2515	(25.15) .990	25 mm

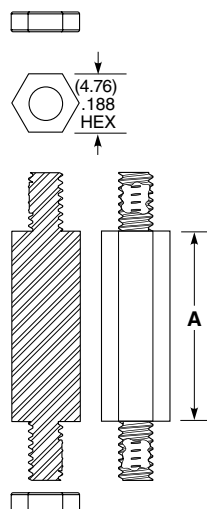
### ALSO AVAILABLE

MOQ Required

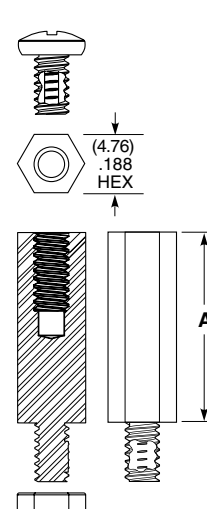
Other heights  
Stainless Steel  
Locking compound removed  
Other materials and threading  
No Hardware



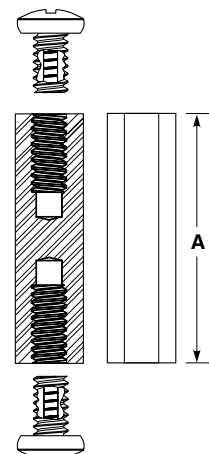
-01 LEAD STYLE



-02 LEAD STYLE



-03 LEAD STYLE



-05 LEAD STYLE

Components are to be packaged in separate bags unassembled.

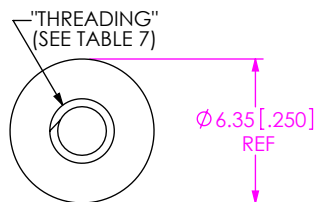
#### Note:

Some sizes, styles and  
options are non-standard,  
non-returnable.

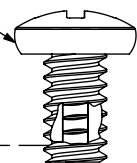
DESIGNED & DIMENSIONED  
IN MILLIMETERS[INCHES]

DO NOT  
SCALE FROM  
THIS PRINT

-01 LEAD STYLE



MS-01-02-L SHOWN  
(SEE NOTE 8)



"A" REF  
(SEE TABLE 1)

SUB-SO-XXXX-01-01-02  
(SEE NOTE 8)

4.67±0.05 [.184±.002]

FIG 1  
SO-XXXX-01-01-02-L SHOWN

NOTES:

1. NOTE DELETED
2. NOTE DELETED
3. NOTE DELETED
4. STANDOFFS TO BE USED WITH 1.57[.062]MIN THICK BOARDS THICK BOARDS.  
THREADED OPTIONS PCB MAX THICKNESS OF 3.16[.124]
5. NOTE DELETED.
6. NOTE DELETED
7. NOTE DELETED.
8. COMPONENTS ARE TO BE PACKAGED IN SEPARATE BAGS  
UNASSEMBLED AND NOT LABELED. COMBINE SEPARATE BAGS  
IN ONE LARGER BAG WITH PART NUMBER AND QUANTITY.
9. NOTE DELETED
10. NOTE DELETED
11. NOTE DELETED.
12. REPRESENTS A CRITICAL DIMENSION.
13. STANDOFFS ARE DESIGNED .15MM LONGER THAN CONNECTOR  
STACK HEIGHTS TO ALLOW FOR PROCESSING VARIABLES.
14. TORQUE TO 2.5 – 3.5 IN\*lbs TO SECURE FASTENER IN A STATIC ENVIRONMENT  
ASSUMING RECOMMENDED BOARD TO BOARD DISTANCES ARE ACHIEVED  
WITHOUT DAMAGE TO THE PCB, HARDWARE OR OTHER COMPONENTS.
15. FOR -L OPTION, SPREAD LOCKING COMPOUND OVER 5 THREADS OR AT LEAST 0.105".

SO-XXXX-XX-XX-XX-X-X

BOARD STACK HEIGHT

- FOR -01 LEAD STYLE: SEE TABLE 1  
FOR -02 LEAD STYLE: SEE TABLE 3, SHEET 2  
FOR -03 LEAD STYLE: SEE TABLE 4, SHEET 3  
FOR -04 LEAD STYLE: SEE TABLE 5, SHEET 4  
FOR -05 LEAD STYLE: SEE TABLE 6, SHEET 5  
FOR -06 LEAD STYLE: SEE TABLE 8, SHEET 6

KIT OPTION

- N: NO HARDWARE  
(STANDOFF ONLY; SEE TABLE 2)  
LEAVE BLANK FOR KIT

LOCKING OPTION

- L: LOCKING COMPOUND  
(NOT AVAILABLE WITH -04 LEAD STYLE OR -N OPTION  
ON -01 AND -05 LEAD STYLES)

MATERIAL

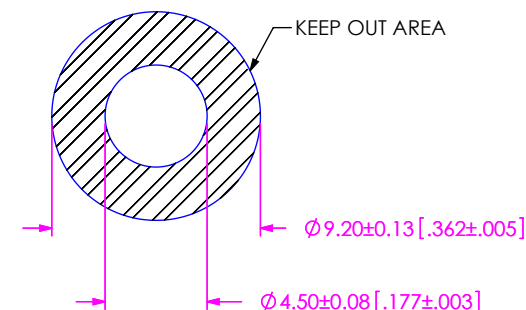
- 01: 6061 ALUMINUM  
-02: 303 STAINLESS STEEL  
-03: 304 STAINLESS STEEL  
(AVAILABLE FOR -04 LEAD STYLE ONLY)

THREADING

- 01: #4-40  
-02: M3 x 0.5 x 4.76mm  
-03: M2 x 0.4 x 4.76mm

LEAD STYLE

- 01: FEMALE THREAD/PRESS-IN  
(SEE FIG 1, SHT 1)  
SEE NOTE 6  
-02: MALE/MALE THREADED  
(SEE FIG 2, SHT 2)  
SEE NOTE 7  
-03: MALE/FEMALE THREADED  
(SEE FIG 3, SHT 3)  
SEE NOTE 10  
-04: FEMALE/PRESS-IN  
(SEE FIG 4, SHT 4)  
SEE NOTE 9  
-05: FEMALE/FEMALE  
THREADED  
(SEE FIG 5 SHT 5)  
-06: MALE/MALE THREADED  
(SEE FIG 6, SHT 6)



RECOMMENDED BOARD  
CUTOUT (PRESS-IN)

TABLE 1

01 LEAD STYLE AVAILABILITY	
BOARD STACK HEIGHT	"A"
-0515	5.15 [0.203]
-0575	5.75 [0.226]
-0600	6.00 [0.236]
-0690	6.90 [0.272]
-0715	7.15 [0.281]
-0815	8.15 [0.321]
-0865	8.65 [0.341]
-0915	9.15 [0.360]
-0965	9.65 [0.380]

TABLE 7

THREADING	
-01	#4-40 UNC 2A #4-40 UNC 2B
-02	M3 x 0.5 6g M3 x 0.5 6H
-03	M2 x 0.4 6g M2 x 0.4 6H

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN MILLIMETERS.  
TOLERANCES ARE:  
DECIMALS ANGLES  
X.X: ±0.25 [.01]  
X.XX: ±0.05 [.002]

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OTHER PROJECT IN ANY MANNER WITHOUT THE EXPRESS  
WRITTEN CONSENT OF SAMTEC, INC.

MATERIAL: DO NOT SCALE DRAWING SHEET SCALE: 3:1  
SEE PART CALL OUT FOR MATERIAL

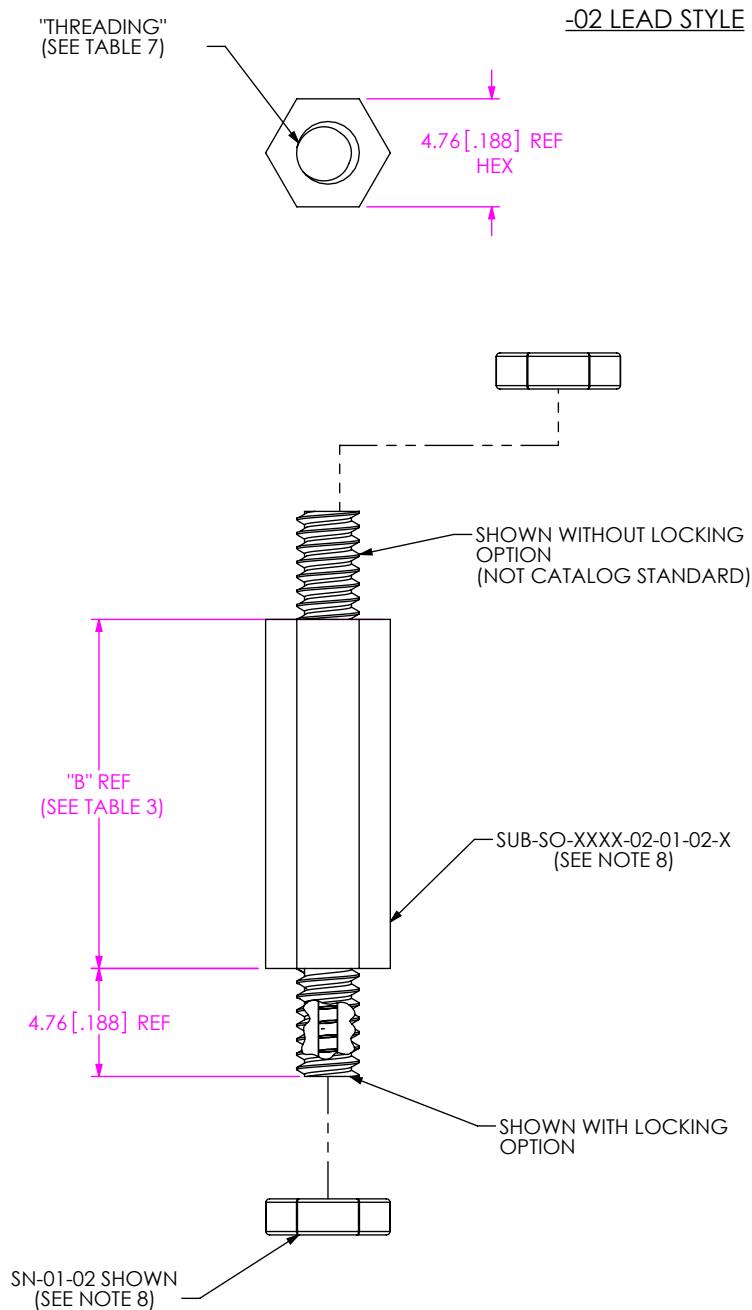
**samtec**

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

DESCRIPTION:  
BOARD TO BOARD STANDOFF

DWG. NO.  
SO-XXXX-XX-XX-XX-X

BY: T.NEWTON 12/6/2007 SHEET 1 OF 7



-02 LEAD STYLE

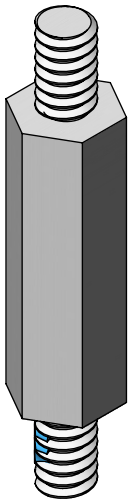
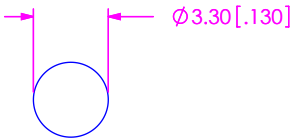


TABLE 3	
02 LEAD STYLE AVAILABILITY	
BOARD STACK HEIGHT	"B"
-0515	5.15 [.203]
-0715	7.15 [.282]
-0865	8.65 [.341]
-1015	10.15 [.400]
-1115	11.15 [.439]
-1215	12.15 [.478]
-1315	13.15 [.518]
-1415	14.15 [.557]
-1515	15.15 [.597]
-1524	15.24 [.600]
-1615	16.15 [.636]
-1715	17.15 [.675]
-1890	18.90 [.744]
-1915	19.15 [.754]
-2015	20.15 [.793]
-2215	22.15 [.872]
-2515	25.15 [.990]
-3015	30.15 [1.187]



RECOMMENDED BOARD  
CUTOUT (#4-40)

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		DESCRIPTION:	BOARD TO BOARD STANDOFF
		DWG. NO.	SO-XXXX-XX-XX-XX-X
		BY: T.NEWTON 12/6/2007	SHEET 2 OF 7

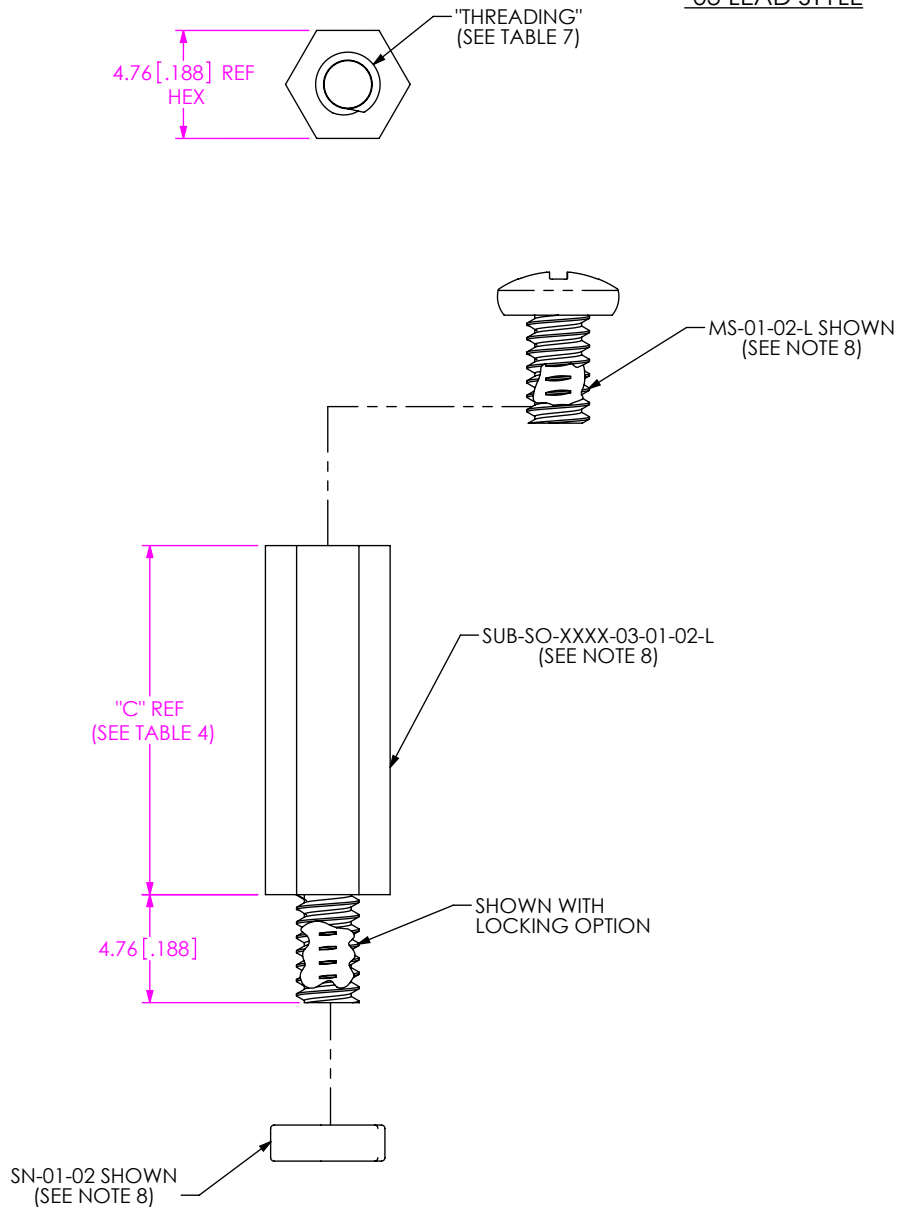
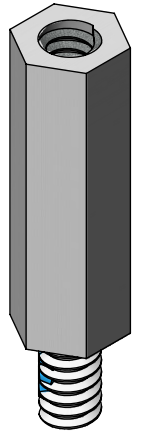
-03 LEAD STYLE

FIG 3  
SO-XXXX-03-01-02-X SHOWN  
(SAME AS -02 LEAD STYLE,  
EXCEPT WHERE STATED)

TABLE 4	
03 LEAD STYLE AVAILABILITY	
BOARD STACK HEIGHT	"C"
-0815	8.15[.321]
-0865	8.65[.341]
-0915	9.15[.360]
-0965	9.65[.380]
-1015	10.15[.400]
-1115	11.15[.439]
-1215	12.15[.478]
-1315	13.15[.518]
-1415	14.15[.557]
-1515	15.15[.597]
-1524	15.24[.600]
-1615	16.15[.636]
-1715	17.15[.675]
-1890	18.90[.744]
-1915	19.15[.754]
-2015	20.15[.793]
-2200	22.00[.866]
-2215	22.15[.872]
-2515	25.15[.990]
-3015	30.15[1.187]



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SHEET SCALE: 3:1

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e-Mail info@SAMTEC.com code 55322

DESCRIPTION: BOARD TO BOARD STANDOFF

DWG. NO. SO-XXXX-XX-XX-XX-X

BY: T.NEWTON 12/6/2007 SHEET 3 OF 7

-04 LEAD STYLE

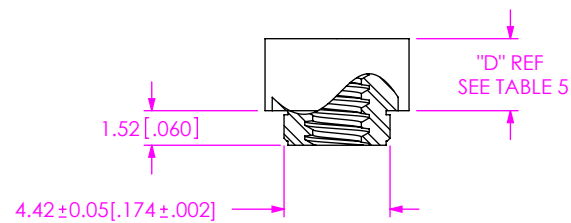
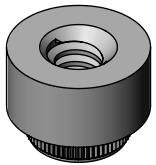
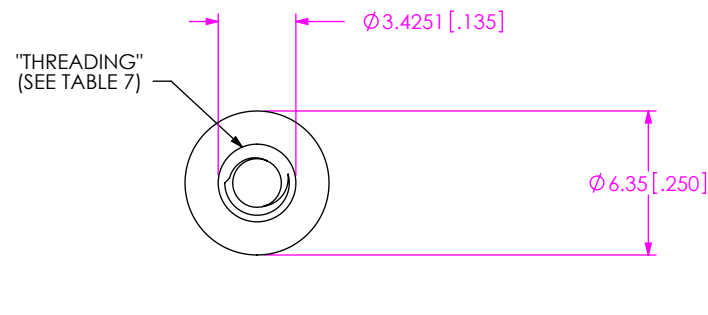
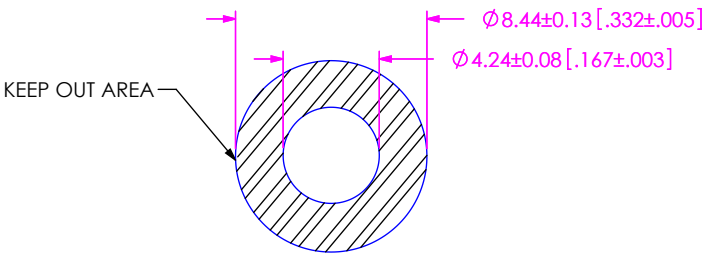


FIG 4  
SO-XXXX-04-01-02 SHOWN



RECOMMENDED BOARD  
CUTOUT (PRESS-IN)

TABLE 5	
04 LEAD STYLE AVAILABILITY	
BOARD STACK HEIGHT	"D"
-0165	1.65[ .065]
-0175	1.75[ .069]
-0310	3.10[ .122]
-0318	3.18[ .125]

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DO NOT SCALE DRAWING	DESCRIPTION: BOARD TO BOARD STANDOFF
	DWG. NO. SO-XXXX-XX-XX-XX-X
SHEET SCALE: 1:0.333333	
BY: T.NEWTON 12/6/2007	SHEET 4 OF 7



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

-05 LEAD STYLE

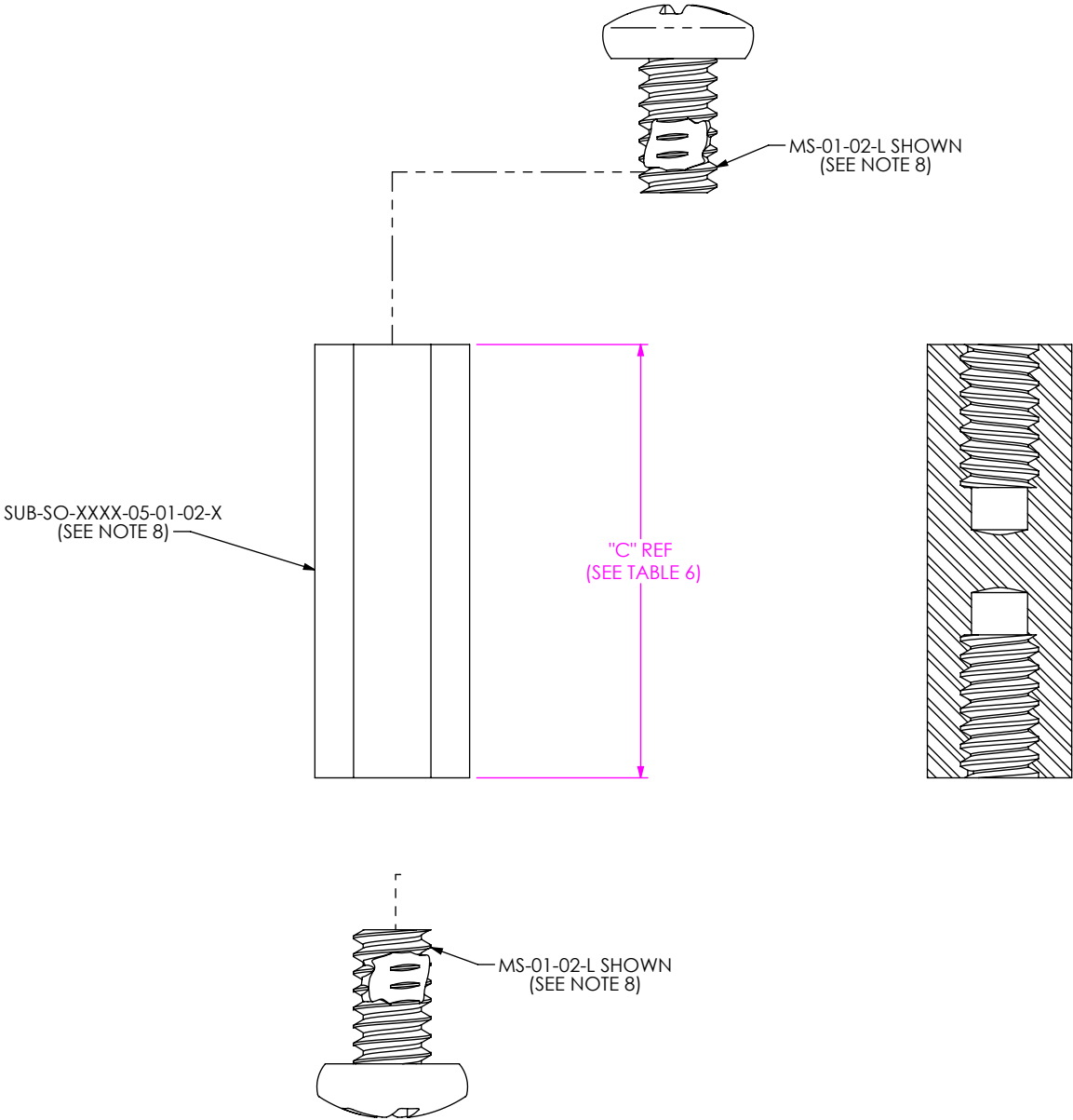
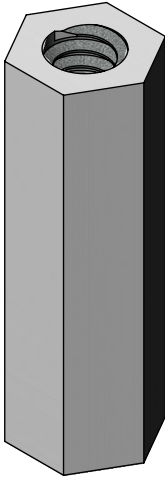


TABLE 6	
05 LEAD STYLE AVAILABILITY	
BOARD STACK HEIGHT	"C"
-0515	5.15 [.203]
-0700	7.00 [.276]
-0915	9.15 [.360]
-1015	10.15 [.400]
-1115	11.15 [.439]
-1215	12.15 [.478]
-1315	13.15 [.518]
-1415	14.15 [.557]
-1515	15.15 [.596]
-1524	15.24 [.600]
-1615	16.15 [.636]
-1715	17.15 [.675]
-1890	18.90 [.744]
-1915	19.15 [.754]
-2015	20.15 [.793]
-2200	22.00 [.866]
-2215	22.15 [.872]
-2515	25.15 [.990]

FIG 5  
SO-XXXX-05-01-02-X SHOWN  
(SAME AS -02 LEAD STYLE,  
EXCEPT WHERE STATED)

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SHEET SCALE: 1:1

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e-Mail info@SAMTEC.com code 55322

DESCRIPTION: BOARD TO BOARD STANDOFF

DWG. NO. SO-XXXX-XX-XX-XX-X

BY: T.NEWTON 12/6/2007 SHEET 5 OF 7

-06 LEAD STYLE

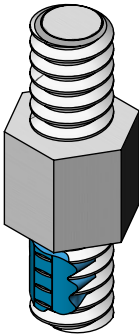
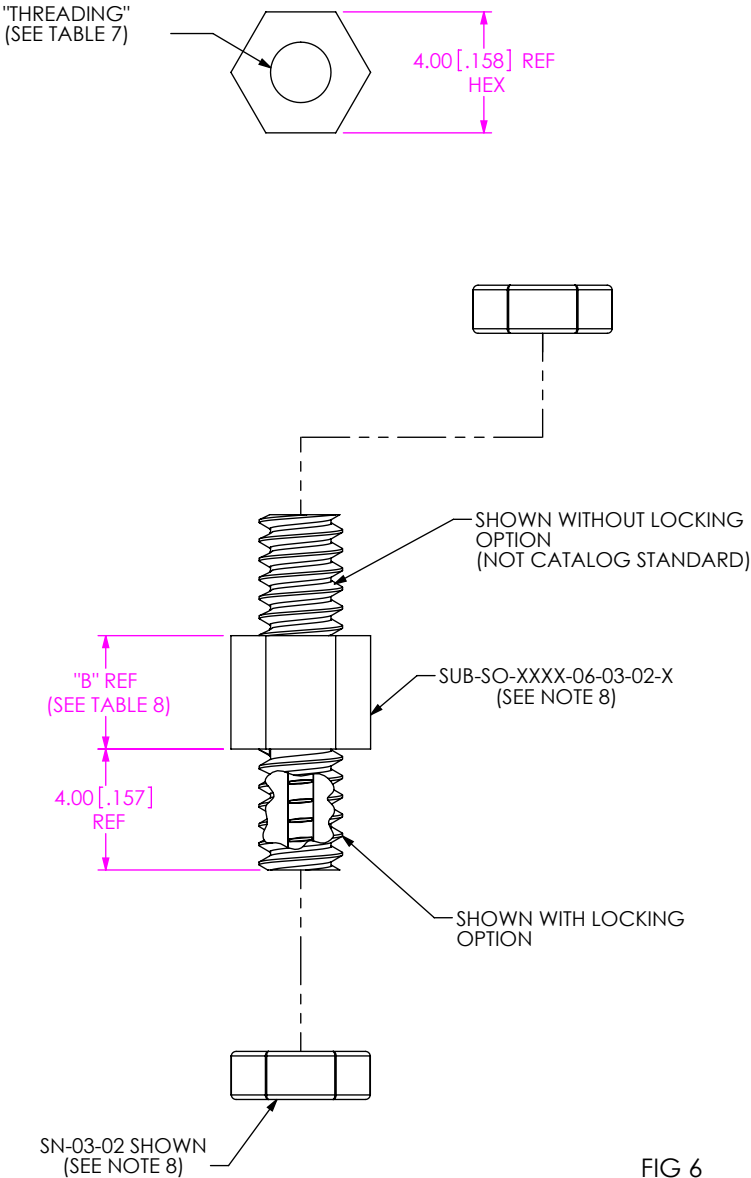
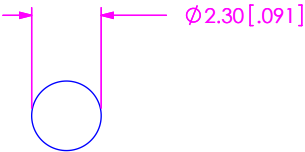


TABLE 8	
06 LEAD STYLE AVAILABILITY	
BOARD STACK HEIGHT	"B"
-0375	3.75 [.148]



RECOMMENDED BOARD  
CUTOUT (M2 x 0.4)


FIG 6  
SO-XXXX-06-03-02-X SHOWN  
(SAME AS -02 LEAD STYLE,  
EXCEPT WHERE STATED)

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DO NOT SCALE DRAWING	DESCRIPTION: BOARD TO BOARD STANDOFF
SHEET SCALE: 4:1	DWG. NO. SO-XXXX-XX-XX-XX-X
BY: T.NEWTON 12/6/2007	SHEET 6 OF 7

TABLE 2 - BOM						
FINISHED GOOD	STANDOFF	QTY	SCREW	QTY	NUT	QTY
SO-XXXX-01-01-XX	SUB-SO-XXXX-01-01-XX	1	MS-01-XX	1	N/A	
SO-XXXX-01-01-XX-N	SUB-SO-XXXX-01-01-XX	1	N/A		N/A	
SO-XXXX-01-01-XX-L	SUB-SO-XXXX-01-01-XX	1	MS-01-XX-L	1	N/A	
SO-XXXX-02-01-XX	SUB-SO-XXXX-02-01-XX	1	N/A		SN-01-XX	2
SO-XXXX-02-01-XX-N	SUB-SO-XXXX-02-01-XX	1	N/A		N/A	
SO-XXXX-02-01-XX-L	SUB-SO-XXXX-02-01-XX-L	1	N/A		SN-01-XX	2
SO-XXXX-02-01-XX-L-N	SUB-SO-XXXX-02-01-XX-L	1	N/A		N/A	
SO-XXXX-03-01-XX	SUB-SO-XXXX-03-01-XX	1	MS-01-XX	1	SN-01-XX	1
SO-XXXX-03-01-XX-N	SUB-SO-XXXX-03-01-XX	1	N/A		N/A	
SO-XXXX-03-01-XX-L	SUB-SO-XXXX-03-01-XX-L	1	MS-01-XX-L	1	SN-01-XX	1
SO-XXXX-03-01-XX-L-N	SUB-SO-XXXX-03-01-XX-L	1	N/A		N/A	
SO-XXXX-05-01-XX	SUB-SO-XXXX-05-01-XX	1	MS-01-XX	2	N/A	
SO-XXXX-05-01-XX-N	SUB-SO-XXXX-05-01-XX	1	N/A		N/A	
SO-XXX-05-01-XX-L	SUB-SO-XXX-05-01-XX	1	MS-01-XX-L	2	N/A	
SO-XXXX-01-02-XX	SUB-SO-XXXX-01-02-XX	1	MS-02-XX	1	N/A	
SO-XXXX-01-02-XX-N	SUB-SO-XXXX-01-02-XX	1	N/A		N/A	
SO-XXXX-01-02-XX-L	SUB-SO-XXXX-01-02-XX	1	MS-02-XX-L	1	N/A	
SO-XXXX-02-02-XX	SUB-SO-XXXX-02-02-XX	1	N/A		SN-02-XX	2
SO-XXXX-02-02-XX-N	SUB-SO-XXXX-02-02-XX	1	N/A		N/A	
SO-XXXX-02-02-XX-L	SUB-SO-XXXX-02-02-XX-L	1	N/A		SN-02-XX	2
SO-XXXX-02-02-XX-L-N	SUB-SO-XXXX-02-02-XX-L	1	N/A		N/A	
SO-XXXX-02-03-XX-L	SUB-SO-XXXX-02-03-XX-L	1	N/A		SN-03-XX	2
SO-XXXX-03-02-XX	SUB-SO-XXXX-03-02-XX	1	MS-02-XX	1	SN-02-XX	1
SO-XXXX-03-02-XX-N	SUB-SO-XXXX-03-02-XX	1	N/A		N/A	
SO-XXXX-03-02-XX-L	SUB-SO-XXXX-03-02-XX-L	1	MS-02-XX-L	1	SN-02-XX	1
SO-XXXX-03-02-XX-L-N	SUB-SO-XXXX-03-02-XX-L	1	N/A		N/A	
SO-XXXX-03-03-XX	SUB-SO-XXXX-03-03-XX	1	MS-06-XX	1	SN-03-XX	1
SO-XXXX-03-03-XX-N	SUB-SO-XXXX-03-03-XX	1	N/A		N/A	
SO-XXXX-03-03-XX-L	SUB-SO-XXXX-03-03-XX-L	1	MS-06-XX-L	1	SN-03-XX	1
SO-XXXX-03-03-XX-L-N	SUB-SO-XXXX-03-03-XX-L	1	N/A		N/A	
SO-XXXX-05-02-XX	SUB-SO-XXXX-05-02-XX	1	MS-02-XX	2	N/A	
SO-XXXX-05-02-XX-N	SUB-SO-XXXX-05-02-XX	1	N/A		N/A	
SO-XXX-05-02-XX-L	SUB-SO-XXX-05-02-XX	1	MS-02-XX-L	2	N/A	
SO-XXX-05-03-XX	SUB-SO-XXX-05-03-XX	1	MS-06-XX	2	N/A	
SO-XXX-05-03-XX-L	SUB-SO-XXX-05-03-XX	1	MS-06-XX-L	2	N/A	
SO-XXXX-01-03-XX	SUB-SO-XXXX-01-03-XX	1	MS-06-XX	1	N/A	

• PROPRIETARY NOTE •

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DO NOT SCALE DRAWING

SHEET SCALE: 4:1

DESCRIPTION:  
BOARD TO BOARD STANDOFF

DWG. NO.  
SO-XXXX-XX-XX-XX-X

BY: T.NEWTON 12/6/2007 SHEET 7 OF 7