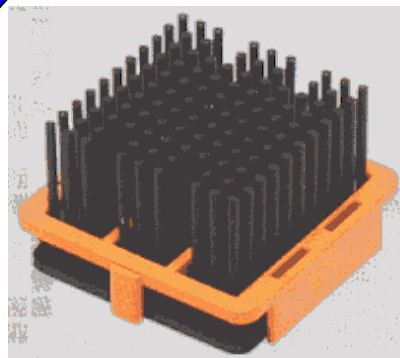


### Features

- Precision forging technology for high power applications
- Omni-directional pins
- Designed for BGA and other surface mount packages
- Various mounting methods available
- Select from multiple fin heights

### Product Benefits

- No special tools needed for assembly
- No additional holes required on the PCB
- Special clip easily snaps on and self-aligns



| Series APR Forged Aluminum Heat Sinks with Pin Fins |                                |                                 |                                            |                                    |
|-----------------------------------------------------|--------------------------------|---------------------------------|--------------------------------------------|------------------------------------|
| Part Number                                         | Fin Matrix<br>(Rows x Columns) | Length x Width x Height<br>(mm) | Thermal Resistance<br>(°C/Watt @ 200 LFPM) | Pressure Drop<br>(inches of water) |
| APR19-19-12CB                                       | 5 x 5                          | 18.6 x 18.6 x 11.6              | 7.7                                        | 0.013                              |
| APR19-19-15CB                                       | 5 x 5                          | 18.6 x 18.6 x 14.6              | 7.4                                        | 0.013                              |
| APR19-19-20CB                                       | 5 x 5                          | 18.6 x 18.6 x 19.6              | 4.9                                        | 0.013                              |
| APR19-19-25CB                                       | 5 x 5                          | 18.6 x 18.6 x 24.6              | 4.6                                        | 0.013                              |
|                                                     |                                |                                 |                                            |                                    |
| APR27-27-12CB                                       | 8 x 8                          | 26.6 x 26.6 x 11.6              | 5.3                                        | 0.015                              |
| APR27-27-15CB                                       | 8 x 8                          | 26.6 x 26.6 x 14.6              | 4.4                                        | 0.015                              |
| APR27-27-20CB                                       | 8 x 8                          | 26.6 x 26.6 x 19.6              | 3.1                                        | 0.015                              |
| APR27-27-25CB                                       | 8 x 8                          | 26.6 x 26.6 x 24.6              | 2.8                                        | 0.015                              |
|                                                     |                                |                                 |                                            |                                    |
| APR29-29-12CB                                       | 8 x 8                          | 28.6 x 28.6 x 11.6              | 3.9                                        | 0.018                              |
| APR29-29-15CB                                       | 8 x 8                          | 28.6 x 28.6 x 14.6              | 3.7                                        | 0.018                              |
| APR29-29-20CB                                       | 8 x 8                          | 28.6 x 28.6 x 19.6              | 2.6                                        | 0.018                              |
| APR29-29-25CB                                       | 8 x 8                          | 28.6 x 28.6 x 24.6              | 2.5                                        | 0.018                              |
|                                                     |                                |                                 |                                            |                                    |
| APR33-33-12CB                                       | 9 x 9                          | 32.6 x 32.6 x 11.6              | 3.8                                        | 0.020                              |
| APR33-33-15CB                                       | 9 x 9                          | 32.6 x 32.6 x 14.6              | 3.2                                        | 0.020                              |
| APR33-33-20CB                                       | 9 x 9                          | 32.6 x 32.6 x 19.6              | 2.4                                        | 0.020                              |
| APR33-33-25CB                                       | 9 x 9                          | 32.6 x 32.6 x 24.6              | 1.9                                        | 0.020                              |
|                                                     |                                |                                 |                                            |                                    |
| Material: 6063 Aluminum Alloy, Black Anodized       |                                |                                 |                                            |                                    |

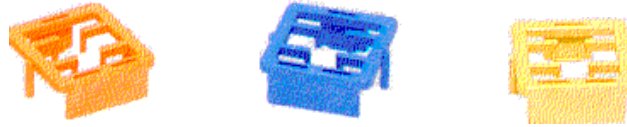
| Series APR Forged Aluminum Heat Sinks with Pin Fins |                                |                                 |                                            |                                    |
|-----------------------------------------------------|--------------------------------|---------------------------------|--------------------------------------------|------------------------------------|
| Part Number                                         | Fin Matrix<br>(Rows x Columns) | Length x Width x Height<br>(mm) | Thermal Resistance<br>(°C/Watt @ 200 LFPM) | Pressure Drop<br>(inches of water) |
| APR35-35-12CB                                       | 10 x 10                        | 34.7 x 34.7 x 11.6              | 3.5                                        | 0.022                              |
| APR35-35-15CB                                       | 10 x 10                        | 34.7 x 34.7 x 14.6              | 2.9                                        | 0.022                              |
| APR35-35-20CB                                       | 10 x 10                        | 34.7 x 34.7 x 19.6              | 2.0                                        | 0.022                              |
| APR35-35-25CB                                       | 10 x 10                        | 34.7 x 34.7 x 24.6              | 1.8                                        | 0.022                              |
|                                                     |                                |                                 |                                            |                                    |
| APR38-38-12CB                                       | 11 x 11                        | 37.1 x 37.1 x 11.6              | 3.3                                        | 0.025                              |
| APR38-38-15CB                                       | 11 x 11                        | 37.1 x 37.1 x 14.6              | 2.7                                        | 0.025                              |
| APR38-38-20CB                                       | 11 x 11                        | 37.1 x 37.1 x 19.6              | 1.9                                        | 0.025                              |
| APR38-38-25CB                                       | 11 x 11                        | 37.1 x 37.1 x 24.6              | 1.5                                        | 0.025                              |
|                                                     |                                |                                 |                                            |                                    |
| APR40-40-12CB                                       | 11 x 11                        | 39.6 x 39.6 x 11.6              | 2.8                                        | 0.027                              |
| APR40-40-15CB                                       | 11 x 11                        | 39.6 x 39.6 x 14.6              | 2.3                                        | 0.027                              |
| APR40-40-20CB                                       | 11 x 11                        | 39.6 x 39.6 x 19.6              | 1.6                                        | 0.027                              |
| APR40-40-25CB                                       | 11 x 11                        | 39.6 x 39.6 x 24.6              | 1.4                                        | 0.027                              |
|                                                     |                                |                                 |                                            |                                    |
| APR43-43-12CB                                       | 12 x 12                        | 42.1 x 42.1 x 11.6              | 2.5                                        | 0.029                              |
| APR43-43-15CB                                       | 12 x 12                        | 42.1 x 42.1 x 14.6              | 2.0                                        | 0.029                              |
| APR43-43-20CB                                       | 12 x 12                        | 42.1 x 42.1 x 19.6              | 1.5                                        | 0.029                              |
| APR43-43-25CB                                       | 12 x 12                        | 42.1 x 42.1 x 24.6              | 1.2                                        | 0.029                              |
|                                                     |                                |                                 |                                            |                                    |
| Material: 6063 Aluminum Alloy, Black Anodized       |                                |                                 |                                            |                                    |

## TAPE STYLES

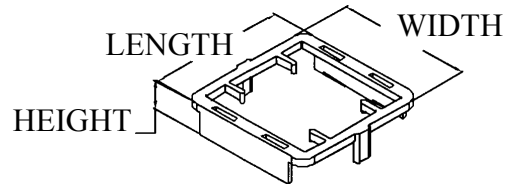
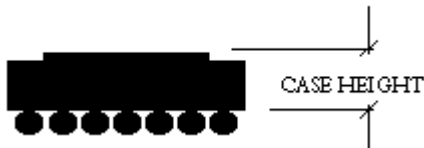
| Thermal Tape | Supplier  | Thickness (mm) | Thermal Impedance (°C-in²/W) | Dielectric Strength (V/mil) | Description                                                                                |
|--------------|-----------|----------------|------------------------------|-----------------------------|--------------------------------------------------------------------------------------------|
| A01          | IERC      | 0.13           | 0.82                         | 4,000                       | Double-sided acrylic adhesive on a Kapton MT carrier.                                      |
| T410         | Chomerics | 0.18           | 1.10                         | N/A                         | Double-sided acrylic adhesive loaded w/aluminum oxide on an aluminum foil carrier.         |
| T411         | Chomerics | 0.28           | 1.00                         | N/A                         | Double-sided silicone adhesive with expanded aluminum mesh carrier.                        |
| T412         | Chomerics | 0.23           | 0.25                         | N/A                         | Double-sided acrylic adhesive loaded w/ titanium diboride on an expanded aluminum carrier. |
| 8815         | 3M        | 0.38           | 1.20                         | 668                         | Double-sided acrylic adhesive loaded with ceramic particles.                               |

## CLIP STYLES

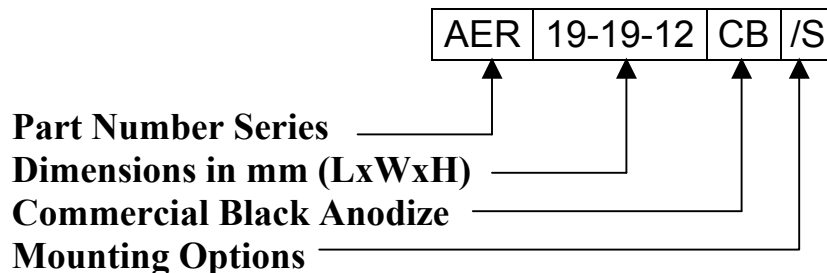
Material: Nylon Plastic per UL94-V0



| Nominal Length x Width (mm) | 0.9 mm +/- 0.3 mm<br>Short Height<br>Color: Orange | 1.7 mm +/- 0.3 mm<br>Medium Height<br>Color: Blue | 3.3 mm +/- 0.3 mm<br>Tall Height<br>Color: Yellow | Actual Length x Width x Height (mm) |
|-----------------------------|----------------------------------------------------|---------------------------------------------------|---------------------------------------------------|-------------------------------------|
| 19 x 19                     | C1919S                                             | C1919M                                            | C1919T                                            | 21.2 x 21.2 x 9.1                   |
| 21 x 21                     | C2121S                                             | C2121M                                            | C2121T                                            | 23.2 x 23.7 x 9.1                   |
| 23 x 23                     | C2323S                                             | C2323M                                            | C2323T                                            | 25.2 x 25.7 x 9.1                   |
| 25 x 25                     | C2525S                                             | C2525M                                            | C2525T                                            | 27.2 x 27.7 x 9.1                   |
| 27 x 27                     | C2727S                                             | C2727M                                            | C2727T                                            | 29.2 x 29.7 x 9.1                   |
| 29 x 29                     | C2929S                                             | C2929M                                            | C2929T                                            | 31.2 x 31.2 x 9.1                   |
| 31 x 31                     | C3131S                                             | C3131M                                            | C3131T                                            | 33.2 x 33.7 x 9.1                   |
| 33 x 33                     | C3333S                                             | C3333M                                            | C3333T                                            | 35.2 x 35.2 x 9.1                   |
| 35 x 35                     | C3535S                                             | C3535M                                            | C3535T                                            | 37.2 x 37.7 x 9.1                   |
| 37.5 x 37.5                 | C3838S                                             | C3838M                                            | C3838T                                            | 39.7 x 40.2 x 9.1                   |
| 40 x 40                     | C4040S                                             | C4040M                                            | C4040T                                            | 42.2 x 42.7 x 9.1                   |
| 42.5 x 42.5                 | C4343S                                             | C4343M                                            | C4343T                                            | 44.7 x 45.1 x 9.1                   |
| 45 x 45                     | C4545S                                             | C4545M                                            | C4545T                                            | 42.7 x 47.7 x 9.1                   |



## HOW TO ORDER?



|             |                                              |
|-------------|----------------------------------------------|
| <u>Clip</u> | <u>Adhesive</u>                              |
| Short “/S”  | Double-sided Kapton® “/A01”                  |
| Medium “/M” | Chomerics Thermattach® “T410, T411, or T412” |
| Tall “/T”   | 3M™ “8815”                                   |