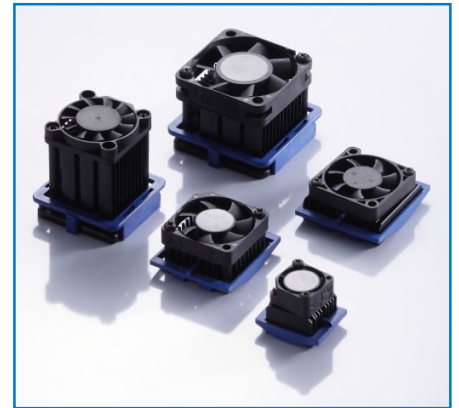


## HIGH TEMP FAN HEAT SINKS - FHS-090 SERIES

### High Operating Temperature Integrated Fan Heat Sinks

#### DESIGN FEATURES

- Industry-leading maximum operating temperature of 90°C
- Compatible with chipset footprints ranging from 21x21 mm to 45x45 mm
- Total heights from 16.1 mm for low profile applications to 44.6 mm for lowest thermal resistance
- Common 5VDC @ 0.5 A (max) USB 2.0 fan electrical specifications
- Forged and extruded versions available
- Choice of elliptical, round pin, and plate fin styles



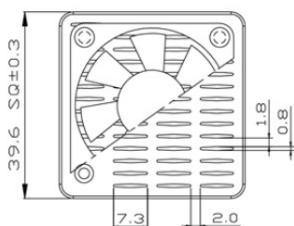
#### DESCRIPTION

The FHS-090 Series of integrated-fan heat sinks is uniquely designed to absorb and disperse heat away from high temperature devices while offering key features such as an operating temperature range of -10°C to 90°C, calculated MTTF @ 90°C: 86,858 hours (GEM, 90% confidence) and various package sizes to best fit the application. Thermal resistance values range from 4.07°C/W to as low as 1.24°C/W.

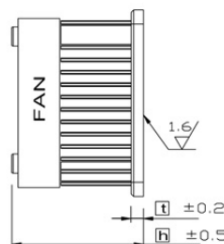
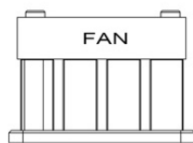
These new fansinks can maintain superior thermal dissipation for devices that emit high amount of heat. CTS' fansinks are available in a wide range of footprints and fin heights which make them suitable for many elevated temperature applications such as component testing, burn-in, high density servers, high- speed computing and video, and use in areas where the system airflow is constrained.

#### Elliptical Fins

| Part Number | Length x Width x Height (mm) | Thermal Resistance (R <sub>TH</sub> ) |
|-------------|------------------------------|---------------------------------------|
| FHE35-35-26 | 35 x 35 x 26.0               | 1.65                                  |
| FHE35-35-30 | 35 x 35 x 29.6               | 1.54                                  |
| FHE35-35-33 | 35 x 35 x 32.6               | 1.48                                  |
| FHE35-35-35 | 35 x 35 x 34.6               | 1.46                                  |
| FHE35-35-40 | 35 x 35 x 39.6               | 1.40                                  |
| FHE35-35-45 | 35 x 35 x 44.6               | 1.36                                  |
| FHE40-40-24 | 40 x 40 x 23.6               | 1.75                                  |
| FHE40-40-27 | 40 x 40 x 26.6               | 1.54                                  |
| FHE40-40-30 | 40 x 40 x 29.6               | 1.42                                  |
| FHE40-40-33 | 40 x 40 x 32.6               | 1.34                                  |
| FHE40-40-35 | 40 x 40 x 34.6               | 1.32                                  |
| FHE40-40-40 | 40 x 40 x 39.6               | 1.27                                  |
| FHE40-40-45 | 40 x 40 x 44.6               | 1.24                                  |
| FHE43-43-22 | 42.5 x 42.5 x 21.6           | 1.65                                  |
| FHE43-43-25 | 42.5 x 42.5 x 24.6           | 1.46                                  |
| FHE43-43-28 | 42.5 x 42.5 x 27.6           | 1.33                                  |
| FHE43-43-31 | 42.5 x 42.5 x 30.6           | 1.28                                  |
| FHE43-43-33 | 42.5 x 42.5 x 32.6           | 1.26                                  |
| FHE43-43-38 | 42.5 x 42.5 x 37.6           | 1.23                                  |
| FHE43-43-43 | 42.5 x 42.5 x 42.6           | 1.19                                  |

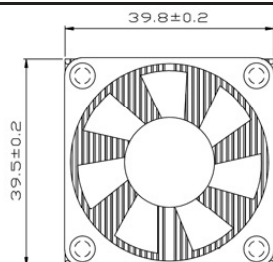


**FHE40-40-xx**

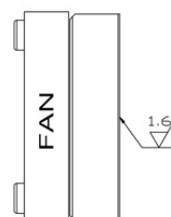
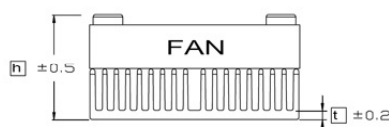


## Line Fins

| Part Number | Length x Width x Height (mm) | Thermal Resistance ( $R_{TH}$ ) |
|-------------|------------------------------|---------------------------------|
| FHL21-21-18 | 21 x 21 x 18                 | 4.07                            |
| FHL21-21-21 | 21 x 21 x 21                 | 3.76                            |
| FHL21-21-24 | 21 x 21 x 24                 | 3.72                            |
| FHL22-22-18 | 22 x 22 x 18                 | 3.87                            |
| FHL22-22-21 | 22 x 22 x 21                 | 3.42                            |
| FHL22-22-24 | 22 x 22 x 24                 | 3.20                            |
| FHL23-23-18 | 23 x 23 x 18                 | 3.87                            |
| FHL23-23-21 | 23 x 23 x 21                 | 3.42                            |
| FHL23-23-24 | 23 x 23 x 24                 | 3.20                            |
| FHL24-24-18 | 24 x 24 x 18                 | 3.64                            |
| FHL24-24-21 | 24 x 24 x 21                 | 3.25                            |
| FHL24-24-24 | 24 x 24 x 24                 | 3.19                            |
| FHL25-25-18 | 25 x 25 x 18.1               | 3.82                            |
| FHL25-25-21 | 25 x 25 x 21.1               | 3.50                            |
| FHL25-25-24 | 25 x 25 x 24.1               | 3.16                            |
| FHL27-27-18 | 27 x 27 x 18.1               | 3.10                            |
| FHL27-27-21 | 27 x 27 x 21.1               | 3.07                            |
| FHL27-27-24 | 27 x 27 x 24.1               | 2.89                            |
| FHL29-29-18 | 29 x 29 x 18.1               | 3.36                            |
| FHL29-29-21 | 29 x 29 x 21.1               | 3.31                            |
| FHL29-29-24 | 29 x 29 x 24.1               | 2.91                            |
| FHL31-31-17 | 31 x 31 x 17.0               | 3.01                            |
| FHL31-31-21 | 31 x 31 x 21.1               | 2.86                            |
| FHL31-31-24 | 31 x 31 x 24.1               | 2.69                            |
| FHL33-33-18 | 33 x 33 x 18.1               | 3.11                            |
| FHL33-33-21 | 33 x 33 x 21.1               | 2.80                            |
| FHL33-33-24 | 33 x 33 x 24.1               | 2.67                            |
| FHL34-34-18 | 34 x 34 x 18.1               | 2.78                            |
| FHL34-34-21 | 34 x 34 x 21.1               | 2.58                            |
| FHL34-34-24 | 34 x 34 x 24.1               | 2.56                            |
| FHL35-35-18 | 35 x 35 x 18.1               | 2.76                            |
| FHL35-35-21 | 35 x 35 x 21.1               | 2.56                            |
| FHL35-35-24 | 35 x 35 x 24.1               | 2.52                            |
| FHL38-38-18 | 37.5 x 37.5 x 18.1           | 2.97                            |
| FHL38-38-21 | 37.5 x 37.5 x 21.1           | 2.74                            |
| FHL38-38-24 | 37.5 x 37.5 x 24.1           | 2.53                            |
| FHL40-40-16 | 40 x 40 x 16.1               | 2.74                            |
| FHL40-40-20 | 40 x 40 x 20.1               | 2.65                            |
| FHL40-40-23 | 40 x 40 x 23.1               | 2.53                            |
| FHL43-43-17 | 42.5 x 42.5 x 17.2           | 3.16                            |
| FHL43-43-20 | 42.5 x 42.5 x 20.1           | 2.93                            |
| FHL43-43-23 | 42.5 x 42.5 x 23.1           | 2.79                            |
| FHL45-45-16 | 45 x 45 x 16.1               | 3.10                            |
| FHL45-45-20 | 45 x 45 x 20.1               | 2.90                            |
| FHL45-45-23 | 45 x 45 x 23.1               | 2.75                            |

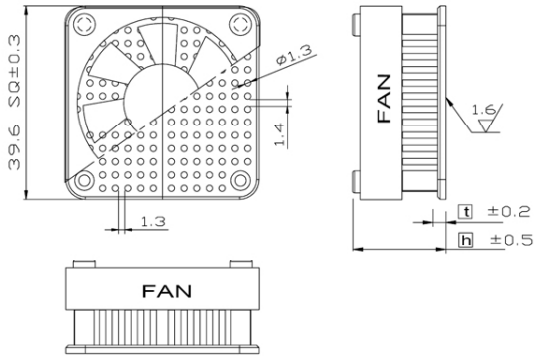


**FHL40-40-xx**



## Pin Fins

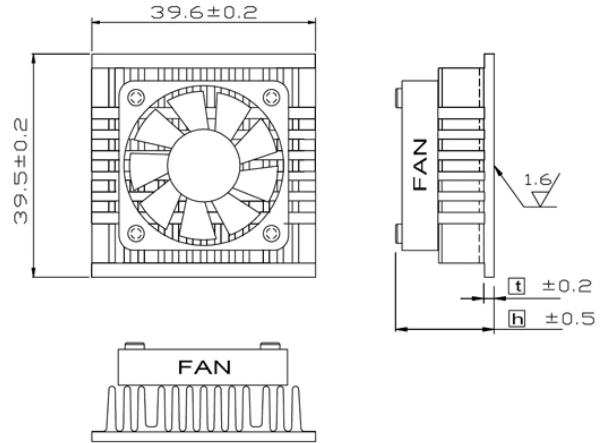
| Part Number | Length x Width x Height (mm) | Thermal Resistance (R <sub>TH</sub> ) |
|-------------|------------------------------|---------------------------------------|
| FHP27-27-20 | 27 x 27 x 20.0               | 3.35                                  |
| FHP31-31-21 | 31 x 31 x 20.9               | 2.98                                  |
| FHP35-35-21 | 35 x 35 x 20.9               | 2.53                                  |
| FHP40-40-21 | 40 x 40 x 20.9               | 1.95                                  |



**FHP40-40-xx**

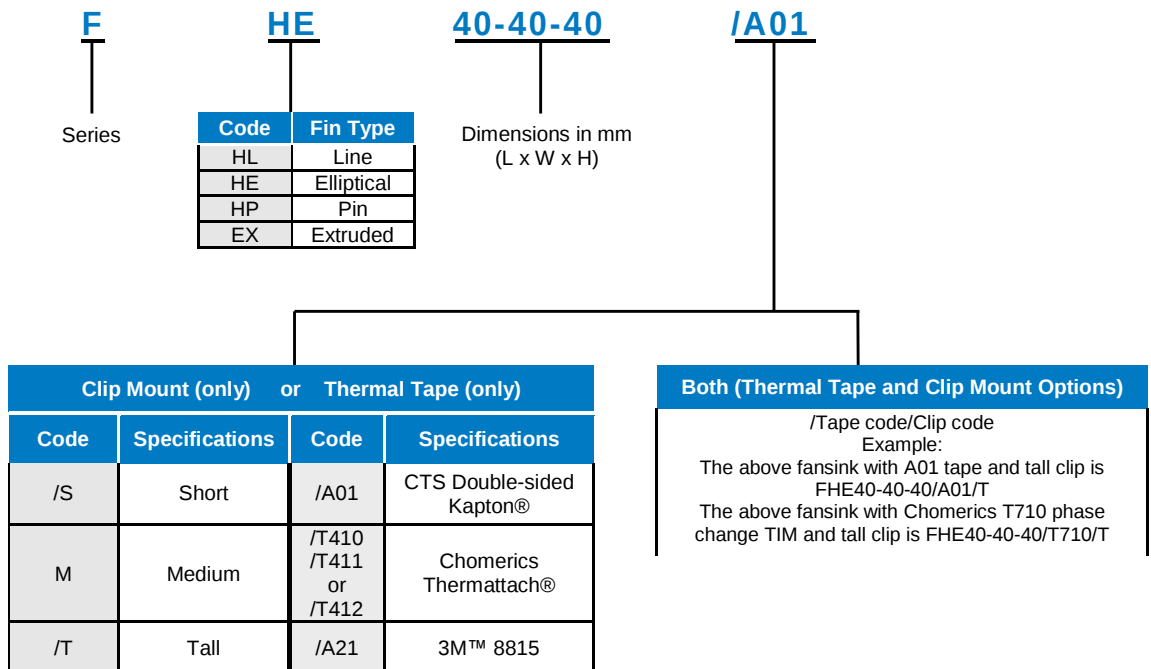
## Extruded Fins

| Part Number | Length x Width x Height (mm) | Thermal Resistance (R <sub>TH</sub> ) |
|-------------|------------------------------|---------------------------------------|
| FEX35-35-21 | 35 x 35 x 21.0               | 1.92                                  |
| FEX40-40-21 | 40 x 40 x 21.2               | 1.79                                  |



**FEX40-40-20**

## ORDERING INFORMATION



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