

**TABLE 1—EXAMPLE OF MIDSACLE EXPANSION**

| 1  | 2                      | 3               | 4                                | 5        | 6                     | 7                | 8                                 |
|----|------------------------|-----------------|----------------------------------|----------|-----------------------|------------------|-----------------------------------|
| x  | V <sub>IN</sub><br>(V) | N <sub>IN</sub> | N <sub>IN</sub><br>(hexadecimal) | α<br>(%) | Pulse width<br>(msec) | N <sub>OUT</sub> | N <sub>OUT</sub><br>(hexadecimal) |
| 0  | 0.04                   | 2               | \$2                              | 0        | 0                     | 0                | \$0                               |
| 1  | 0.5                    | 25.6            | \$1A                             | 2.5      | 0.25                  | 5.6              | \$6                               |
| 2  | 1                      | 51.2            | \$33                             | 5        | 0.5                   | 11.2             | \$0b                              |
| 3  | 1.5                    | 76.8            | \$4D                             | 7.5      | 0.75                  | 16.87            | \$11                              |
| 4  | 2                      | 102.4           | \$66                             | 10       | 1                     | 22.5             | \$16                              |
| 5  | 2.1                    | 107.5           | \$6C                             | 17       | 1.7                   | 38.25            | \$26                              |
| 6  | 2.2                    | 112.6           | \$71                             | 24       | 2.4                   | 54               | \$36                              |
| 7  | 2.3                    | 117.8           | \$76                             | 31       | 3.1                   | 69.75            | \$46                              |
| 8  | 2.4                    | 122.9           | \$7B                             | 38       | 3.8                   | 85.5             | \$55                              |
| 9  | 2.5                    | 128             | \$80                             | 45       | 4.5                   | 101.25           | \$65                              |
| 10 | 2.6                    | 133.1           | \$85                             | 52       | 5.2                   | 117              | \$75                              |
| 11 | 2.7                    | 138.2           | \$8A                             | 59       | 5.9                   | 132.75           | \$85                              |
| 12 | 2.8                    | 143.3           | \$8F                             | 66       | 6.6                   | 148.5            | \$95                              |
| 13 | 2.9                    | 148.5           | \$94                             | 73       | 7.3                   | 164.25           | \$A4                              |
| 14 | 3                      | 153.6           | \$9A                             | 80       | 8                     | 180              | \$B4                              |
| 15 | 3.5                    | 179.2           | \$B3                             | 85       | 8.5                   | 191.25           | \$BF                              |
| 16 | 4                      | 204.8           | \$CD                             | 90       | 9                     | 202.5            | \$CB                              |
| 17 | 4.5                    | 230.4           | \$E6                             | 95       | 9.5                   | 213.75           | \$D6                              |
| 18 | 5                      | 250.9           | \$FB                             | 99       | 9.9                   | 222.75           | \$DF                              |