

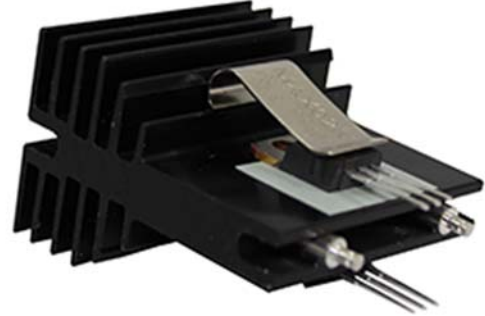
## BOARD LEVEL COOLING – M45

Max Clip standards are designed to be a labor saving option for board level cooling. Max Clip standard work with multiple devices and can be customized for specific applications. See Max Clip Standard Part Numbering to build your semi-custom heat sink. Representative Image Only.

### Benefits:

#### Labor Saving

- **Cost Efficient** – Add a clip and thermal interface material
- **Time Saver** – Easy assemble before wave soldering
- **Customizable** – Solder pins, interface material, length & clip



## ORDERING INFORMATION

| Part Number    | Device Type            |
|----------------|------------------------|
| M45165B021000G | TO-247, TO-220, TO-126 |

## HEAT SINK DETAILS

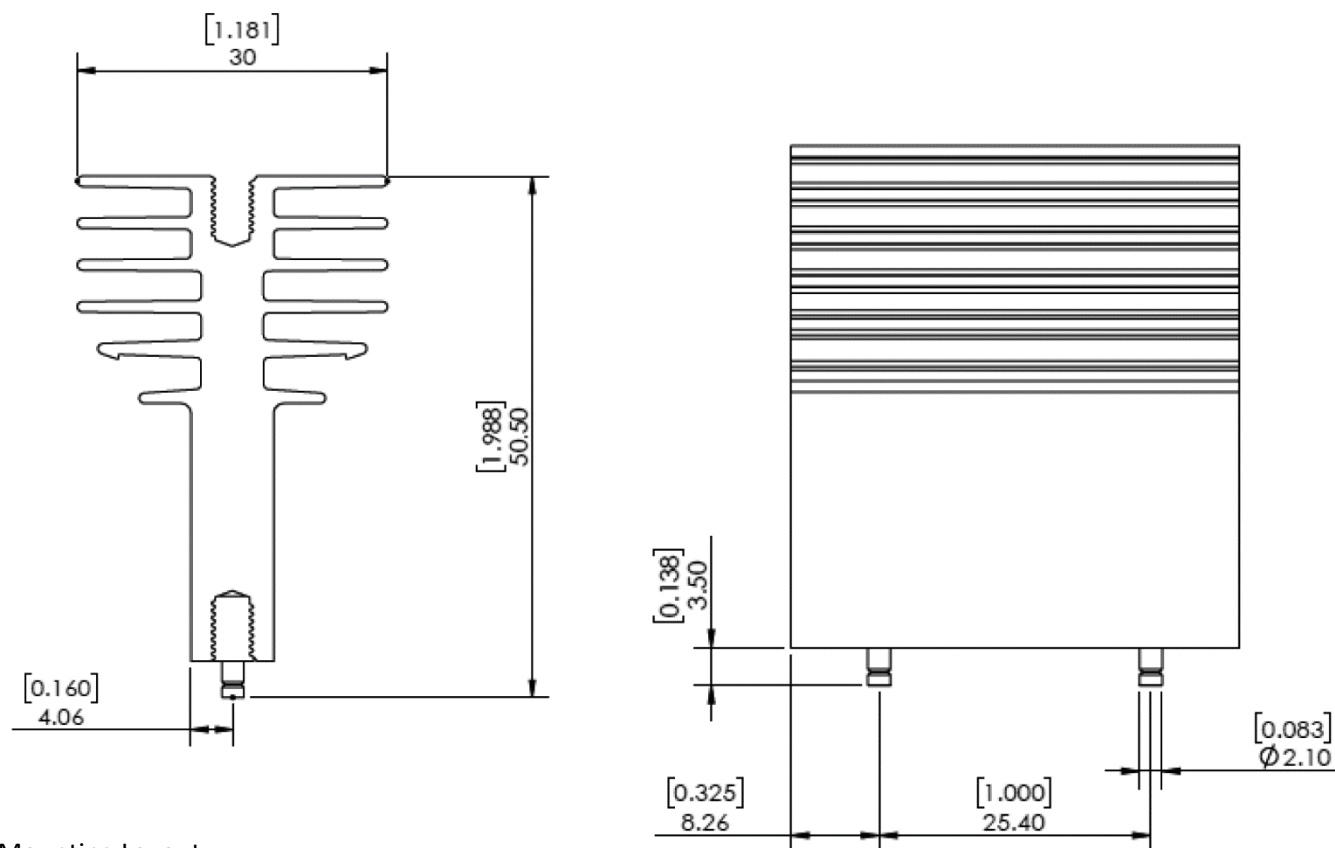
| Property                   | Details             |
|----------------------------|---------------------|
| Material                   | Aluminum            |
| Finish                     | Black Anodize       |
| Device Attachment Options  | Two Solderable Pins |
| Thermal Interface Material | -                   |

| Property                     | Details              |
|------------------------------|----------------------|
| Heat Sink Width (mm)         | 30 (1.18)            |
| Heat Sink Length (mm)        | 41.91 (1.65)         |
| Heat Sink Height (mm)        | 50.50 (1.988)        |
| Heat Sink Mounting Direction | Vertical, Horizontal |

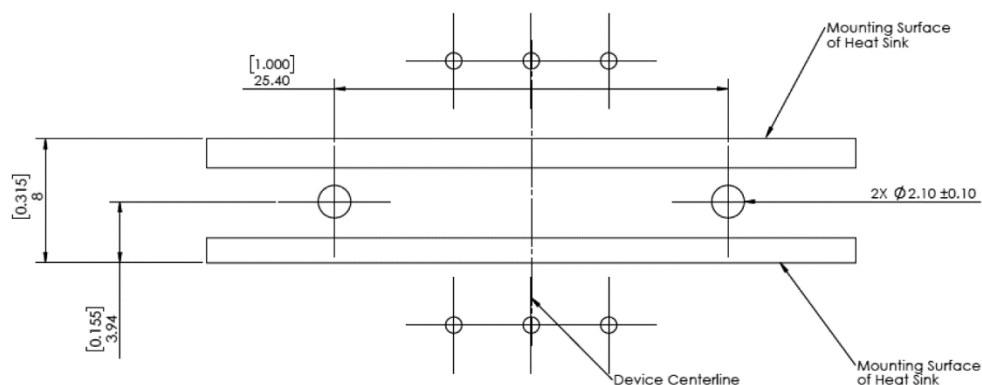
Clips are sold separately. For additional order information please see Max Clip Standard Part Numbering System. Aavid reserves the right to make changes to products or information contained herein without noticed. For additional information, please contact Aavid directly.

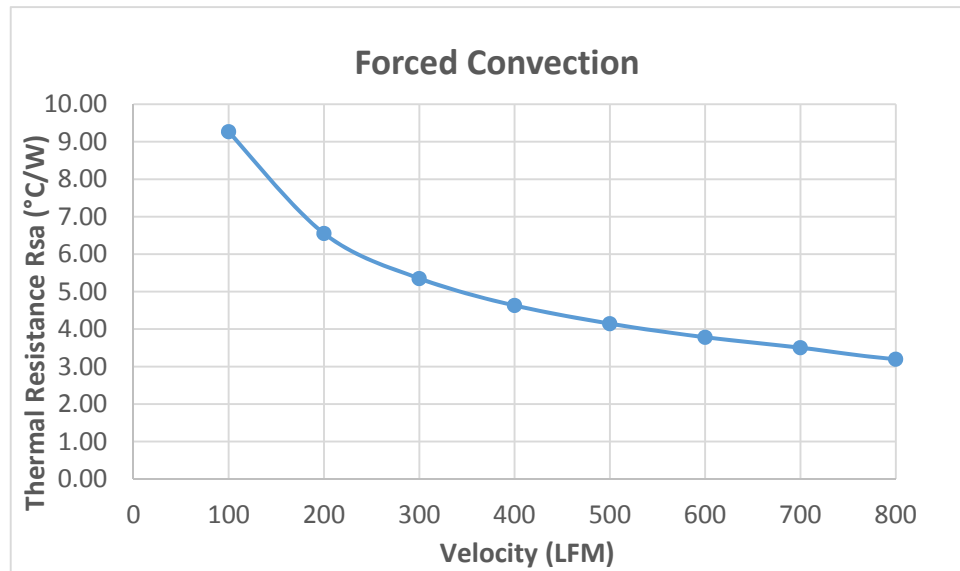
## MECHANICAL & PERFORMANCE

Drawing dimensions are shown in mm, (in)



Board Mounting Layout:





# Board Level Cooling – M46



## BOARD LEVEL COOLING – M46

Max Clip standards are designed to be a labor saving option for board level cooling. Max Clip standard work with multiple devices and can be customized for specific applications. See Max Clip Standard Part Numbering to build your semi-custom heat sink. Representative Image Only.

### Benefits:

#### Labor Saving

- **Cost Efficient** – Add a clip and thermal interface material
- **Time Saver** – Easy assemble before wave soldering
- **Customizable** – solder pins, interface material, length & clip



## ORDERING INFORMATION

| Part Number    | Device Type            |
|----------------|------------------------|
| M46165B021000G | TO-247, TO-220, TO-126 |

## HEAT SINK DETAILS

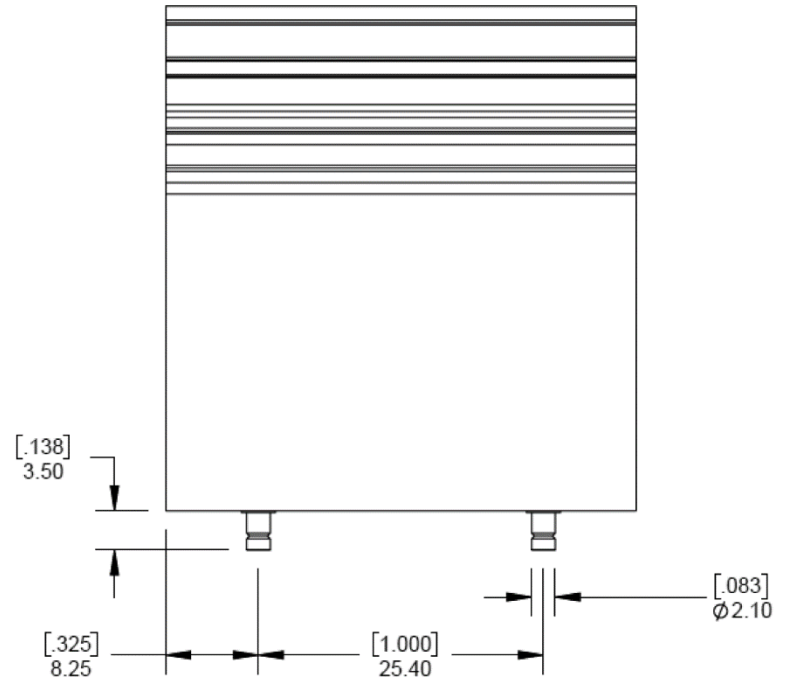
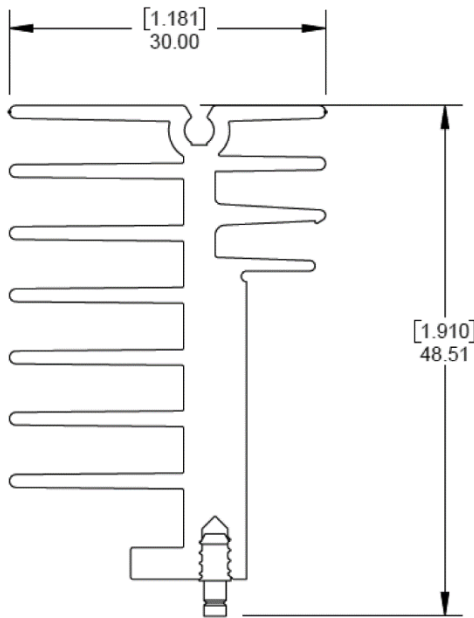
| Property                   | Details             |
|----------------------------|---------------------|
| Material                   | Aluminum            |
| Finish                     | Black Anodize       |
| Device Attachment Options  | Two Solderable Pins |
| Thermal Interface Material | -                   |

| Property                     | Details              |
|------------------------------|----------------------|
| Heat Sink Width (mm)         | 30 (1.18)            |
| Heat Sink Length (mm)        | 41.91 (1.65)         |
| Heat Sink Height (mm)        | 48.50 (1.909)        |
| Heat Sink Mounting Direction | Vertical, Horizontal |

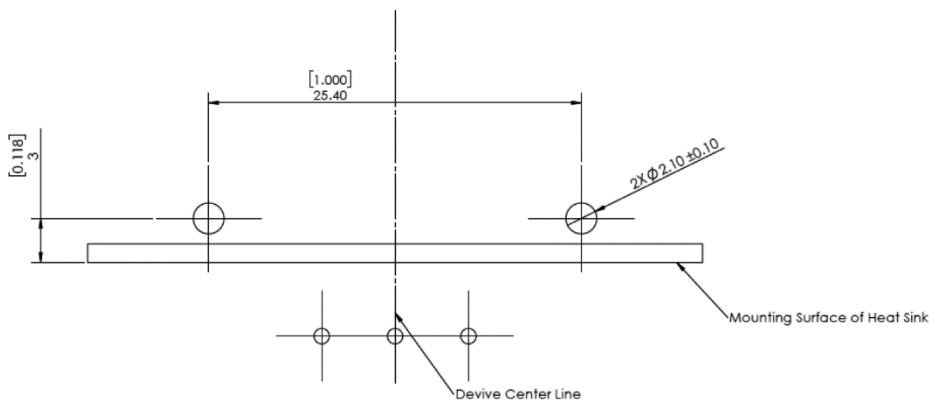
Clips are sold separately. For additional order information please see Max Clip Standard Part Numbering System. Aavid reserves the right to make changes to products or information contained herein without noticed. For additional information, please contact Aavid directly.

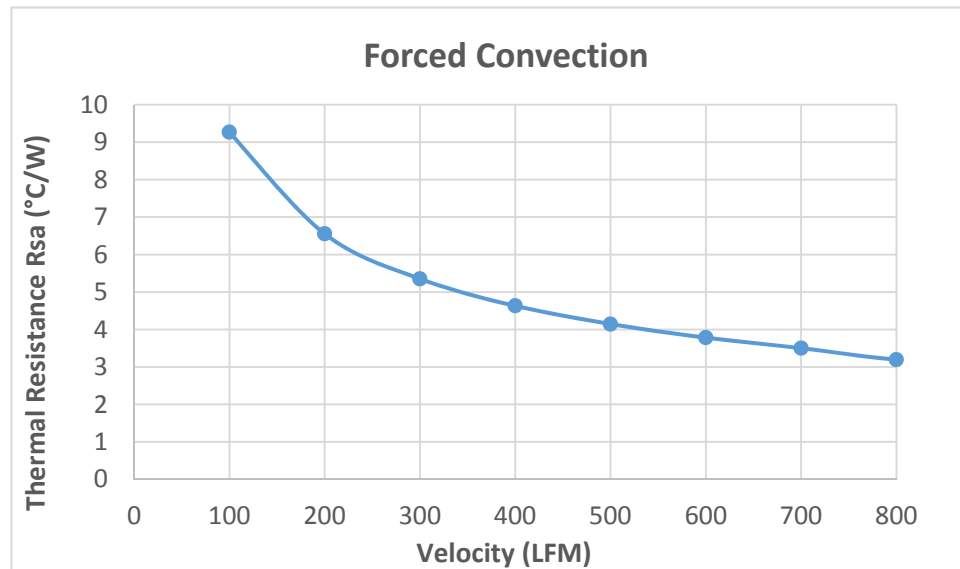
## MECHANICAL & PERFORMANCE

*Drawing dimensions are shown in mm, (in)*



### Board Mounting Layout:





## BOARD LEVEL COOLING – M47

Max Clip standards are designed to be a labor saving option for board level cooling. Max Clip standard work with multiple devices and can be customized for specific applications. See Max Clip Standard Part Numbering to build your semi-custom heat sink. Representative Image Only.

### Benefits:

#### Labor Saving

- **Cost Efficient** – Integrated clip designed into heat sink
- **Time Saver** – Easy assemble before wave soldering
- **Customizable** – Solder pins and length



## ORDERING INFORMATION

| Part Number    | Device Type            |
|----------------|------------------------|
| M47059B011000G | TO-247, TO-220, TO-126 |
| M47079B011000G | TO-247, TO-220, TO-126 |
| M47098B011000G | TO-247, TO-220, TO-126 |
| M47118B021000G | TO-247, TO-220, TO-126 |

## HEAT SINK DETAILS

| Property                   | Details         |
|----------------------------|-----------------|
| Material                   | Aluminum        |
| Finish                     | Black Anodize   |
| Device Attachment Options  | Solderable Pins |
| Thermal Interface Material | -               |

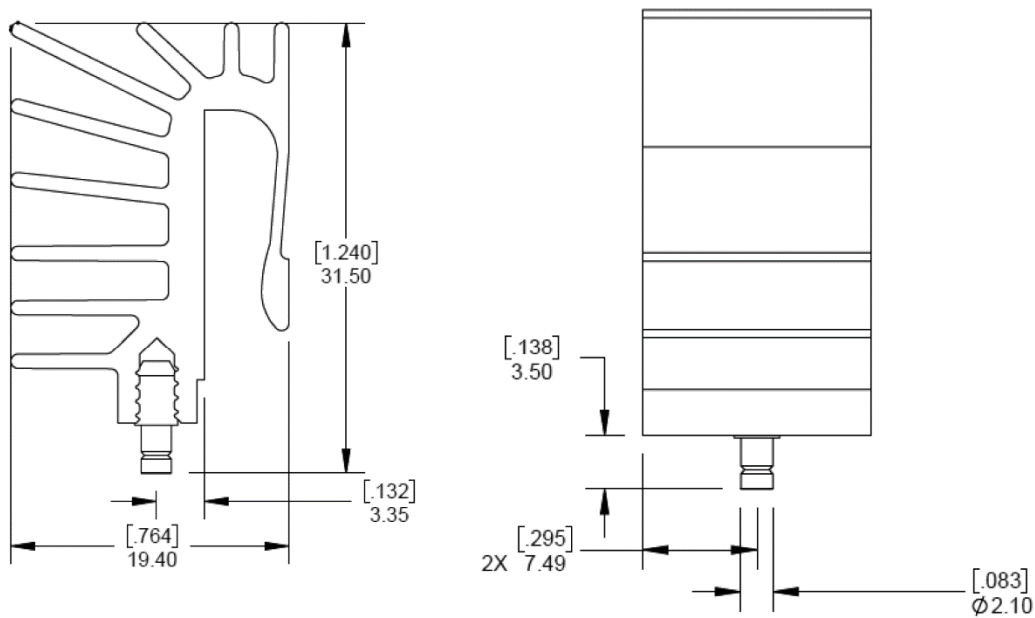
| Property                     | Details              |
|------------------------------|----------------------|
| Heat Sink Width (mm)         | 19.4 (0.763)         |
| Heat Sink Length (mm)        | See Below Table      |
| Heat Sink Height (mm)        | 31.5 (1.240)         |
| Heat Sink Mounting Direction | Vertical, Horizontal |

For additional order information please see Max Clip Standard Part Numbering System. Aavid reserves the right to make changes to products or information contained herein without noticed. For additional information, please contact Aavid directly.

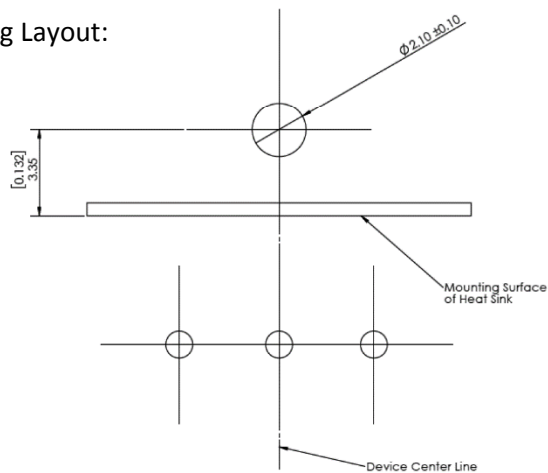
## MECHANICAL & PERFORMANCE

Drawing dimensions are shown in mm, (in)

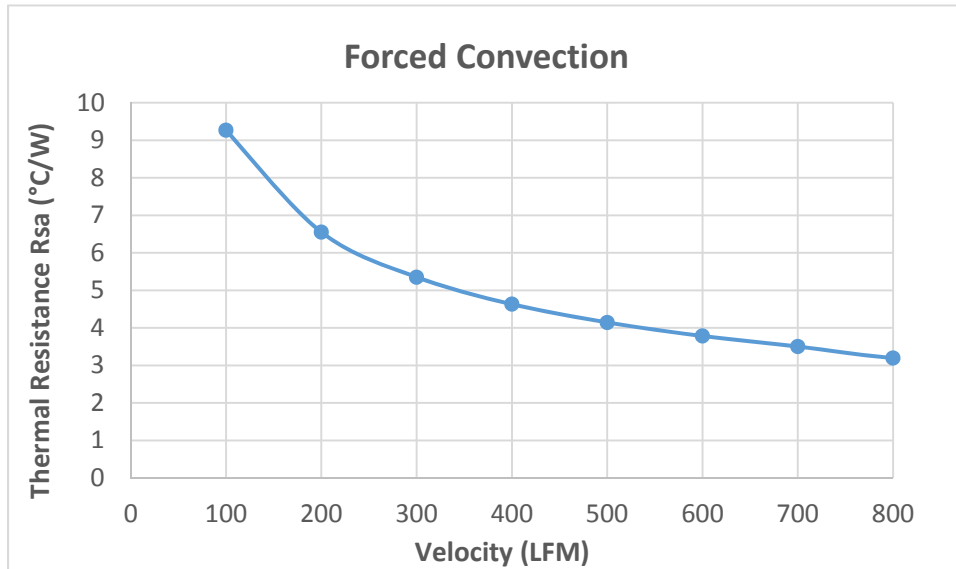
| Part Number    | Length       |
|----------------|--------------|
| M47059B011000G | 14.99 (0.59) |
| M47079B011000G | 20.07 (0.79) |
| M47098B011000G | 24.89 (0.98) |
| M47118B021000G | 30.15 (1.18) |



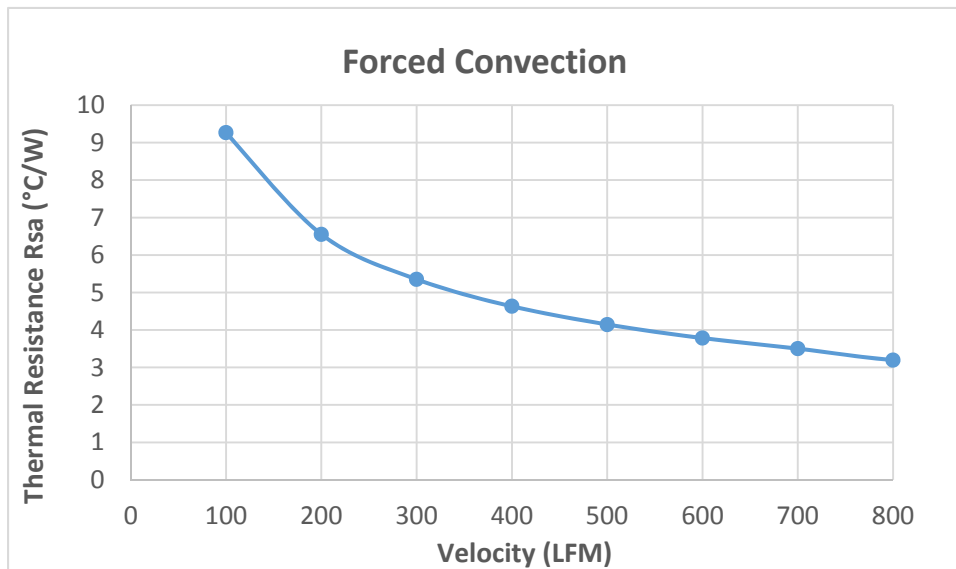
### Board Mounting Layout:



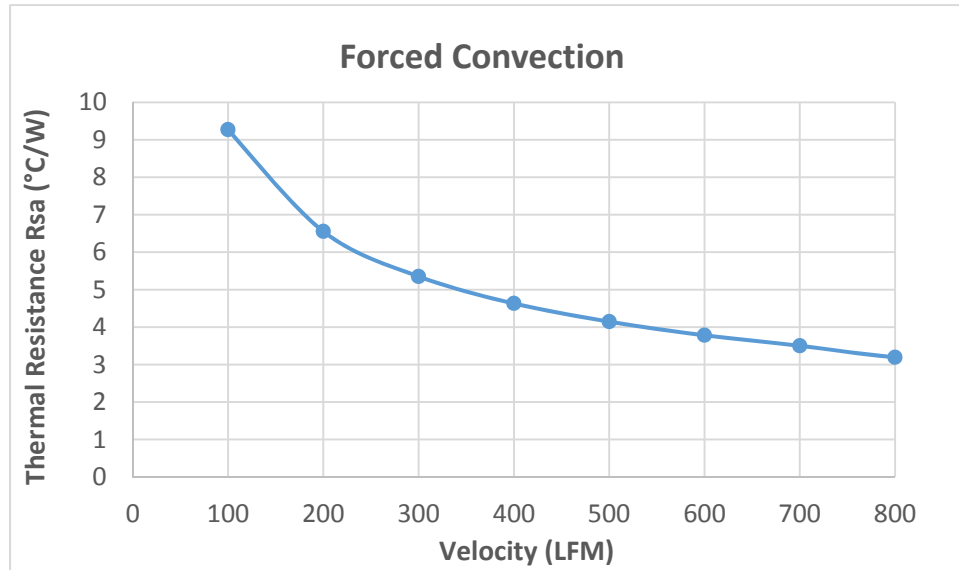
Part Number: M47059B011000G



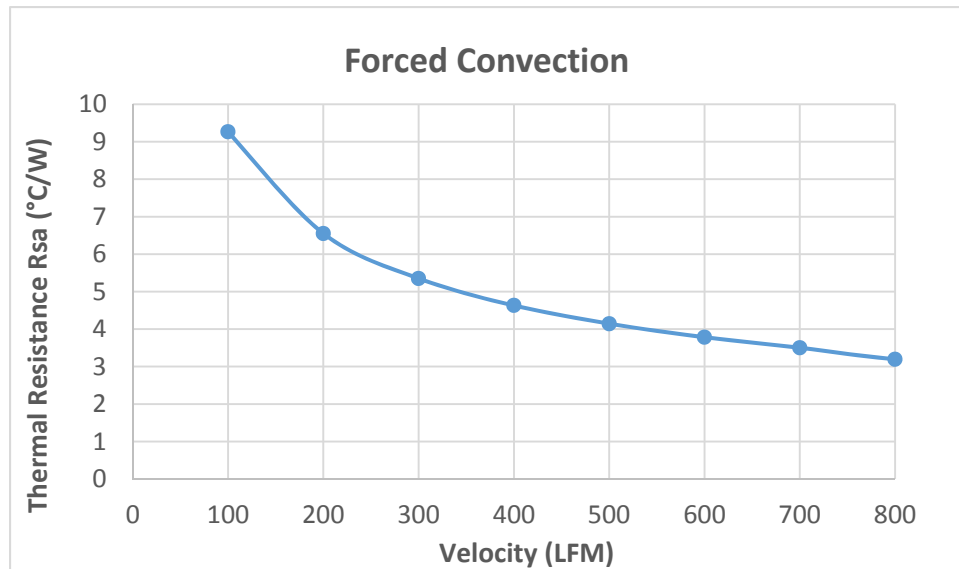
Part Number: M47079B011000G



Part Number: M47098B011000G



Part Number: M47079B011000G



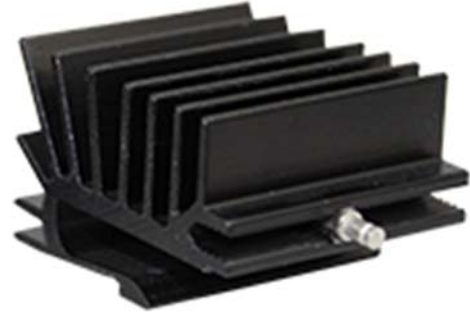
## BOARD LEVEL COOLING – M48

Max Clip standards are designed to be a labor saving option for board level cooling. Max Clip standard work with multiple devices and can be customized for specific applications. See Max Clip Standard Part Numbering to build your semi-custom heat sink. Representative Image Only.

### Benefits:

#### Labor Saving

- **Cost Efficient** – Integrated clip designed into heat sink
- **Time Saver** – Easy assemble before wave soldering
- **Customizable** – Solder pins and length



## ORDERING INFORMATION

| Part Number    | Device Type            |
|----------------|------------------------|
| M48059B011000G | TO-247, TO-220, TO-126 |
| M48079B011000G | TO-247, TO-220, TO-126 |
| M48098B011000G | TO-247, TO-220, TO-126 |
| M48118B021000G | TO-247, TO-220, TO-126 |

## HEAT SINK DETAILS

| Property                   | Details                 |
|----------------------------|-------------------------|
| Material                   | Aluminum                |
| Finish                     | Black Anodize           |
| Device Attachment Options  | One-Two Solderable Pins |
| Thermal Interface Material | -                       |

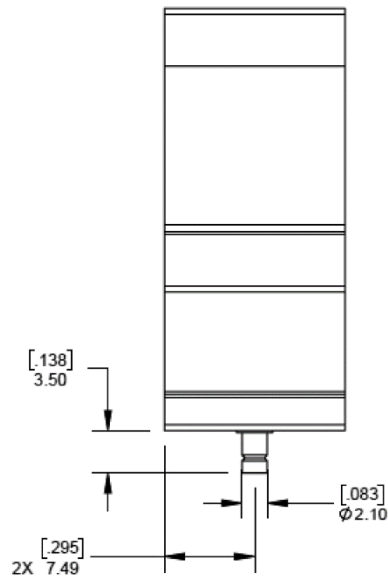
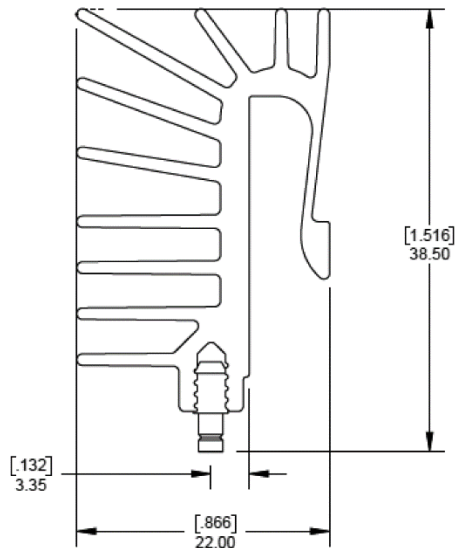
| Property                     | Details              |
|------------------------------|----------------------|
| Heat Sink Width (mm)         | 22.00 (0.866)        |
| Heat Sink Length (mm)        | See below table      |
| Heat Sink Height (mm)        | 38.5 (1.515)         |
| Heat Sink Mounting Direction | Vertical, Horizontal |

For additional order information please see Max Clip Standard Part Numbering System. Aavid reserves the right to make changes to products or information contained herein without noticed. For additional information, please contact Aavid directly.

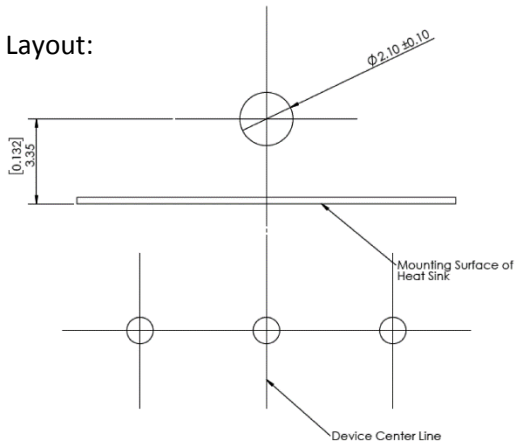
## MECHANICAL & PERFORMANCE

Drawing dimensions are shown in mm, (in)

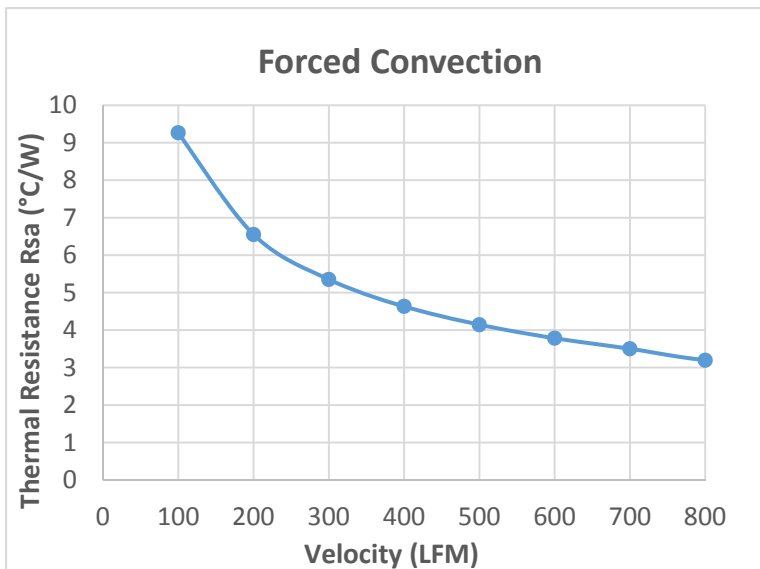
| Part Number    | Length       |
|----------------|--------------|
| M48059B011000G | 14.99 (0.59) |
| M48079B011000G | 20.07 (0.79) |
| M48098B011000G | 24.89 (0.98) |
| M48118B021000G | 30.15 (1.18) |



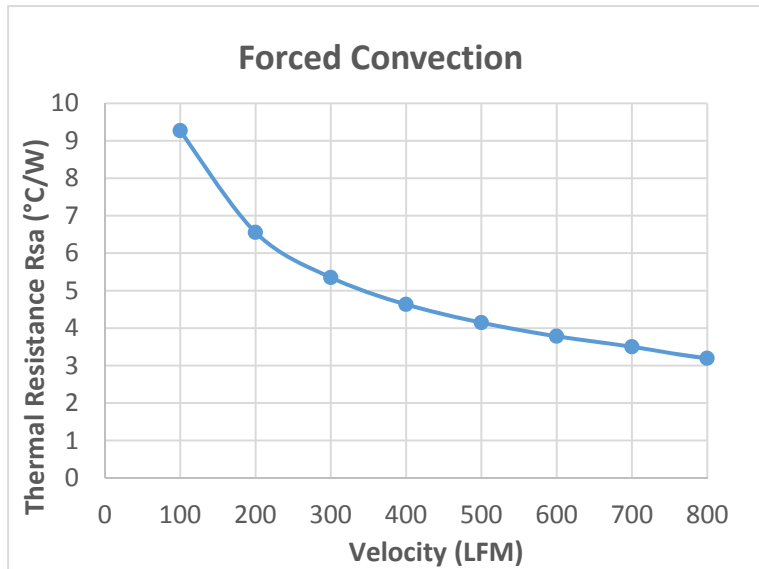
### Board Mounting Layout:



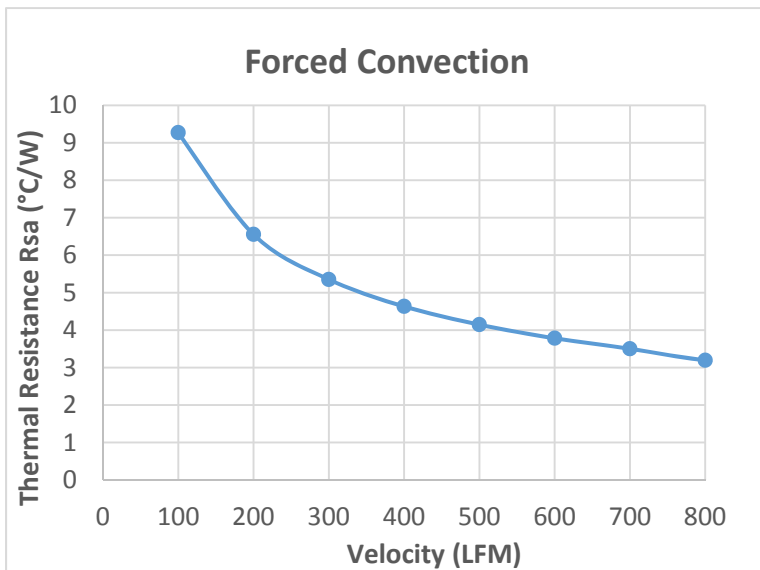
Part Number: M48079B011000G



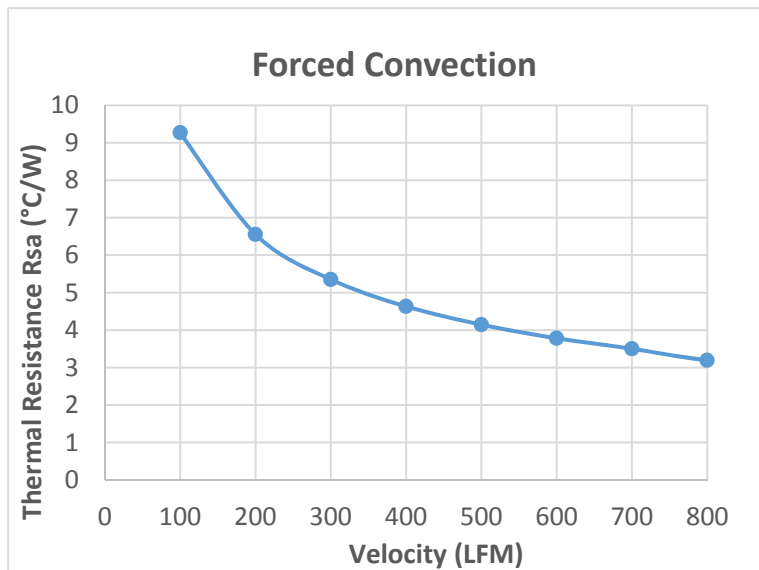
Part Number: M48059B011000G



Part Number: M48098B011000G



Part Number: M48118B021000G



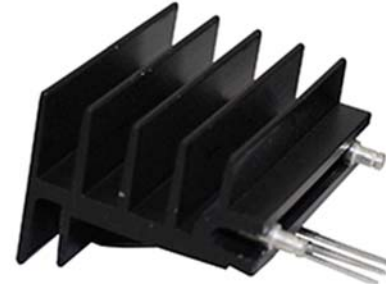
## BOARD LEVEL COOLING – M49

Max Clip standards are designed to be a labor saving option for board level cooling. Max Clip standard work with multiple devices and can be customized for specific applications. See Max Clip Standard Part Numbering to build your semi-custom heat sink. Representative Image Only.

### Benefits:

#### Labor Saving

- **Cost Efficient** – Add a clip and thermal interface material
- **Time Saver** – Easy assemble before wave soldering
- **Customizable** – Solder pins, interface material, length & clip



## ORDERING INFORMATION

| Part Number    | Device Type            |
|----------------|------------------------|
| M49138B011000G | TO-247, TO-220, TO-126 |
| M49165B021000G | TO-247, TO-220, TO-126 |

## HEAT SINK DETAILS

| Property                   | Details         |
|----------------------------|-----------------|
| Material                   | Aluminum        |
| Finish                     | Black Anodize   |
| Device Attachment Options  | Solderable Pins |
| Thermal Interface Material | -               |

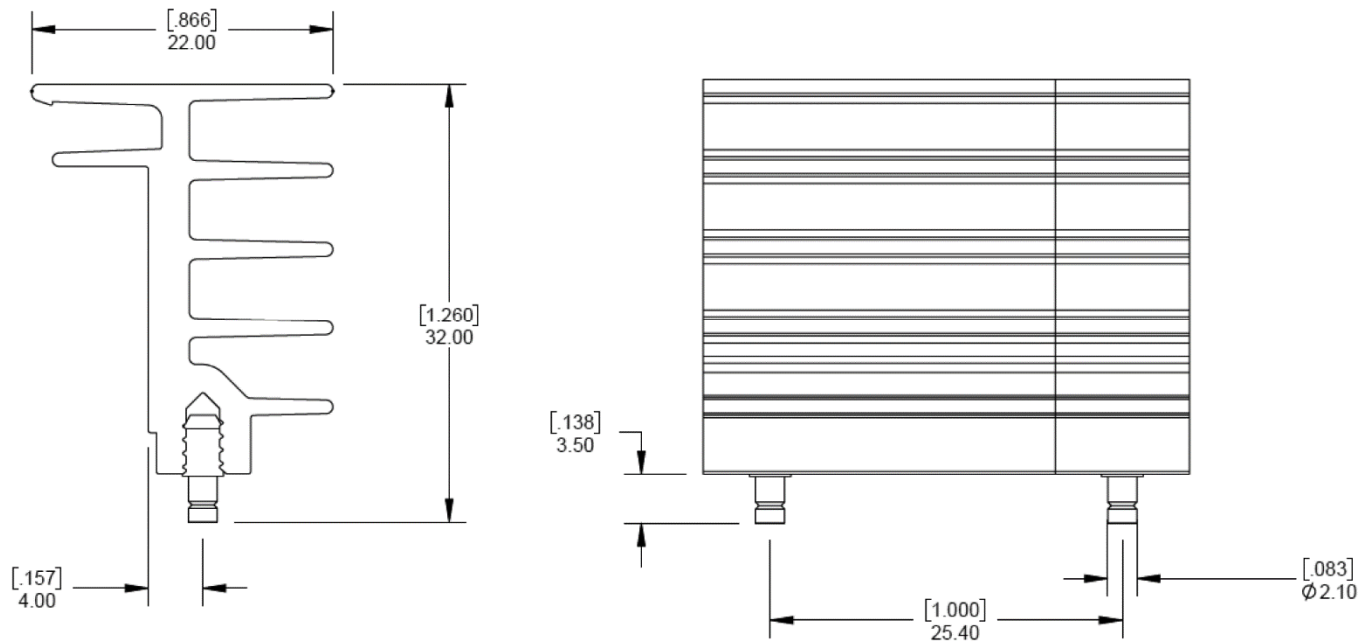
| Property                     | Details              |
|------------------------------|----------------------|
| Heat Sink Width (mm)         | 22.00 (0.866)        |
| Heat Sink Length (mm)        | See Below Table      |
| Heat Sink Height (mm)        | 32.00 (1.26)         |
| Heat Sink Mounting Direction | Vertical, Horizontal |

Clips are sold separately. For additional order information please see Max Clip Standard Part Numbering System. Aavid reserves the right to make changes to products or information contained herein without noticed. For additional information, please contact Aavid directly.

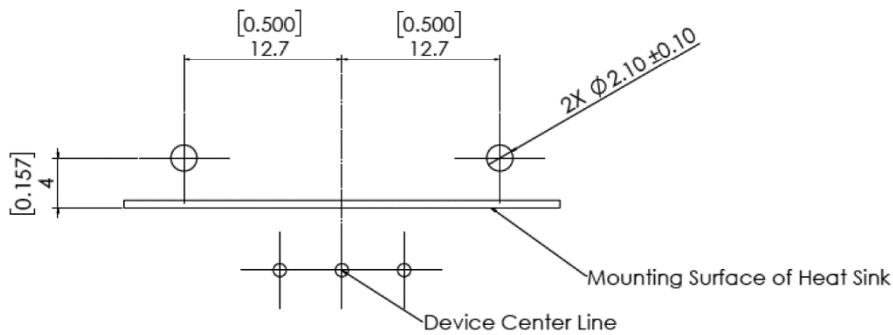
## MECHANICAL & PERFORMANCE

Drawing dimensions are shown in mm, (in)

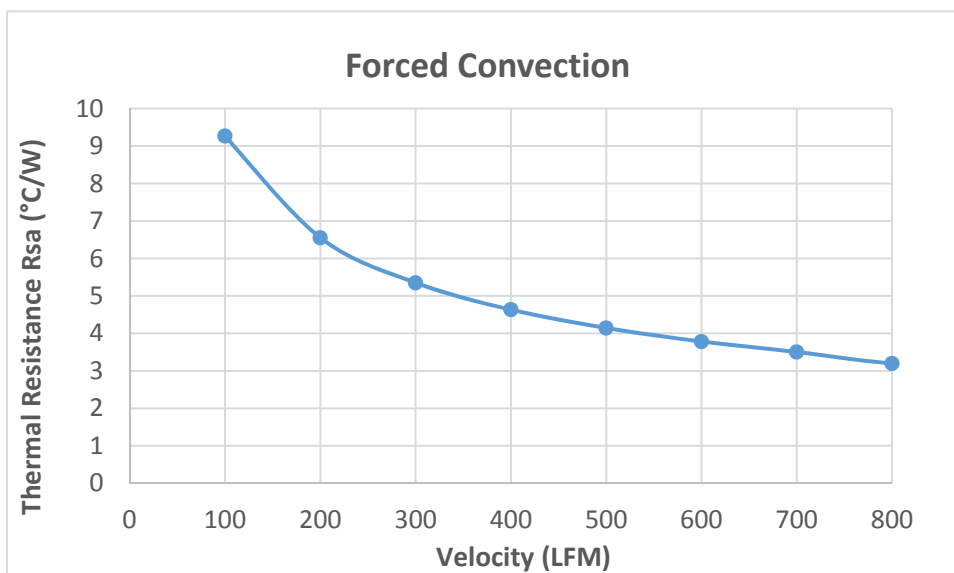
| Part Number    | "X" Dim      |
|----------------|--------------|
| M49138B011000G | 35.05 (1.38) |
| M49165B021000G | 41.91 (1.65) |



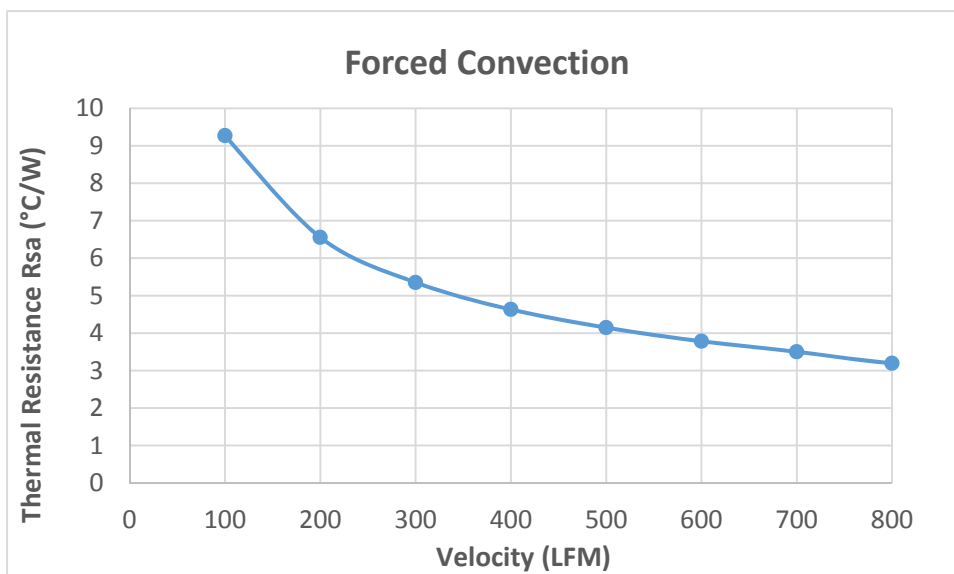
### Board Mounting Layout:



Part Number: M49138B011000G



Part Number: M49165B021000G



## HOW TO BUILD AN AAVID MAX CLIP STANDARD PART NUMBER

Aavid's Max Clip Standard part numbering system consists of a 14-digit part number sequence. In the standard offerings, Category A or the first digit refers to the series which is defaulted as "M". The following 2nd and 3rd digits are Category B which defines the base profile of the Max Clip part. Digits 4-6, Category C refers to cut length. The decimal point is assumed between the 4th and 5th digit. Standard parts for the Max Clip parts can be quoted in lengths under 10" any longer lengths will be quoted custom.

Category D is digit 7 and refers to the finish, followed by digit 8 or Category E which defines the thermal interface material. The 9<sup>th</sup> and 10<sup>th</sup> digits or Category F calls out the number of pins and the pin type for board mounting. The last sequence of the part number are the device mounting or Category G, digits 11-13 and refer to the number of clips and the Max Clip type.

### CATEGORY B - DIGITS 2-3: BASE PROFILE

| Code | Base Extrusion | Height           | Width            | Dual Mount |
|------|----------------|------------------|------------------|------------|
| 45   | 78020          | 51.00 (2.008 in) | 30.00 (1.181 in) | Y          |
| 46   | 78060          | 48.36 (1.904 in) | 30.00 (1.181 in) | N          |
| 47   | 78065          | 30.80 (1.212 in) | 18.85 (0.742 in) | N          |
| 48   | 78240          | 38.58 (1.519 in) | 21.94 (0.864 in) | N          |
| 49   | 78265          | 31.36 (1.235 in) | 22.00 (0.866 in) | N          |

### CATEGORY D – DIGIT 7: FINISH

| Code | Description                                            |
|------|--------------------------------------------------------|
| B    | Black anodize                                          |
| U    | Unfinished / Wash                                      |
| V    | AavSHIELD3 – RoHS compliant hexavalent chromate finish |

## PART NUMBERING GUIDE

|   |                 |                            |
|---|-----------------|----------------------------|
| A | (Digits 1) =    | Series name M              |
| B | (Digits 2-3) =  | Base Profile               |
| C | (Digit 4-6) =   | Cut Length                 |
| D | (Digit 7) =     | Finish                     |
| E | (Digits 8) =    | Thermal Interface Material |
| F | (Digits 9-10) = | Board Mounting             |
| G | (Digit 11-13) = | Device Mounting            |
| H | (Digits 14) =   | RoHS Compliant             |

M 45 225 B 0 21 103 G  
A B C D E F G H

### CATEGORY C – DIGIT 4-6: CUTTING OPTIONS

The cut length option is limited to lengths under 10" and can be up to two decimals places. The decimal place is assumed between the 4<sup>th</sup> and 5<sup>th</sup> digit.

### CATEGORY E - DIGIT 8: THERMAL INTERFACE MATERIAL

| Code | Description                                                                         |
|------|-------------------------------------------------------------------------------------|
| 0    | None                                                                                |
| 1    | Kon-Dux™ Pad - Thermal and Electrical conductive material                           |
| 2    | In-Sil-8™ Pad - Silicone based insulator material with thermally conductive fillers |
| 3    | Thermasil III - Silicone based insulator material with thermally conductive fillers |

## CATEGORY F - DIGITS 9-10: BOARD MOUNTING

### Solderable Pins for Board Mounting

To order pins please include the quantity of pins needed in the 9<sup>th</sup> digit, up to 9 pins can be ordered. For standard parts pins are spaced 1" center to center or centered with the extrusion.

| Code | Description       |
|------|-------------------|
| 00   | No Pin            |
| 01   | Stand-off Pin 0mm |
| 02   | Stand-off Pin 1mm |
| 03   | Stand-off Pin 3mm |
| 04   | Stand-off Pin 5mm |
| 05   | Custom Pin        |

### Example Part Numbers:

M45165B021023G – Part number uses base profile 78020 is 1.65" in length, is black anodized and includes the following: two, 0mm stand-off pins and two Max03NG clips.

M49525B332000G - Part number uses base profile 78265 is 5.25" in length, is black anodized and includes the following: Thermalsil III thermal interface material and three, 1mm stand-off pins.

## CATEGORY G – DIGITS 11-13: DEVICE MOUNTING

### Max Clips™ (Also Sold Separately)

To order clips please include the quantity of clips needed in the 11<sup>th</sup> and 12<sup>th</sup> digits. Please note that Dual Mounted need twice the amount of clips.

| Code | Part #   |
|------|----------|
| 000  | None     |
| 001  | Max01NG  |
| 002  | Max02NG  |
| 003  | Max03NG  |
| 004  | Max04NG  |
| 005  | Max09NG  |
| 006  | Max10NG  |
| 007  | Max11NG  |
| 008  | Max12NG  |
| 009  | Max13NG  |
| 00A  | Max14NG  |
| 00B  | Max15NG  |
| 00C  | Max23NG  |
| 00D  | Max01-HG |
| 00E  | Max02-HG |
| 00F  | Max03-HG |

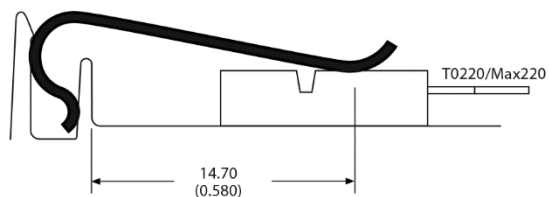
## CLIP INDEX

Max Clips™ (Also Sold Separately)

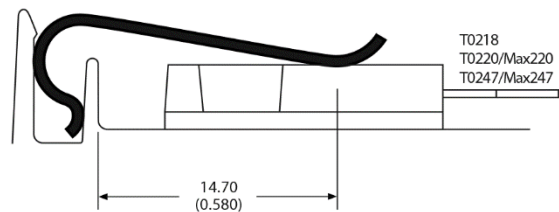
| Code | Part #    | Short Clip                                   | Long Clip                                    | Normal Force<br>20N-40N                      | Normal Force<br>30N-50N | High Force<br>50N+                           | High Force<br>60N+       | Special D61     |
|------|-----------|----------------------------------------------|----------------------------------------------|----------------------------------------------|-------------------------|----------------------------------------------|--------------------------|-----------------|
| 001  | Max01NG   | -                                            | -                                            | TO-220, TO-218,<br>TO-251, TO-262,<br>TO-273 | -                       | -                                            | -                        | -               |
| 002  | Max02NG   | -                                            | -                                            | TO-220, TO-218,<br>TO-251, TO-262,<br>TO-273 | -                       | -                                            | -                        | -               |
| 003  | Max03NG   | -                                            | -                                            | -                                            | TO-247, TO-274          | -                                            | -                        | -               |
| 004  | Max04NG   | -                                            | -                                            | -                                            | -                       | -                                            | -                        | TO-247, TO-274J |
| 005  | Max09NG   | TO-220, TO-218,<br>TO-251, TO-262,<br>TO-273 | -                                            | -                                            | -                       | -                                            | -                        | -               |
| 006  | Max10NG   | -                                            | TO-220, TO-218,<br>TO-251, TO-262,<br>TO-273 | -                                            | -                       | -                                            | -                        | -               |
| 00D  | Max01-HNG | -                                            | -                                            | -                                            | -                       | TO-220, TO-218,<br>TO-251, TO-262,<br>TO-273 | -                        | -               |
| 00E  | Max02-HNG | -                                            | -                                            | -                                            | -                       | -                                            | TO-247, TO-274,<br>TO-3P | -               |
| 00F  | Max03-HNG | -                                            | -                                            | -                                            | -                       | -                                            | TO-247, TO-274,<br>TO-3P | -               |

# Max Clip Standard Part Numbering System

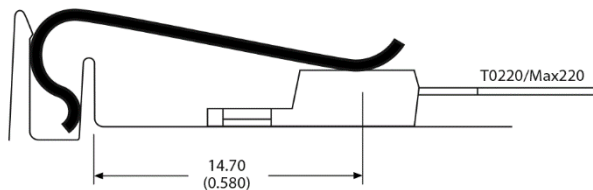
|              |       |           |        |
|--------------|-------|-----------|--------|
| <b>Max01</b> | Width | Thickness | Force  |
|              | 10 mm | x 0.5     | = 22 N |



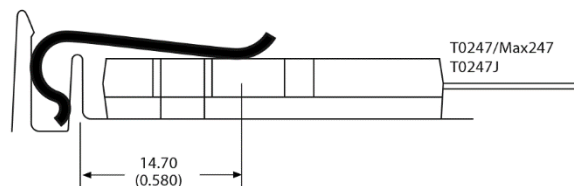
|              |       |           |        |
|--------------|-------|-----------|--------|
| <b>Max03</b> | Width | Thickness | Force  |
|              | 15 mm | x 0.5     | = 45 N |



|              |       |           |        |
|--------------|-------|-----------|--------|
| <b>Max02</b> | Width | Thickness | Force  |
|              | 12 mm | x 0.5     | = 35 N |

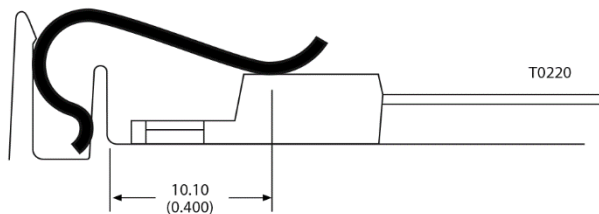


|              |       |           |        |
|--------------|-------|-----------|--------|
| <b>Max04</b> | Width | Thickness | Force  |
|              | 20 mm | x 0.5     | = 60 N |

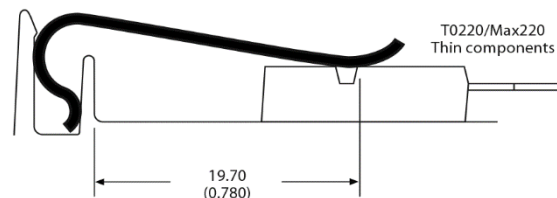


# Max Clip Standard Part Numbering System

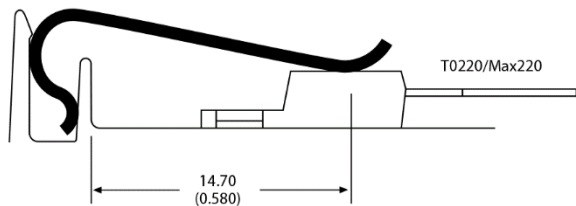
| Max09 | Width | Thickness | Force  |
|-------|-------|-----------|--------|
|       | 10 mm | x 0.5     | = 45 N |



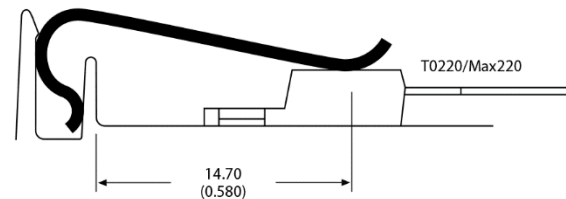
| Max10 | Width | Thickness | Force  |
|-------|-------|-----------|--------|
|       | 12 mm | x 0.6     | = 40 N |



| Max01-H | Width | Thickness | Force  |
|---------|-------|-----------|--------|
|         | 10 mm | x 0.7     | = 80 N |



| Max02-H | Width | Thickness | Force  |
|---------|-------|-----------|--------|
|         | 13 mm | x 0.6     | = 60 N |



| Max03-H | Width | Thickness | Force  |
|---------|-------|-----------|--------|
|         | 18 mm | x 0.6     | = 80 N |

