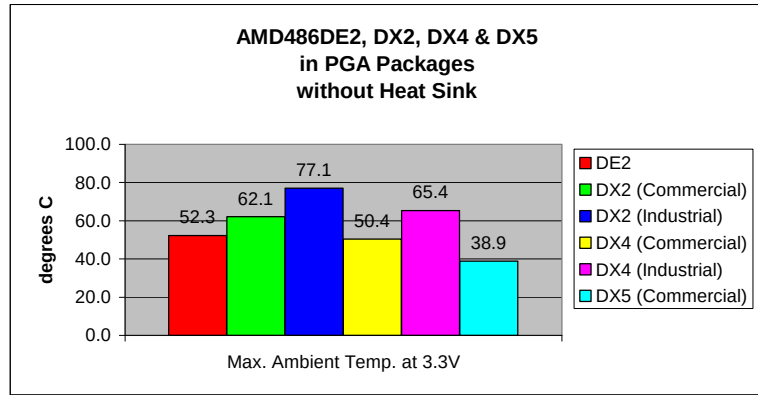
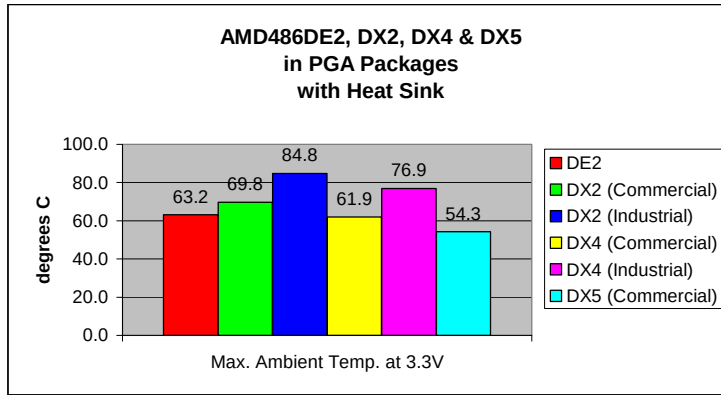


**486pga\_temp4 Comparision**  
Ceramic Packages Only



Equations:  $T_j = T_{case} + P \cdot \theta_{JA}$   
 $T_A = T_j - P \cdot \theta_{JA}$   
 $T_{case} = T_A + P \cdot (\theta_{JA} - \theta_{JC})$   
 $T_A = T_{case} - P \cdot (\theta_{JA} - \theta_{JC})$

| Enhanced Am486DX Data Sheet Specifications |      |                    |                    |                 |                |               |                        | 168 Pin Ceramic PGA without Heat Spreader                    |                   |                        |                  | 168 Pin Ceramic PGA with Heat Sink                           |                   |                        |                  |
|--------------------------------------------|------|--------------------|--------------------|-----------------|----------------|---------------|------------------------|--------------------------------------------------------------|-------------------|------------------------|------------------|--------------------------------------------------------------|-------------------|------------------------|------------------|
| AMD Am486                                  |      | Voltage (3.0-3.6V) | Icc Spec. (mA/MHz) | Frequency (MHz) | Total Icc (mA) | Power (Watts) | Case Temp. (degrees C) | Theta JC (deg. C/Watt)                                       | Junction Temp.(C) | Theta JA (deg. C/Watt) | Ambient Temp.(C) | Theta JC (deg. C/Watt)                                       | Junction Temp.(C) | Theta JA (deg. C/Watt) | Ambient Temp.(C) |
| DE2 Commercial                             | Typ. | 3.3                | 8.0                | 66              | 528.0          | 1.74          | 85                     | 1.5                                                          | 87.6              | 16.5                   | 58.9             | 2.0                                                          | 88.5              | 12.0                   | 67.6             |
|                                            | Max. | 3.3                | 10.0               | 66              | 660.0          | 2.18          | 85                     | 1.5                                                          | 88.3              | 16.5                   | 52.3             | 2.0                                                          | 89.4              | 12.0                   | 63.2             |
|                                            | Max. | 3.6                | 10.0               | 66              | 660.0          | 2.38          | 85                     | 1.5                                                          | 88.6              | 16.5                   | 49.4             | 2.0                                                          | 89.8              | 12.0                   | 61.2             |
| DX2 Industrial                             | Typ. | 3.3                | 6.2                | 66              | 409.2          | 1.35          | 100                    | 1.5                                                          | 102.0             | 16.5                   | 79.7             | 2.0                                                          | 102.7             | 12.0                   | 86.5             |
|                                            | Max. | 3.3                | 7.0                | 66              | 462.0          | 1.52          | 100                    | 1.5                                                          | 102.3             | 16.5                   | 77.1             | 2.0                                                          | 103.0             | 12.0                   | 84.8             |
|                                            | Max. | 3.6                | 7.0                | 66              | 462.0          | 1.66          | 100                    | 1.5                                                          | 102.5             | 16.5                   | 75.1             | 2.0                                                          | 103.3             | 12.0                   | 83.4             |
| DX2 Commercial                             | Typ. | 3.3                | 6.2                | 66              | 409.2          | 1.35          | 85                     | 1.5                                                          | 87.0              | 16.5                   | 64.7             | 2.0                                                          | 87.7              | 12.0                   | 71.5             |
|                                            | Max. | 3.3                | 7.0                | 66              | 462.0          | 1.52          | 85                     | 1.5                                                          | 87.3              | 16.5                   | 62.1             | 2.0                                                          | 88.0              | 12.0                   | 69.8             |
|                                            | Max. | 3.6                | 7.0                | 66              | 462.0          | 1.66          | 85                     | 1.5                                                          | 87.5              | 16.5                   | 60.1             | 2.0                                                          | 88.3              | 12.0                   | 68.4             |
| DX4 Industrial                             | Typ. | 3.3                | 6.2                | 100             | 620.0          | 2.05          | 100                    | 1.5                                                          | 103.1             | 16.5                   | 69.3             | 2.0                                                          | 104.1             | 12.0                   | 79.5             |
|                                            | Max. | 3.3                | 7.0                | 100             | 700.0          | 2.31          | 100                    | 1.5                                                          | 103.5             | 16.5                   | 65.4             | 2.0                                                          | 104.6             | 12.0                   | 76.9             |
|                                            | Max. | 3.6                | 7.0                | 100             | 700.0          | 2.52          | 100                    | 1.5                                                          | 103.8             | 16.5                   | 62.2             | 2.0                                                          | 105.0             | 12.0                   | 74.8             |
| DX4 Commercial                             | Typ. | 3.3                | 6.2                | 100             | 620.0          | 2.05          | 85                     | 1.5                                                          | 88.1              | 16.5                   | 54.3             | 2.0                                                          | 89.1              | 12.0                   | 64.5             |
|                                            | Max. | 3.3                | 7.0                | 100             | 700.0          | 2.31          | 85                     | 1.5                                                          | 88.5              | 16.5                   | 50.4             | 2.0                                                          | 89.6              | 12.0                   | 61.9             |
|                                            | Max. | 3.6                | 7.0                | 100             | 700.0          | 2.52          | 85                     | 1.5                                                          | 88.8              | 16.5                   | 47.2             | 2.0                                                          | 90.0              | 12.0                   | 59.8             |
| DX5 Industrial                             | Typ. | 3.3                | 6.2                | 133             | 824.6          | 2.72          | 100                    | DX5 is Not Supported in Industrial Temp.,<br>168 PGA package |                   |                        |                  | DX5 is Not Supported in Industrial Temp.,<br>168 PGA package |                   |                        |                  |
|                                            | Max. | 3.3                | 7.0                | 133             | 931.0          | 3.07          | 100                    |                                                              |                   |                        |                  |                                                              |                   |                        |                  |
|                                            | Max. | 3.6                | 7.0                | 133             | 931.0          | 3.35          | 100                    |                                                              |                   |                        |                  |                                                              |                   |                        |                  |
| DX5 Commercial                             | Typ. | 3.3                | 6.2                | 133             | 824.6          | 2.72          | 85                     | 1.5                                                          | 89.1              | 16.5                   | 44.2             | 2.0                                                          | 90.4              | 12.0                   | 57.8             |
|                                            | Max. | 3.3                | 7.0                | 133             | 931.0          | 3.07          | 85                     | 1.5                                                          | 89.6              | 16.5                   | 38.9             | 2.0                                                          | 91.1              | 12.0                   | 54.3             |
|                                            | Max. | 3.6                | 7.0                | 133             | 931.0          | 3.35          | 85                     | 1.5                                                          | 90.0              | 16.5                   | 34.7             | 2.0                                                          | 91.7              | 12.0                   | 51.5             |

**Table #1**

**486pga\_temp4 Comparision**  
Ceramic Packages Only

**AMD's PDE-208 Standard SQFP Package Thermal Resistance**

| Cooling Mechanism | Psi JT | Theta JA vs. Airflow in Linear ft/min. (m/sec) |            |            |            |            |
|-------------------|--------|------------------------------------------------|------------|------------|------------|------------|
|                   |        | 0 (0)                                          | 200 (1.01) | 400 (2.03) | 600 (3.04) | 800 (4.06) |
| No Heat Sink      | 1.5    | 14.0                                           | 8.7        | 7.4        | 6.4        | 5.8        |

Note 2.

**AMD's PDH-208 Low-Cost SQFP Package Thermal Resistance**

| Cooling Mechanism | Psi JT | Theta JA vs. Airflow in Linear ft/min. (m/sec) |            |            |            |            |
|-------------------|--------|------------------------------------------------|------------|------------|------------|------------|
|                   |        | 0 (0)                                          | 200 (1.01) | 400 (2.03) | 600 (3.04) | 800 (4.06) |
| No Heat Sink      | 5.5    | 22.5                                           | 15.4       | 13.4       | 11.9       | 10.9       |

Note 2.

**AMD's 168 Pin PGA Package Thermal Resistance**

| Cooling Mechanism | Theta JC | Theta JA vs. Airflow in Linear ft/min. (m/sec) |            |            |            |            |
|-------------------|----------|------------------------------------------------|------------|------------|------------|------------|
|                   |          | 0 (0)                                          | 200 (1.01) | 400 (2.03) | 600 (3.04) | 800 (4.06) |
| No Heat Sink      | 1.5      | 16.5                                           | 14.0       | 12.0       | 10.5       | 9.5        |

Note 2.

**Note:** 1.) All data shown in Table #1 is based on No Airflow.  
2.) Theta JA thermal resistance with Airflow is based on an average of measured values.