

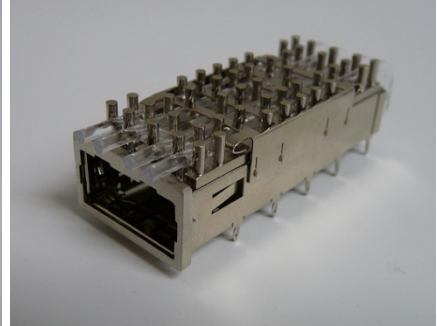
**9054 Series
QSFP+ Cage
RoHS COMPLIANT**



THRU BEZEL-COPPER



THRU BEZEL-ELASTOMERIC



BEHIND THE BEZEL

- QSFP+ MSA compliant (SFF-8436)
- Robust design
- Unique spring loaded heat sink clip
- Choice of 2 lightpipe designs (lightpipe is optional)
- Choice of 2 thru design types (electrically conductive beryllium copper or elastomeric gasket)
- Choice of 3 heat sink heights

Product Overview:

The 9054 series cage is a single port cage in a QSFP+ form factor and is compliant with the QSFP+ MSA (SFF 8436). It is designed with versatility, allowing you to choose the best cage option for your needs.

ORDERING INFO

PART NUMBER	CAGE TYPE
DM9054-H-X-L	THRU-COPPER
DM9054-E-H-X-L	THRU-ELASTOMERIC
DM9054-F-H-X-L	BEHIND THE BEZEL

CHOOSE:

PLATING "X" - CHOOSE BETWEEN:	N	R	
HEAT SINK "H" - CHOOSE BETWEEN:	P	S	N
LIGHTPIPE "L" - CHOOSE BETWEEN:	4L	2L	BLANK FOR NO LIGHTPIPE

Example: DM9054-E-S-R-4L

✓ISO 9001 Certified



DESIGNATORS:

E	ELASTOMERIC GASKET
R *	MATTE TIN PLATING
N **	NICKEL PLATING
F	FLANGE (BEHIND THE BEZEL)
4L ***	STANDARD 4 TIPPED LIGHTPIPE
2L ***	CUSTOM 2 TIPPED "TALL" LIGHTPIPE
H	HEAT SINK HEIGHT (See Figure 20)
P	PCI HEAT SINK (SHORTEST)
S	SAN HEAT SINK (MEDIUM HEIGHT)
N	NETWORKING (TALLEST)

Table 1

PLATING: Most cages are not intended for reflow, WAVE SOLDER ONLY – wave temp. 260°C for 6 seconds max

* R - 100µ" matte tin over 50µ" nickel

** N - 100 µ" nickel – reflow compatible with a max reflow temp. 260°C only on cages without lightpipes and/or elastomeric gasket

*** Temperature from wave solder not to exceed 125°C at lightpipe

Definition of Datums

Datum	Description
A	Host Board Top Surface
B	Inside surface of bezel
C	** Distance between Connector terminal thru holes on host board
D	* Hard stop on Module
E	** Width of Module
K	* Host board thru hole #1 to accept connector guide post
L	* Host board thru hole #2 to accept connector guide post
M	** Width of bezel cut out
N	* Connector alignment pin
P	** Width of inside of cage at EMI gasket (when fully compressed)
R	Height of inside of cage at EMI gasket (when fully compressed)
S	Seating plane of cage on host board
T	* Hard stop on cage
V	Length of heat sink clip
W	Seating surface of the heat sink on the cage
BB	Seating plane of cage on host board
CC	Length of boss on heat sink that fits inside the cage
* Datums D, K, L, N, and T are aligned when assembled	
** Centerlines of Datums C, E, M, and P are aligned on the same vertical axis	

Table 2

✓ISO 9001 Certified

MECHANICALS

TOLERANCE FOR ALL FIGURES BELOW: XX +/- 0.010" - XXX +/- 0.005"

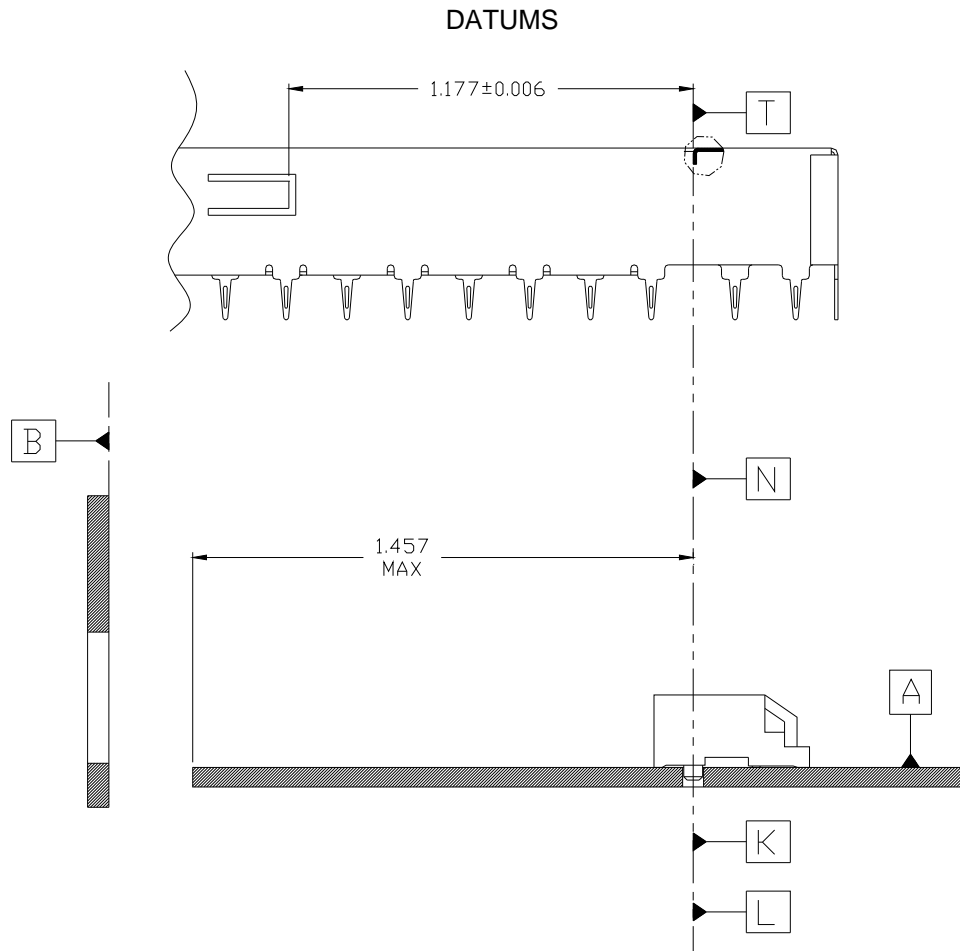
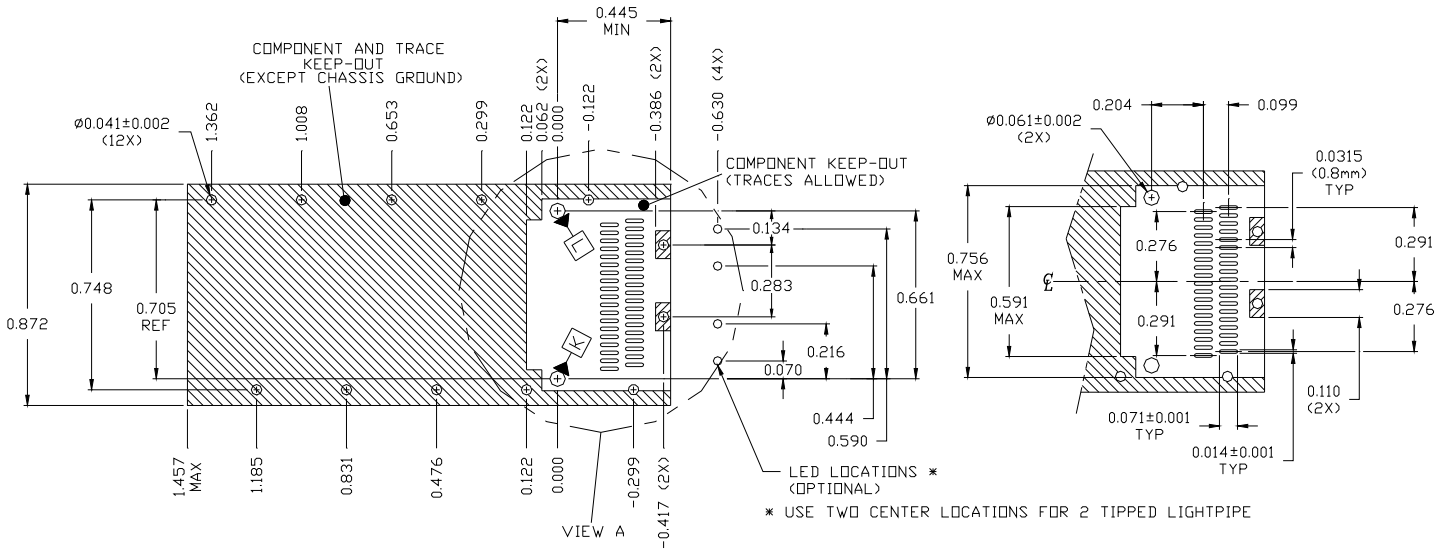


FIGURE 1

BOARD LAYOUT



NOTES:

- 1) DIMENSIONS ARE TO CENTER OF HOLES
- 2) DIMENSIONS NOT REFERENCED TO AN EDGE ARE CENTERED ABOUT CENTER LINE

DOUBLE SIDED DRILL PATTERN (MIRRORED)

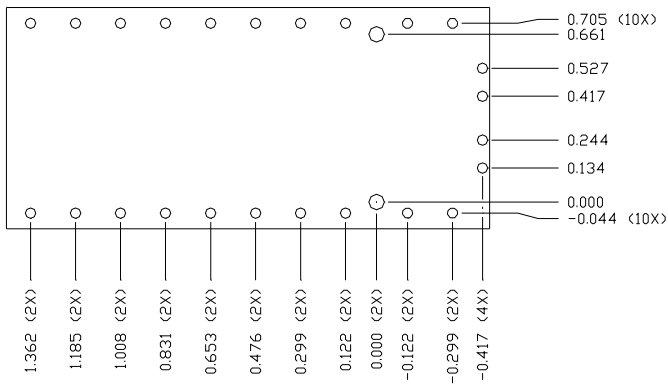


FIGURE 2

✓ISO 9001 Certified

www.methode.com

THRU BEZEL DESIGN

(For both copper & elastomeric type cages)

Note: Copper type cage is standard length.

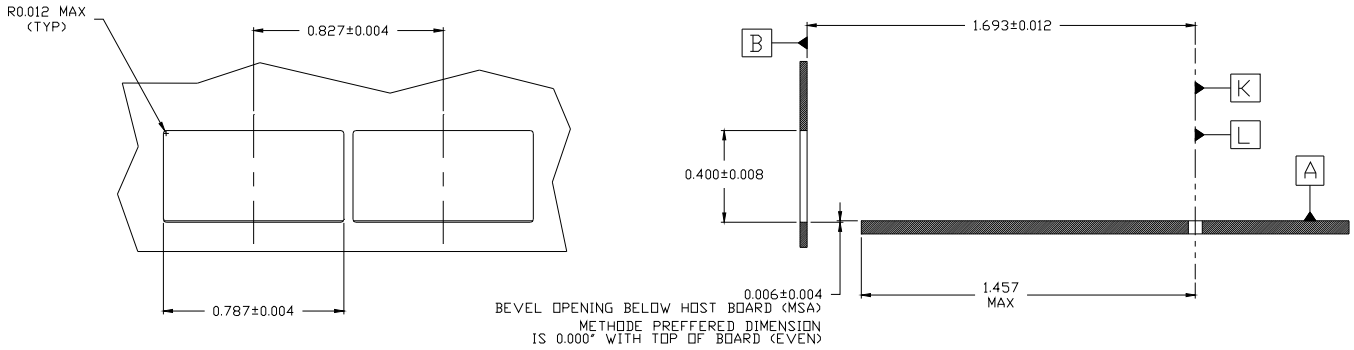
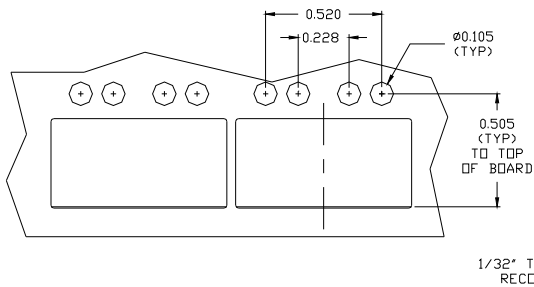


FIGURE 3

Copper gasket With 4L lightpipe



1/32" THICK BEZEL
RECOMMENDED

CAGE SHOWN HERE WITHOUT
HEAT SINK OR CLIP

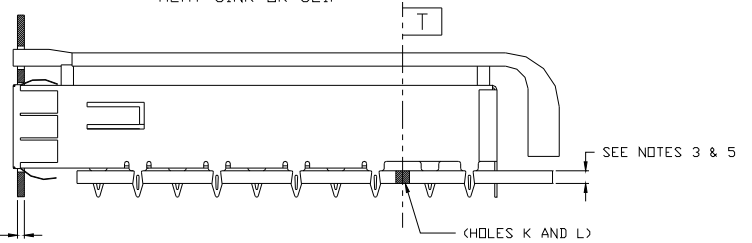


FIGURE 4

Elastomeric gasket With 2L lightpipe

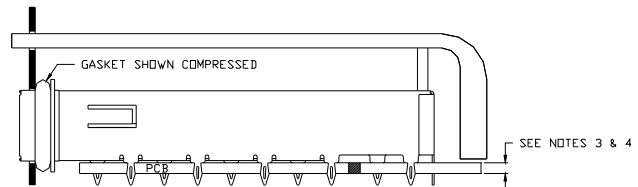
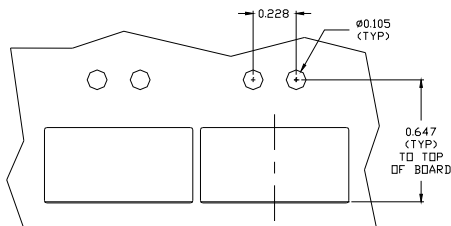


FIGURE 5

NOTES:

- 1) DIMENSIONS ARE TO CENTER OF HOLES
- 2) DIMENSIONS NOT REFERENCED TO AN EDGE ARE CENTERED ABOUT CENTER LINE
- 3) MINIMUM BOARD THICKNESS FOR SINGLE SIDED APPLICATION: 0.057" THICK
- 4) MINIMUM BOARD THICKNESS FOR BELLY TO BELLY APPLICATION: 0.107" THICK
- 5) MINIMUM BOARD THICKNESS FOR BELLY TO BELLY APPLICATION: 0.087" THICK

✓ISO 9001 Certified

BEHIND THE BEZEL DESIGN

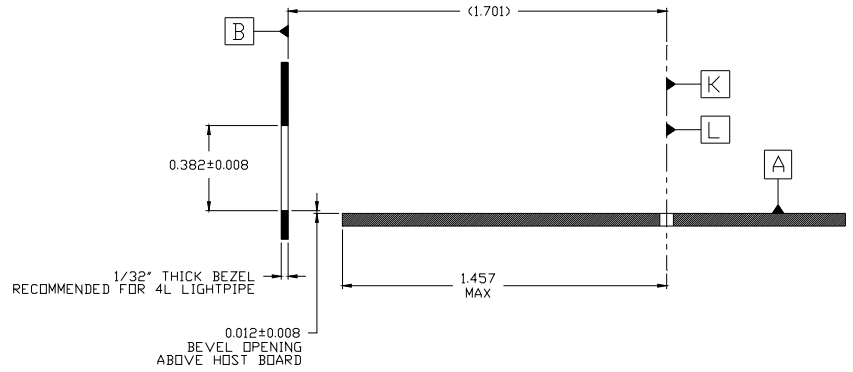
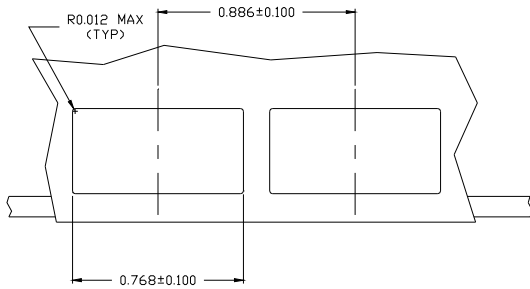


FIGURE 6

LIGHTPIPE – 4L

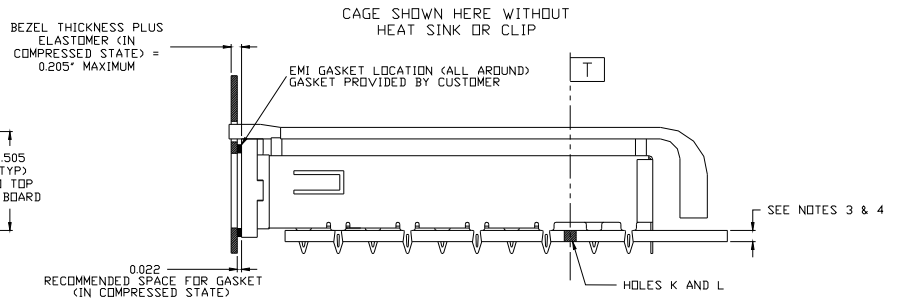
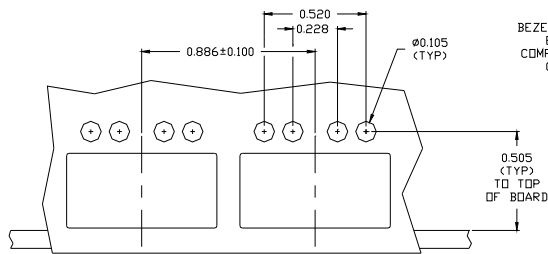


FIGURE 7

LIGHTPIPE – 2L

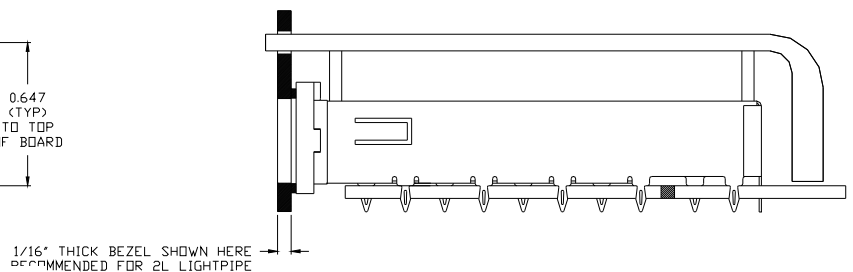
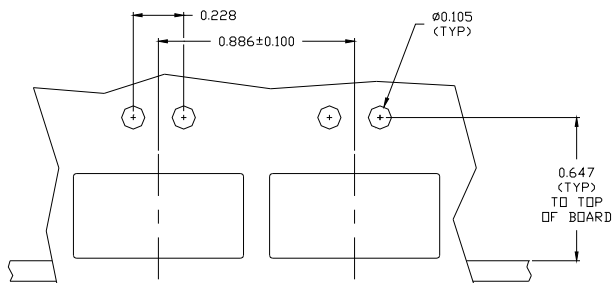


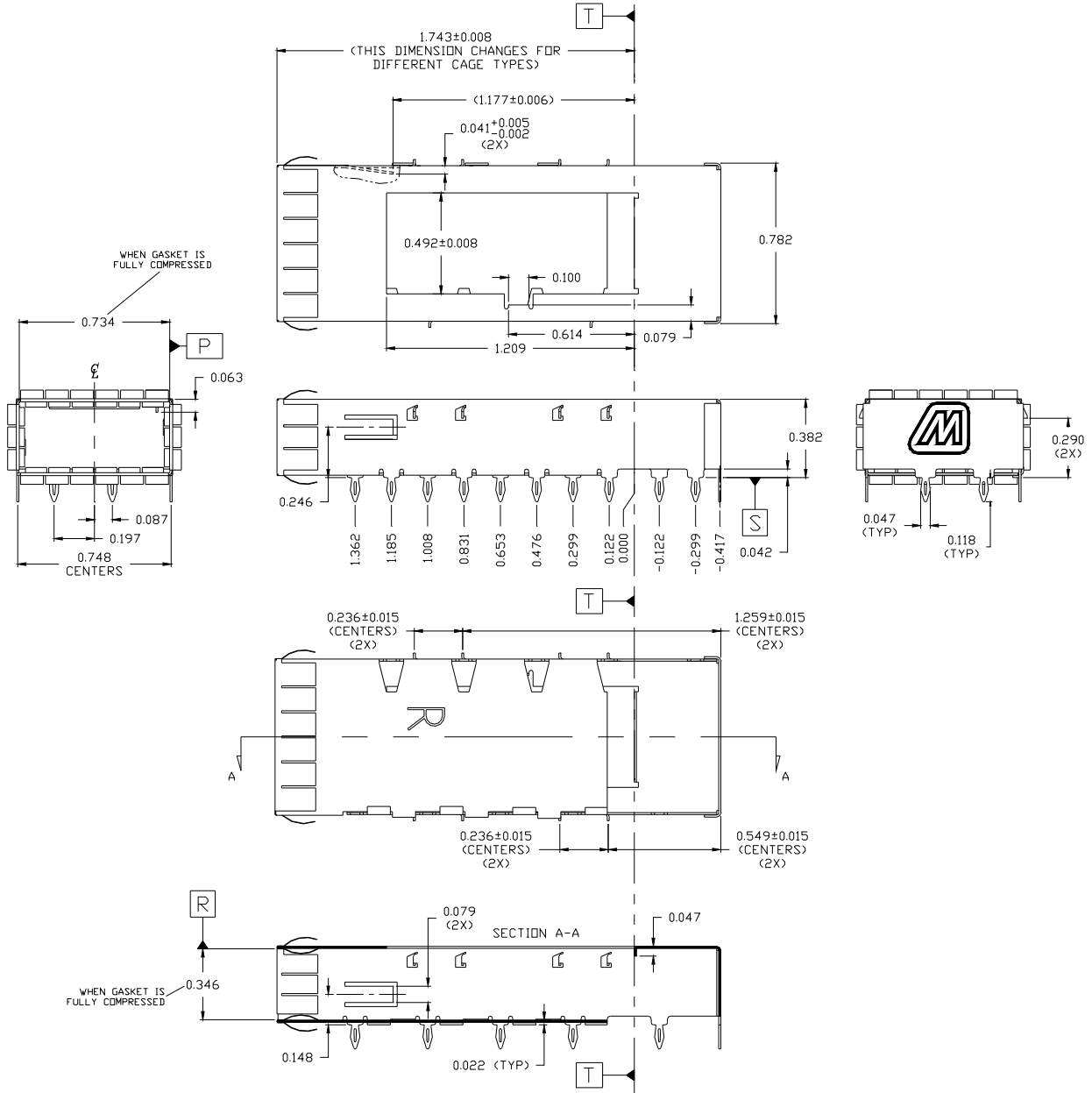
FIGURE 8

NOTES:

- 1) DIMENSIONS ARE TO CENTER OF HOLES
- 2) DIMENSIONS NOT REFERENCED TO AN EDGE ARE CENTERED ABOUT CENTER LINE
- 3) MINIMUM BOARD THICKNESS FOR SINGLE SIDED APPLICATION: 0.057" THICK
- 4) MINIMUM BOARD THICKNESS FOR BELLY TO BELLY APPLICATION: 0.107" THICK

✓ISO 9001 Certified

THRU BEZEL Copper gasket



NOTES:

- 1) CAGE MATERIAL: 0.010" +/-0.001" THICK BRASS C2680, FULL HARD.
- 2) FRONT GASKET MATERIAL: 0.0024" THICK BERYLLIUM COPPER, NICKEL PLATED. SPOT WELDED TO CAGE.
- 3) OPERATING AND STORAGE TEMPERATURE: -40°C TO +125°C

FIGURE 9

✓ISO 9001 Certified

www.methode.com

THRU BEZEL
Elastomeric gasket
(All other dimensions are shared with Figure 9)

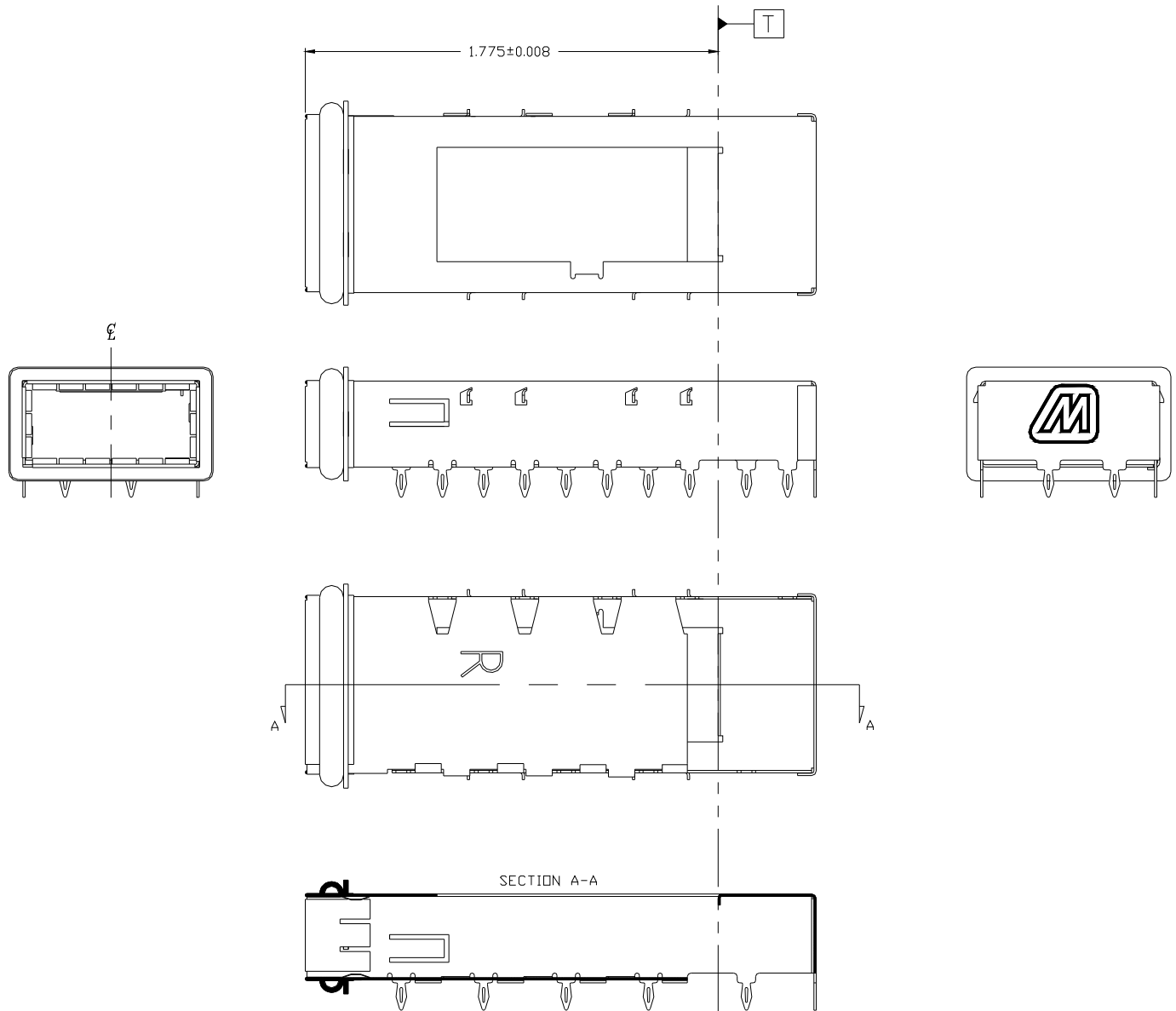
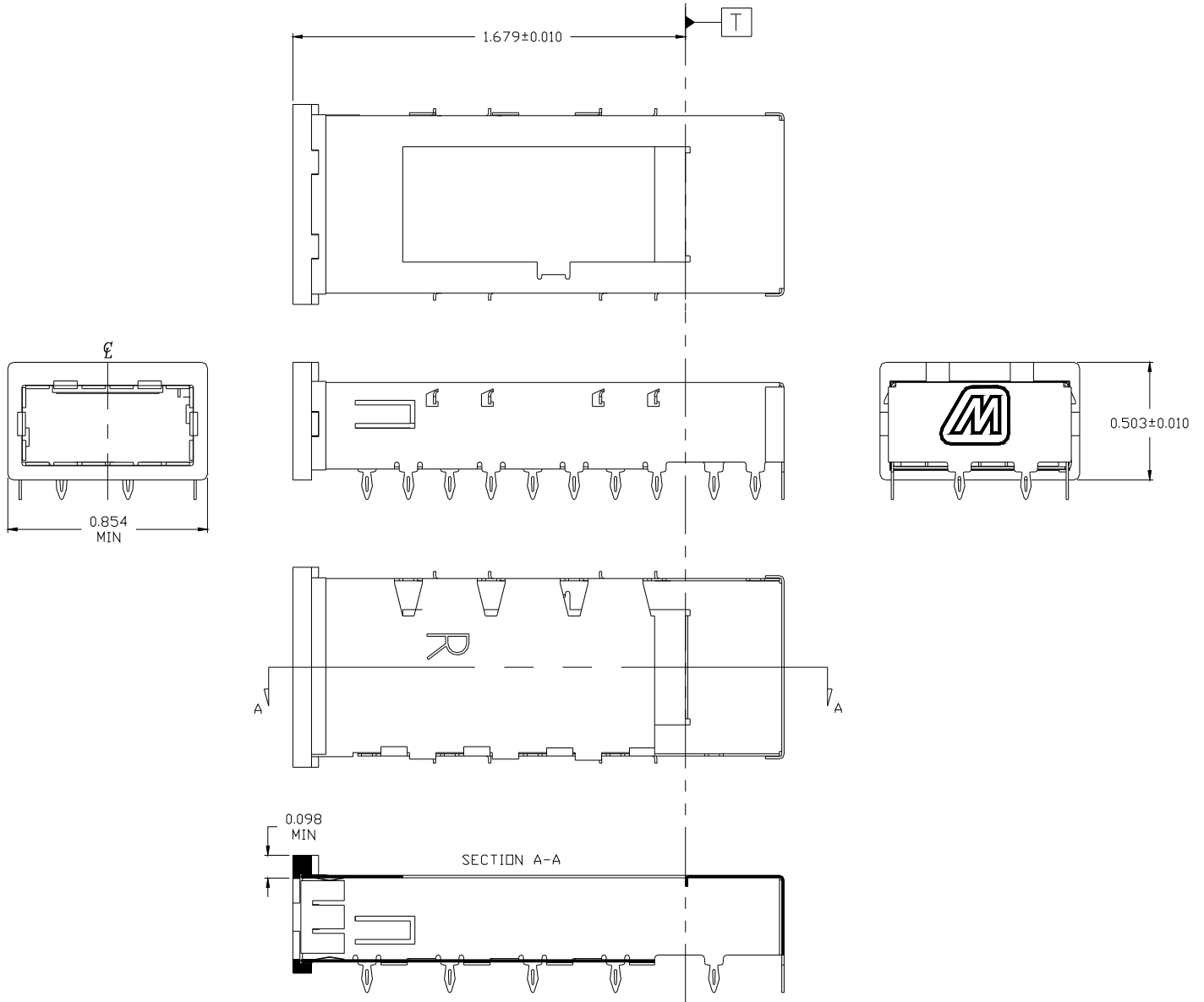


FIGURE 10

BEHIND THE BEZEL
(All other dimensions are shared with Figure 9)



NOTE:

- 1) FLANGE MATERIAL: ZINC ALUMINUM WITH NICKEL PLATING

FIGURE 11

DM9054-H-X-4L

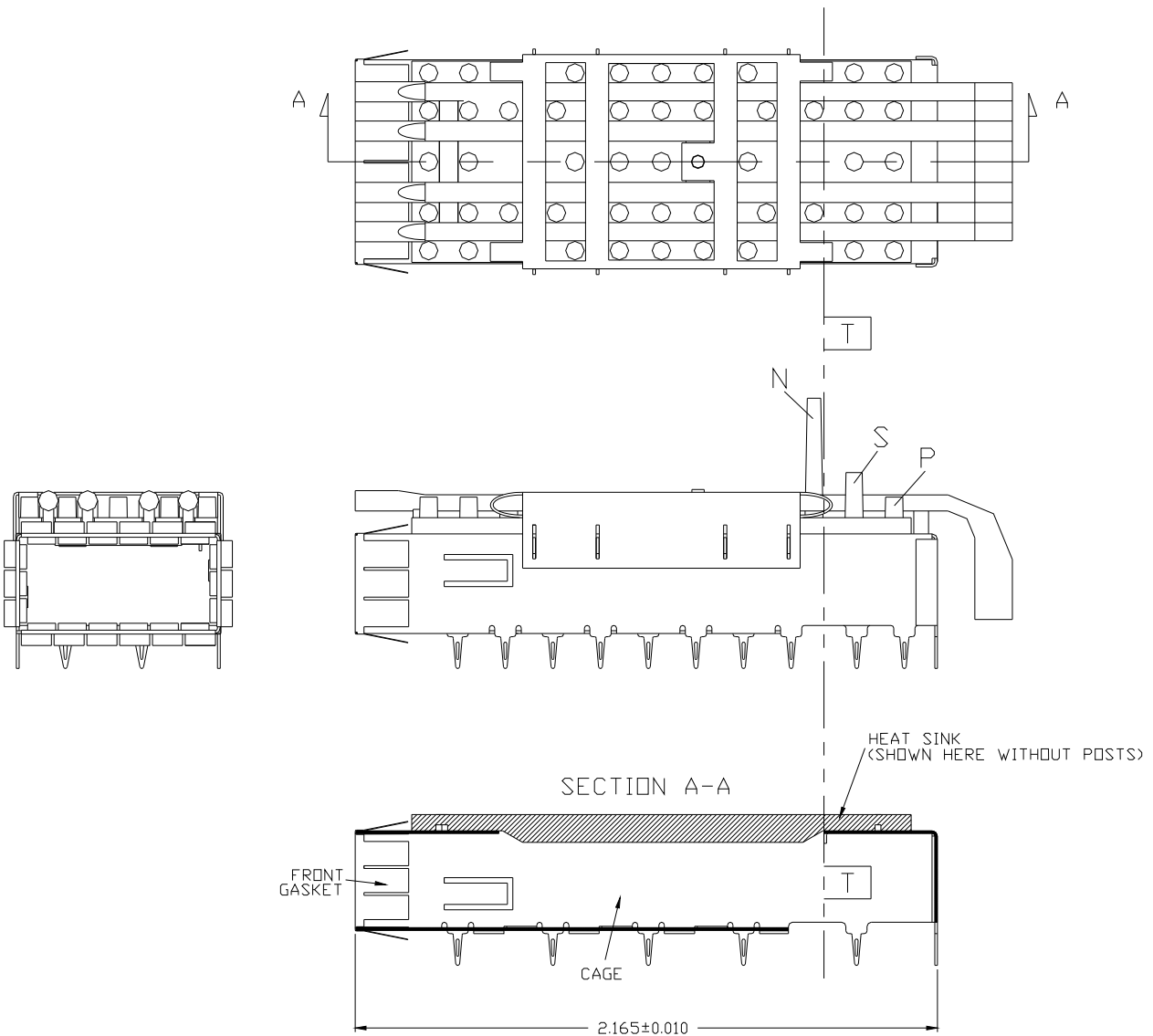


FIGURE 12

✓ISO 9001 Certified

www.methode.com

DM9054-H-X

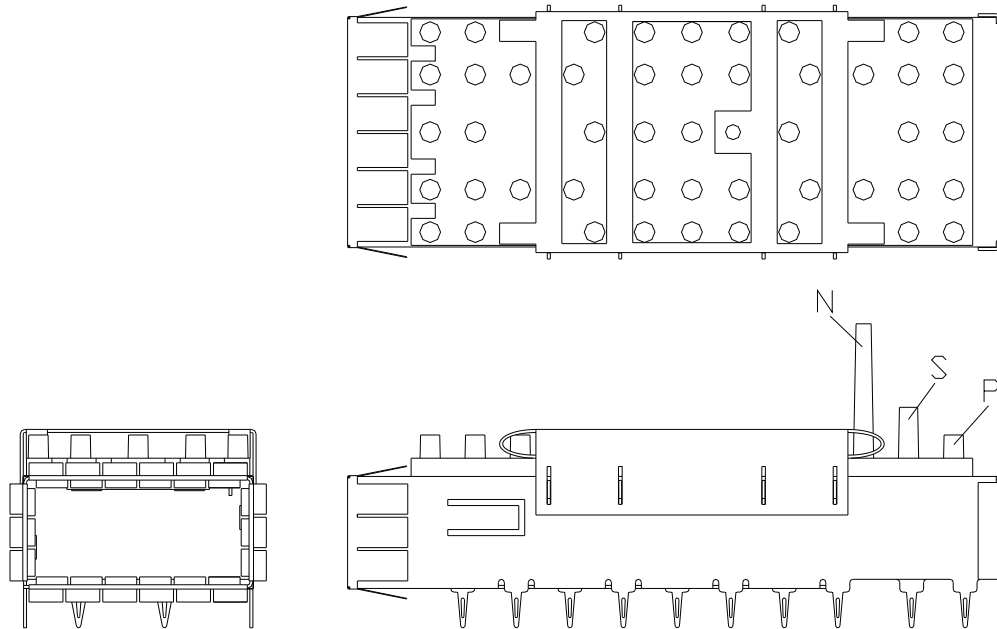


FIGURE 13

DM9054-H-X-2L

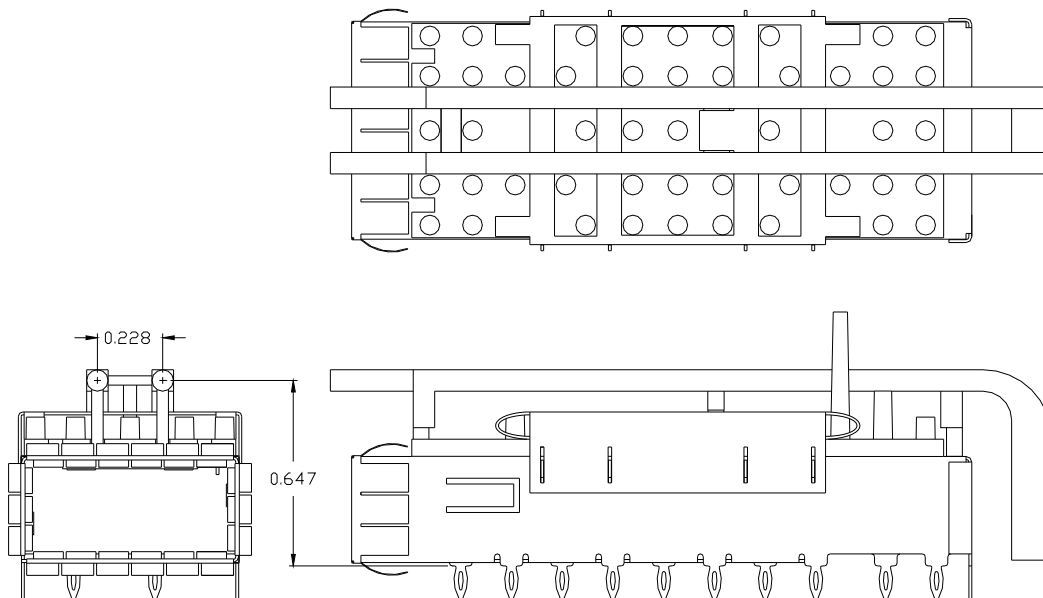


FIGURE 14

✓ISO 9001 Certified

DM9054-E-H-X-4L

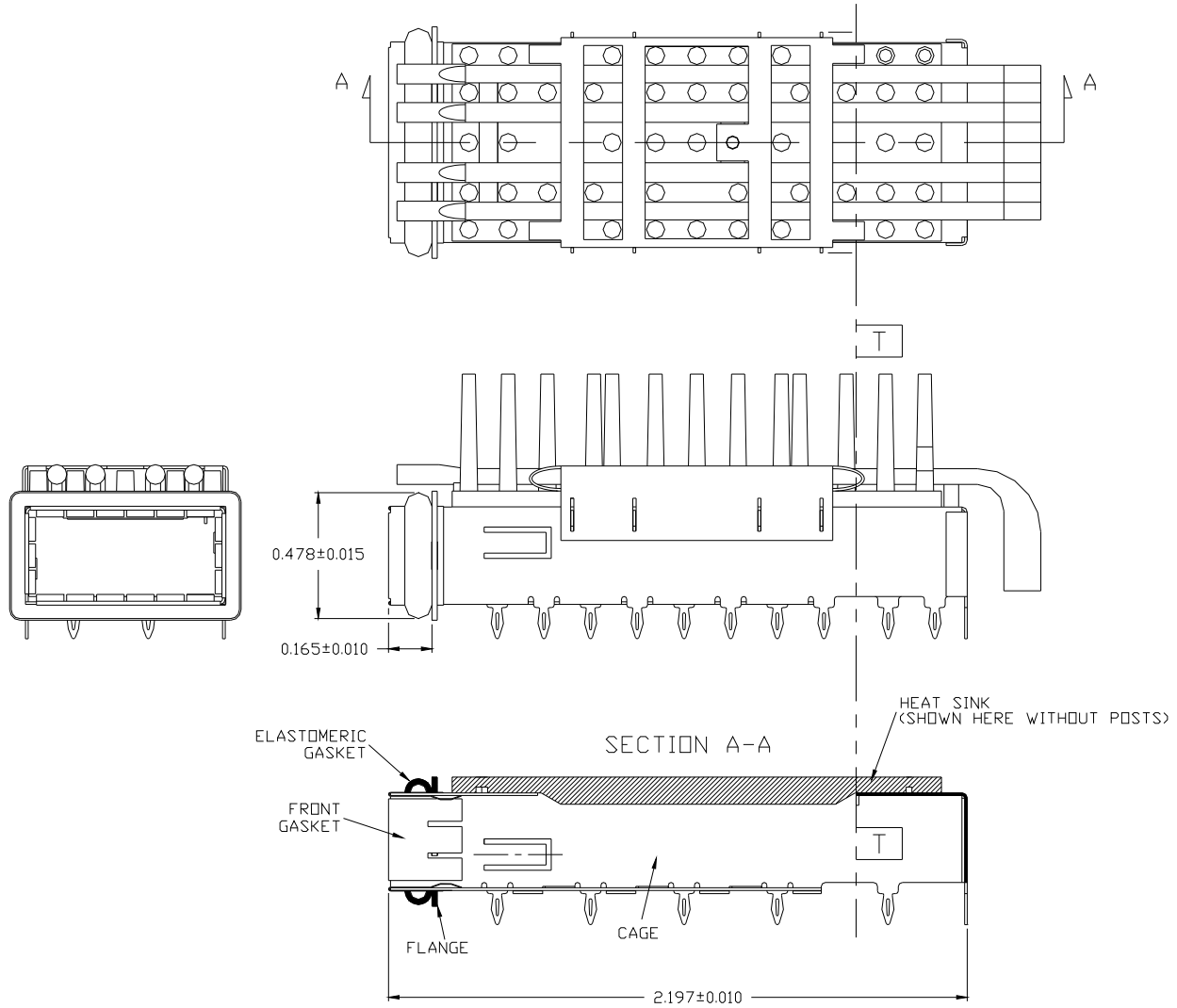


FIGURE 15

✓ISO 9001 Certified

www.methode.com

DM9054-E-H-X

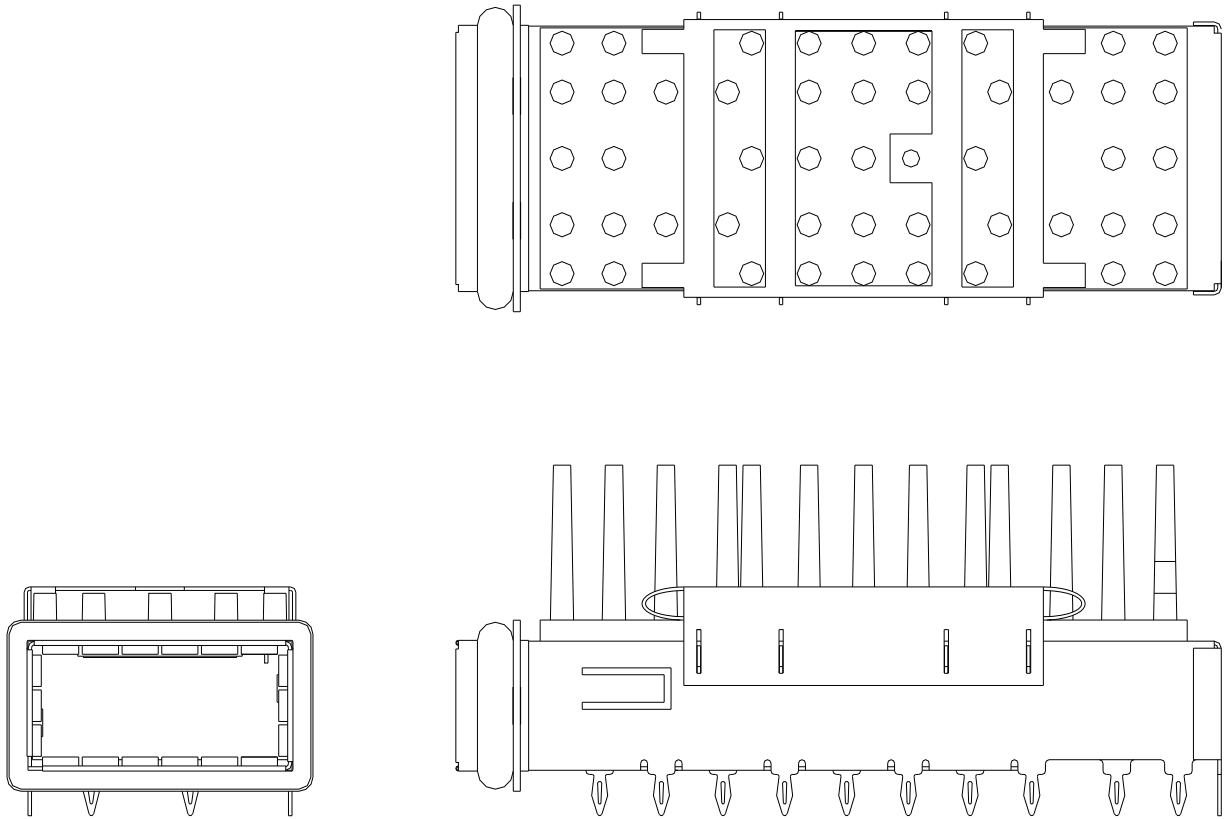


FIGURE 16

DM9054-F-H-X-4L

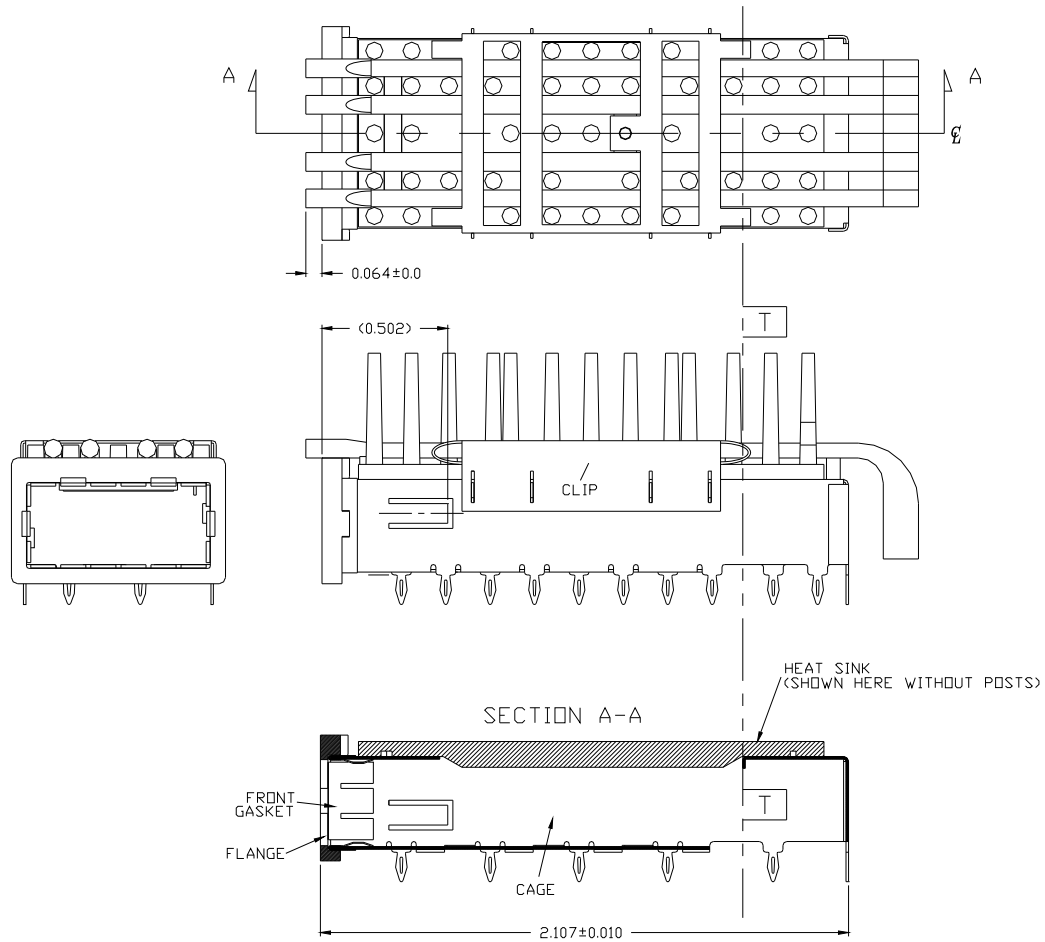


FIGURE 17

DM9054-F-H-X

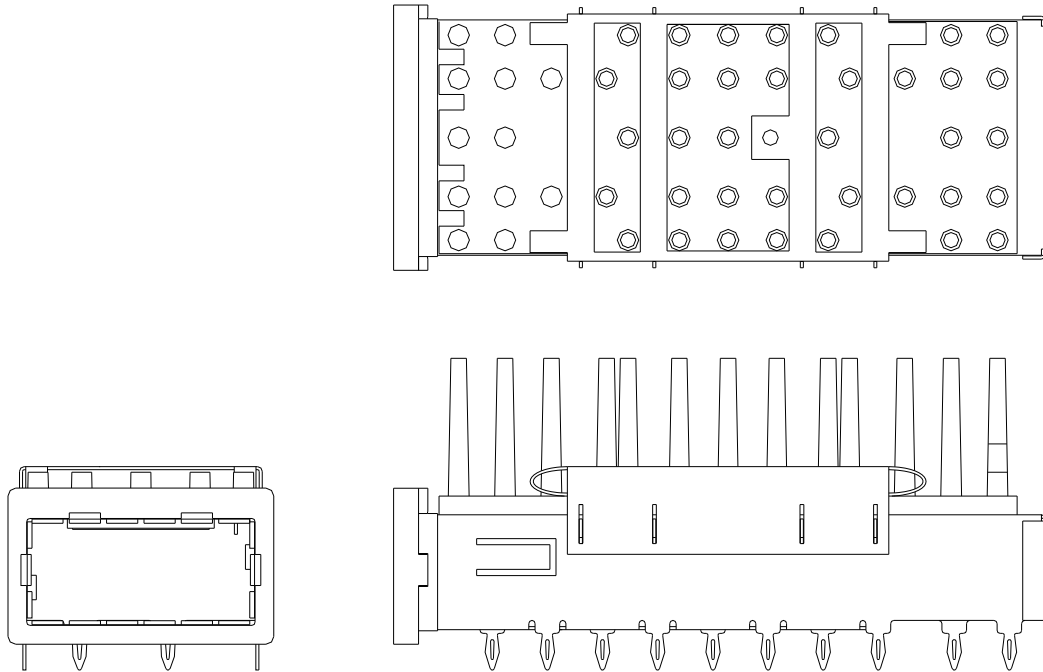


FIGURE 18

DM9054-F-H-X-2L

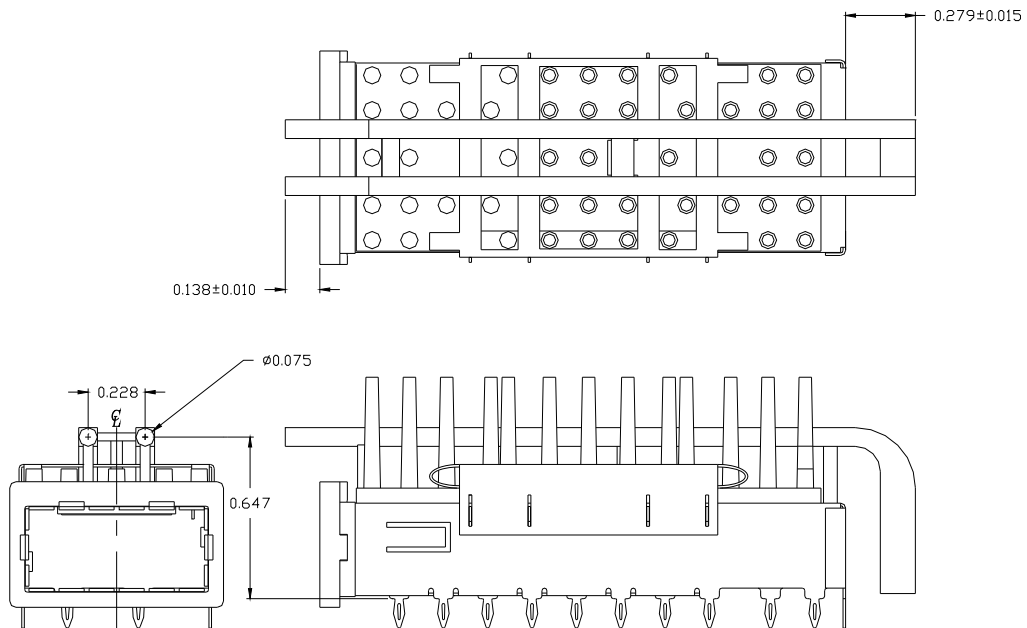
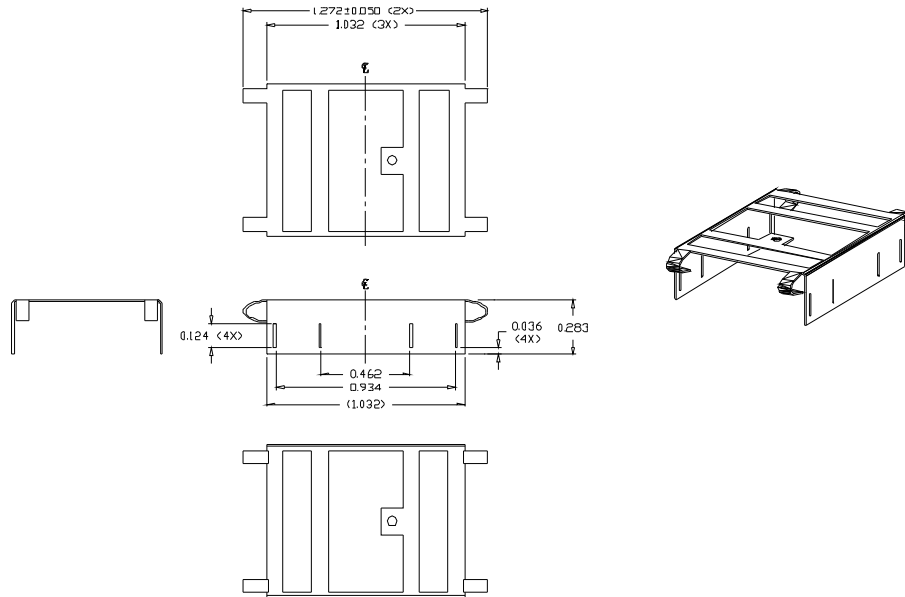


FIGURE 19

✓ISO 9001 Certified

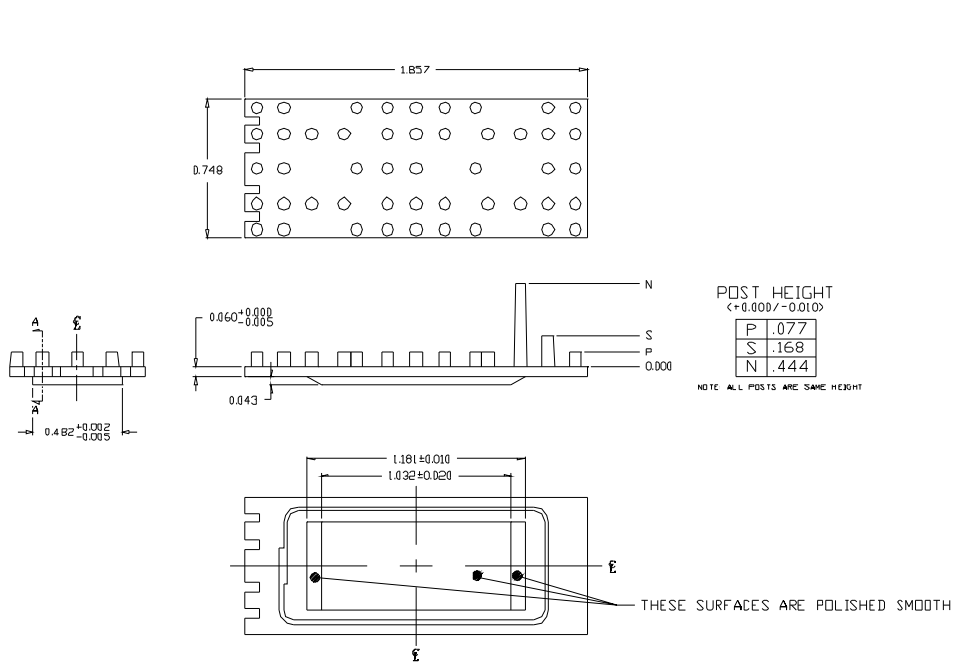
CLIP DETAIL



NOTE:
1) CLIP MATERIAL: 0.010" THICK BERYLLIUM COPPER WITH NICKEL PLATING

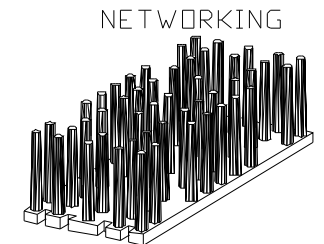
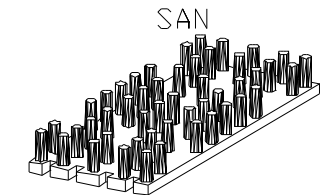
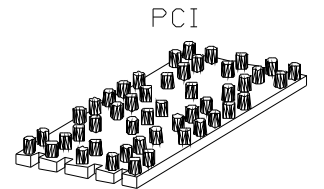
FIGURE 20

HEAT SINK DETAIL



NOTE:
1) HEAT SINK MATERIAL: ZINC ALUMINUM WITH NICKEL PLATING

FIGURE 21



✓ ISO 9001 Certified

LIGHTPIPE 4L

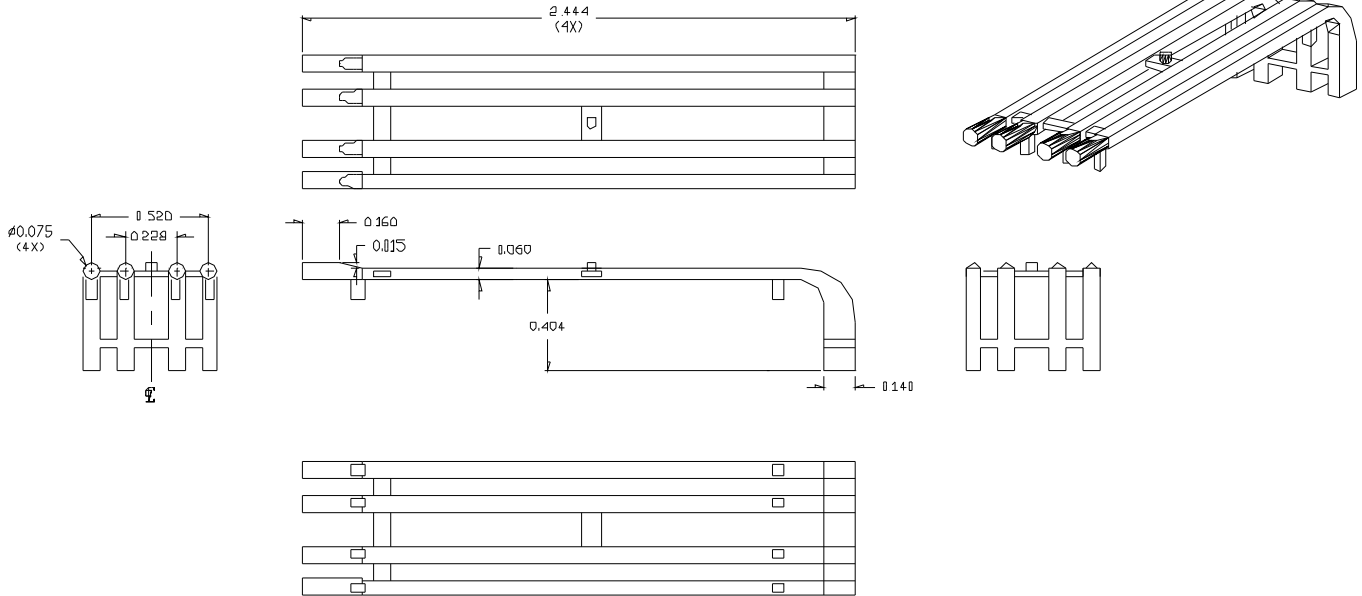


FIGURE 22

LIGHTPIPE 2L

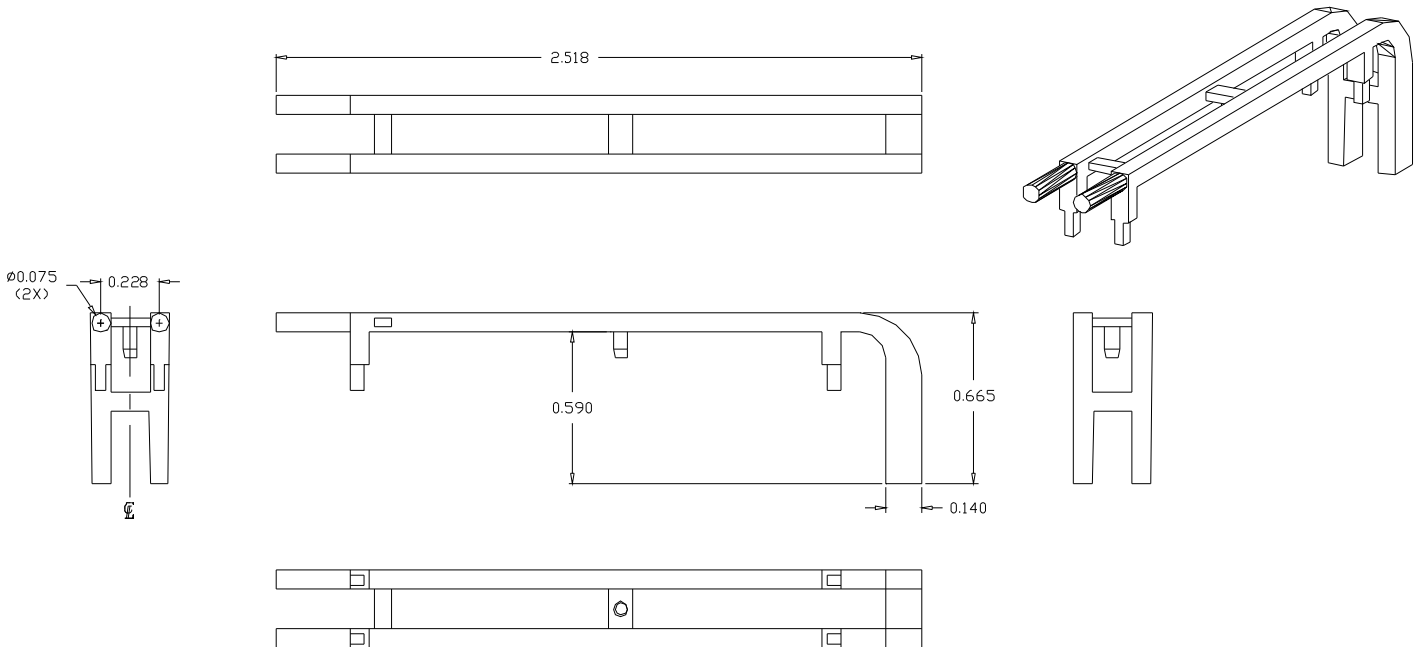


FIGURE 23

NOTES:

- 1) DIMENSIONS NOT REFERENCED TO AN EDGE ARE CENTERED ABOUT CENTER LINE
- 2) LIGHTPIPE MATERIAL: CLEAR POLYCARBONATE
- 3) ENDS OF LIGHTPIPE TO BE POLISHED SMOOTH

✓ISO 9001 Certified

LIGHTPIPE 4L ON CAGE

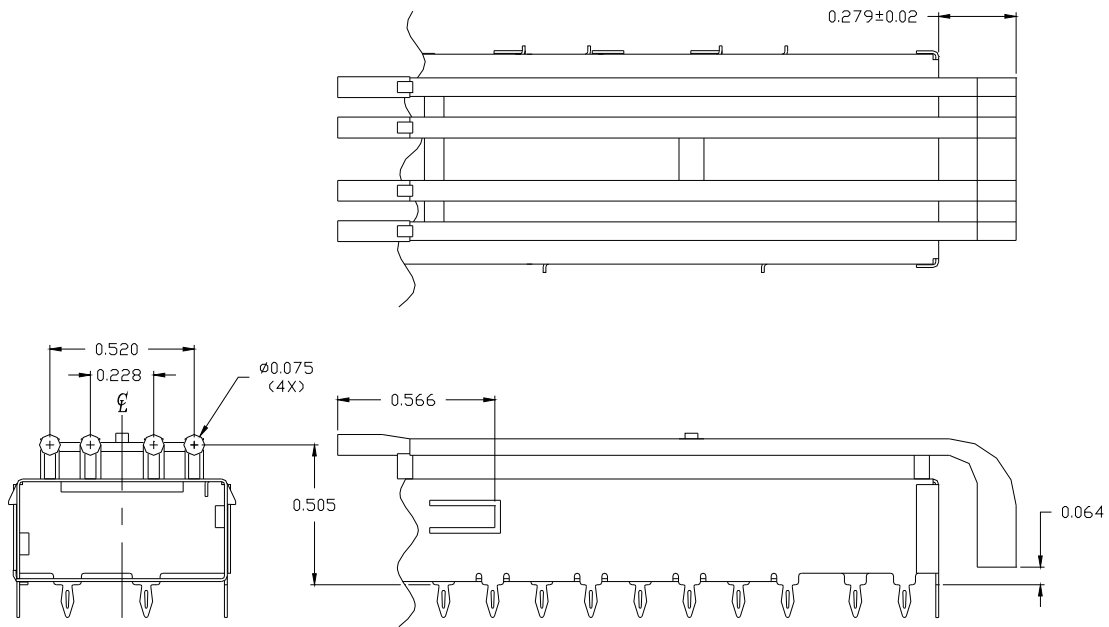


FIGURE 24

LIGHTPIPE 2L ON CAGE

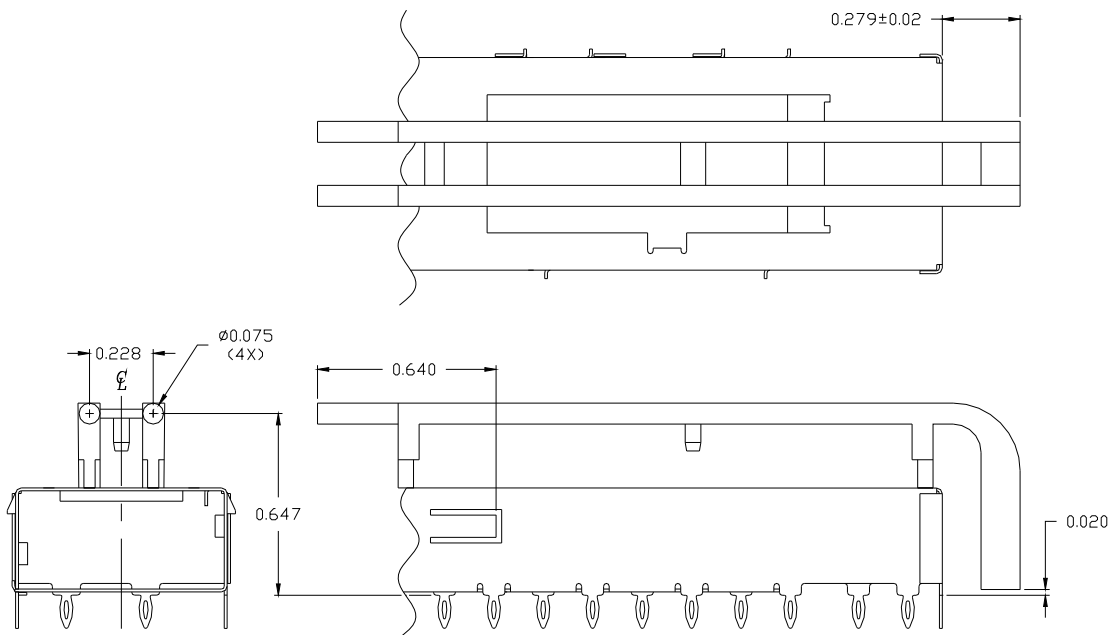


FIGURE 25

✓ISO 9001 Certified

HEATSINK ON CAGE

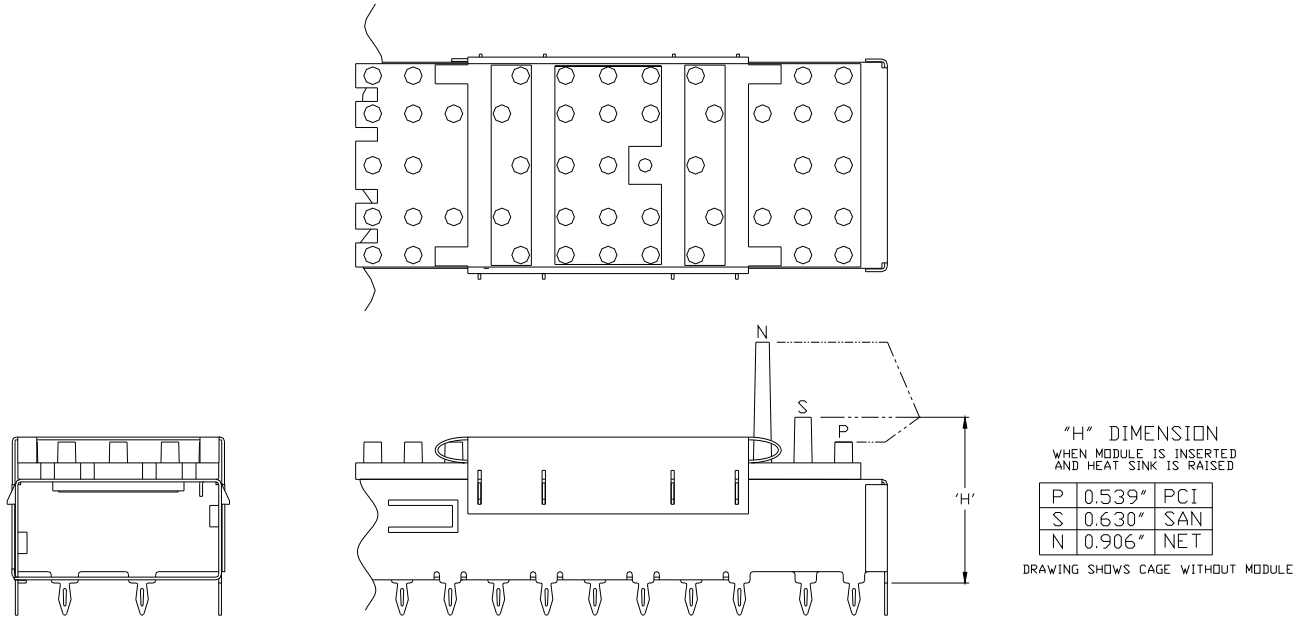


FIGURE 26

Insertion, Extraction, and Retention Forces

Measurement	Min	Max	Units	Comments
QSFP+ Module insertion	0	40	N	
QSFP+ Module extraction	0	30	N	
QSFP+ Module retention	90	N/A	N	No damage to module below 90N
Cage retention (latch strength)	180	N/A	N	No damage to module below 180N
Cage retention in host board	114	N/A	N	Force to be applied in a vertical direction, no damage to cage
Insertion/removal cycles, connector cage	100	N/A	Cyc.	Number of cycles for the connector and cage with multiple modules
Insertion/removal cycles, QSFP+ Module	50	N/A	Cyc.	Number of cycles for an individual module

Table 3