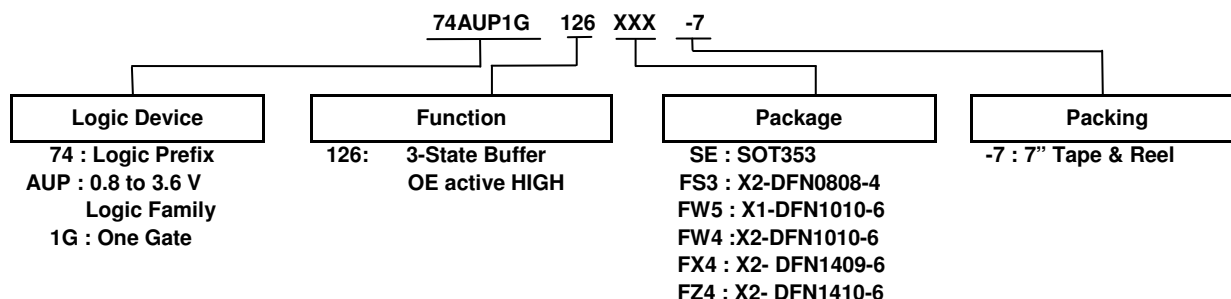


## Ordering Information



| Device          | Package Code | Package (Notes 4 & 5)                  | Package Size                                         | 7" Tape and Reel  |                    |
|-----------------|--------------|----------------------------------------|------------------------------------------------------|-------------------|--------------------|
|                 |              |                                        |                                                      | Quantity          | Part Number Suffix |
| 74AUP1G126SE-7  | SE           | SOT353                                 | 2.0mm x 2.0mm x 1.1mm<br>0.65 mm lead pitch          | 3,000/Tape & Reel | -7                 |
| 74AUP1G126FS3-7 | FS3          | X2-DFN0808-4                           | 0.8mm x 0.8mm x 0.35mm<br>0.5 mm pad pitch (diamond) | 5,000/Tape & Reel | -7                 |
| 74AUP1G126FW5-7 | FW5          | X1-DFN1010-6                           | 1.0mm x 1.0mm x 0.5mm<br>0.35 mm pad pitch           | 5,000/Tape & Reel | -7                 |
| 74AUP1G126FW4-7 | FW4          | X2-DFN1010-6                           | 1.0mm x 1.0mm x 0.4mm<br>0.35 mm pad pitch           | 5,000/Tape & Reel | -7                 |
| 74AUP1G126FX4-7 | FX4          | X2-DFN1409-6<br>Chip Scale Alternative | 1.4mm x 0.9mm x 0.4mm<br>0.5 mm pad pitch            | 5,000/Tape & Reel | -7                 |
| 74AUP1G126FZ4-7 | FZ4          | X2-DFN1410-6                           | 1.4mm x 1.0mm x 0.4mm<br>0.5 mm pad pitch            | 5,000/Tape & Reel | -7                 |

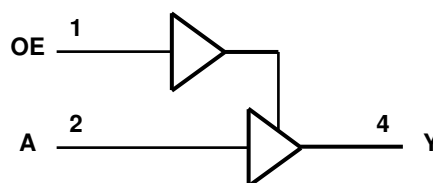
Notes: 4. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

5. The taping orientation is located on our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Pin Descriptions

| Pin Name        | Function       |
|-----------------|----------------|
| OE              | Output Enable  |
| A               | Data Input     |
| GND             | Ground         |
| Y               | Data Output    |
| V <sub>CC</sub> | Supply Voltage |

## Logic Diagram



## Function Table

| Inputs |   | Output |
|--------|---|--------|
| OE     | A | Y      |
| H      | H | H      |
| H      | L | L      |
| L      | X | Z      |

**Absolute Maximum Ratings** (Notes 6 & 7) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol           | Description                                                        | Rating                       | Unit |
|------------------|--------------------------------------------------------------------|------------------------------|------|
| ESD HBM          | Human Body Model ESD Protection                                    | 2                            | kV   |
| ESD CDM          | Charged Device Model ESD Protection                                | 1                            | kV   |
| V <sub>CC</sub>  | Supply Voltage Range                                               | -0.5 to +4.6                 | V    |
| V <sub>I</sub>   | Input Voltage Range                                                | -0.5 to +4.6                 | V    |
| V <sub>O</sub>   | Voltage Applied to Output in High or Low State                     | -0.5 to V <sub>CC</sub> +0.5 | V    |
| I <sub>IK</sub>  | Input Clamp Current V <sub>I</sub> < 0                             | 50                           | mA   |
| I <sub>OK</sub>  | Output Clamp Current (V <sub>O</sub> < 0)                          | 50                           | mA   |
| I <sub>O</sub>   | Continuous Output Current (V <sub>O</sub> = 0 to V <sub>CC</sub> ) | ±20                          | mA   |
| I <sub>CC</sub>  | Continuous Current Through V <sub>CC</sub>                         | 50                           | mA   |
| I <sub>GND</sub> | Continuous Current Through GND                                     | -50                          | mA   |
| T <sub>J</sub>   | Operating Junction Temperature                                     | -40 to +150                  | °C   |
| T <sub>STG</sub> | Storage Temperature                                                | -65 to +150                  | °C   |

- Notes:
- Stresses beyond the absolute maximum may result in immediate failure or reduced reliability. These are stress values and device operation should be within recommend values.
  - Forcing the maximum allowed voltage could cause a condition exceeding the maximum current or conversely forcing the maximum current could cause a condition exceeding the maximum voltage. The ratings of both current and voltage must be maintained within the controlled range.

**Recommended Operating Conditions** (Note 8) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol          | Parameter                          |                                | Min | Max             | Unit |
|-----------------|------------------------------------|--------------------------------|-----|-----------------|------|
| V <sub>CC</sub> | Operating Voltage                  |                                | 0.8 | 3.6             | V    |
| V <sub>I</sub>  | Input Voltage                      |                                | 0   | 3.6             | V    |
| V <sub>O</sub>  | Output Voltage                     |                                | 0   | V <sub>CC</sub> | V    |
| I <sub>OH</sub> | High-Level Output Current          | V <sub>CC</sub> = 0.8V         | —   | -20             | μA   |
|                 |                                    | V <sub>CC</sub> = 1.1V         | —   | -1.1            | mA   |
|                 |                                    | V <sub>CC</sub> = 1.4V         | —   | -1.7            |      |
|                 |                                    | V <sub>CC</sub> = 1.65V        | —   | -1.9            |      |
|                 |                                    | V <sub>CC</sub> = 2.3V         | —   | -3.1            |      |
|                 |                                    | V <sub>CC</sub> = 3.0V         | —   | -4              |      |
| I <sub>OL</sub> | Low-Level Output Current           | V <sub>CC</sub> = 0.8V         | —   | 20              | μA   |
|                 |                                    | V <sub>CC</sub> = 1.1V         | —   | 1.1             | mA   |
|                 |                                    | V <sub>CC</sub> = 1.4V         | —   | 1.7             |      |
|                 |                                    | V <sub>CC</sub> = 1.65V        | —   | 1.9             |      |
|                 |                                    | V <sub>CC</sub> = 2.3V         | —   | 3.1             |      |
|                 |                                    | V <sub>CC</sub> = 3.0V         | —   | 4               |      |
| Δt/ΔV           | Input Transition Rise or Fall Rate | V <sub>CC</sub> = 0.8V to 3.6V | —   | 200             | ns/V |
| T <sub>A</sub>  | Operating Free-Air Temperature     |                                | -40 | +125            | °C   |

- Note:
- Unused inputs should be held at V<sub>CC</sub> or Ground.

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol            | Parameter                        | Test Conditions                                                                                | V <sub>CC</sub> | T <sub>A</sub> = +25°C |                        | T <sub>A</sub> = -40°C to +85°C |                        | Unit |
|-------------------|----------------------------------|------------------------------------------------------------------------------------------------|-----------------|------------------------|------------------------|---------------------------------|------------------------|------|
|                   |                                  |                                                                                                |                 | Min                    | Max                    | Min                             | Max                    |      |
| V <sub>IH</sub>   | High-Level Input Voltage         | —                                                                                              | 0.8V to 1.65V   | 0.80 × V <sub>CC</sub> | —                      | 0.80 × V <sub>CC</sub>          | —                      | V    |
|                   |                                  | —                                                                                              | 1.65V to 1.95V  | 0.65 × V <sub>CC</sub> | —                      | 0.65 × V <sub>CC</sub>          | —                      |      |
|                   |                                  | —                                                                                              | 2.3V to 2.7V    | 1.6                    | —                      | 1.6                             | —                      |      |
|                   |                                  | —                                                                                              | 3.0V to 3.6V    | 2.0                    | —                      | 2.0                             | —                      |      |
| V <sub>IL</sub>   | Low-Level Input Voltage          | —                                                                                              | 0.8V to 1.65V   | —                      | 0.30 × V <sub>CC</sub> | —                               | 0.30 × V <sub>CC</sub> | V    |
|                   |                                  | —                                                                                              | 1.65V to 1.95V  | —                      | 0.35 × V <sub>CC</sub> | —                               | 0.35 × V <sub>CC</sub> |      |
|                   |                                  | —                                                                                              | 2.3V to 2.7V    | —                      | 0.7                    | —                               | 0.7                    |      |
|                   |                                  | —                                                                                              | 3.0V to 3.6V    | —                      | 0.9                    | —                               | 0.9                    |      |
| V <sub>OH</sub>   | High-Level Output Voltage        | I <sub>OH</sub> = -20μA                                                                        | 0.8V to 3.6V    | V <sub>CC</sub> - 0.1  | —                      | V <sub>CC</sub> - 0.1           | —                      | V    |
|                   |                                  | I <sub>OH</sub> = -1.1mA                                                                       | 1.1V            | 0.75 × V <sub>CC</sub> | —                      | 0.7 × V <sub>CC</sub>           | —                      |      |
|                   |                                  | I <sub>OH</sub> = -1.7mA                                                                       | 1.4V            | 1.11                   | —                      | 1.03                            | —                      |      |
|                   |                                  | I <sub>OH</sub> = -1.9mA                                                                       | 1.65V           | 1.32                   | —                      | 1.3                             | —                      |      |
|                   |                                  | I <sub>OH</sub> = -2.3mA                                                                       | 2.3V            | 2.05                   | —                      | 1.97                            | —                      |      |
|                   |                                  | I <sub>OH</sub> = -3.1mA                                                                       |                 | 1.9                    | —                      | 1.85                            | —                      |      |
|                   |                                  | I <sub>OH</sub> = -2.7mA                                                                       | 3V              | 2.72                   | —                      | 2.67                            | —                      |      |
|                   |                                  | I <sub>OH</sub> = -4mA                                                                         |                 | 2.6                    | —                      | 2.55                            | —                      |      |
| V <sub>OL</sub>   | Low-Level Output Voltage         | I <sub>OL</sub> = 20μA                                                                         | 0.8V to 3.6V    | —                      | 0.1                    | —                               | 0.1                    | V    |
|                   |                                  | I <sub>OL</sub> = 1.1mA                                                                        | 1.1V            | —                      | 0.3 × V <sub>CC</sub>  | —                               | 0.3 × V <sub>CC</sub>  |      |
|                   |                                  | I <sub>OL</sub> = 1.7mA                                                                        | 1.4V            | —                      | 0.31                   | —                               | 0.37                   |      |
|                   |                                  | I <sub>OL</sub> = 1.9mA                                                                        | 1.65V           | —                      | 0.31                   | —                               | 0.35                   |      |
|                   |                                  | I <sub>OL</sub> = 2.3mA                                                                        | 2.3V            | —                      | 0.31                   | —                               | 0.33                   |      |
|                   |                                  | I <sub>OL</sub> = 3.1mA                                                                        |                 | —                      | 0.44                   | —                               | 0.45                   |      |
|                   |                                  | I <sub>OL</sub> = 2.7mA                                                                        | 3V              | —                      | 0.31                   | —                               | 0.33                   |      |
|                   |                                  | I <sub>OL</sub> = 4mA                                                                          |                 | —                      | 0.44                   | —                               | 0.45                   |      |
| I <sub>I</sub>    | Input Current                    | A or B Input V <sub>I</sub> = GND to 3.6V                                                      | 0 to 3.6V       | —                      | ±0.1                   | —                               | ±0.5                   | μA   |
| I <sub>OFF</sub>  | Power Down Leakage Current       | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                                                  | 0               | —                      | ±0.2                   | —                               | ±0.5                   | μA   |
| I <sub>OZ</sub>   | Z State Leakage Current          | V <sub>O</sub> = 3.6V<br>V <sub>I</sub> = 3.6V                                                 | 3.6V            | —                      | ±0.2                   | —                               | ±0.5                   | μA   |
| ΔI <sub>OFF</sub> | Delta Power Down Leakage Current | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                                                  | 0 to 0.2V       | —                      | 0.2                    | —                               | 0.6                    | μA   |
| I <sub>CC</sub>   | Supply Current                   | V <sub>I</sub> = GND or V <sub>CC</sub> , I <sub>O</sub> = 0                                   | 0.8V to 3.6V    | —                      | 0.5                    | —                               | 0.9                    | μA   |
| ΔI <sub>CC</sub>  | Additional Supply Current        | Data Input at V <sub>CC</sub> -0.6V<br>OE = GND I <sub>O</sub> = 0A                            | 3.3V            | —                      | 40                     | —                               | 50                     | μA   |
|                   |                                  | OE Input at V <sub>CC</sub> -0.6V<br>Data Input = GND or V <sub>CC</sub> , I <sub>O</sub> = 0A | 3.3V            | —                      | 110                    | —                               | 120                    | μA   |
|                   |                                  | OE Input at GND<br>Data Input = GND to 3.6V, I <sub>O</sub> = 0A                               | 0.8V to 3.6V    | —                      | 1                      | —                               | 1                      | μA   |

**Electrical Characteristics** (continued) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol            | Parameter                        | Test Conditions                                                                                | V <sub>CC</sub> | T <sub>A</sub> = -40°C to +125°C |                        | Unit |
|-------------------|----------------------------------|------------------------------------------------------------------------------------------------|-----------------|----------------------------------|------------------------|------|
|                   |                                  |                                                                                                |                 | Min                              | Max                    |      |
| V <sub>IH</sub>   | High-Level Input Voltage         | —                                                                                              | 0.8V to 1.65V   | 0.80 x V <sub>CC</sub>           | —                      | V    |
|                   |                                  | —                                                                                              | 1.65V to 1.95V  | 0.70 x V <sub>CC</sub>           | —                      |      |
|                   |                                  | —                                                                                              | 2.3V to 2.7V    | 1.6                              | —                      |      |
|                   |                                  | —                                                                                              | 3.0V to 3.6V    | 2.0                              | —                      |      |
| V <sub>IL</sub>   | Low-Level Input Voltage          | —                                                                                              | 0.8V to 1.65V   | —                                | 0.25 x V <sub>CC</sub> | V    |
|                   |                                  | —                                                                                              | 1.65V to 1.95V  | —                                | 0.35 x V <sub>CC</sub> |      |
|                   |                                  | —                                                                                              | 2.3V to 2.7V    | —                                | 0.7                    |      |
|                   |                                  | —                                                                                              | 3.0V to 3.6V    | —                                | 0.9                    |      |
| V <sub>OH</sub>   | High-Level Output Voltage        | I <sub>OH</sub> = -20μA                                                                        | 0.8V to 3.6V    | V <sub>CC</sub> - 0.11           | —                      | V    |
|                   |                                  | I <sub>OH</sub> = -1.1mA                                                                       | 1.1V            | 0.6 x V <sub>CC</sub>            | —                      |      |
|                   |                                  | I <sub>OH</sub> = -1.7mA                                                                       | 1.4V            | 0.93                             | —                      |      |
|                   |                                  | I <sub>OH</sub> = -1.9mA                                                                       | 1.65V           | 1.17                             | —                      |      |
|                   |                                  | I <sub>OH</sub> = -2.3mA                                                                       | 2.3V            | 1.77                             | —                      |      |
|                   |                                  | I <sub>OH</sub> = -3.1mA                                                                       |                 | 1.67                             | —                      |      |
|                   |                                  | I <sub>OH</sub> = -2.7mA                                                                       | 3V              | 2.40                             | —                      |      |
|                   |                                  | I <sub>OH</sub> = -4mA                                                                         |                 | 2.30                             | —                      |      |
| V <sub>OL</sub>   | Low-Level Output Voltage         | I <sub>OL</sub> = 20μA                                                                         | 0.8V to 3.6V    | —                                | 0.11                   | V    |
|                   |                                  | I <sub>OL</sub> = 1.1mA                                                                        | 1.1V            | —                                | 0.3 x V <sub>CC</sub>  |      |
|                   |                                  | I <sub>OL</sub> = 1.7mA                                                                        | 1.4V            | —                                | 0.41                   |      |
|                   |                                  | I <sub>OL</sub> = 1.9mA                                                                        | 1.65V           | —                                | 0.39                   |      |
|                   |                                  | I <sub>OL</sub> = 2.3mA                                                                        | 2.3V            | —                                | 0.36                   |      |
|                   |                                  | I <sub>OL</sub> = 3.1mA                                                                        |                 | —                                | 0.50                   |      |
|                   |                                  | I <sub>OL</sub> = 2.7mA                                                                        | 3V              | —                                | 0.36                   |      |
|                   |                                  | I <sub>OL</sub> = 4mA                                                                          |                 | —                                | 0.50                   |      |
| I <sub>I</sub>    | Input Current                    | A or B Input V <sub>I</sub> = GND to 3.6V                                                      | 0 to 3.6V       | —                                | ±0.75                  | μA   |
| I <sub>OFF</sub>  | Power Down Leakage Current       | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                                                  | 0               | —                                | ±3.5                   | μA   |
| I <sub>OZ</sub>   | Z State Leakage Current          | V <sub>O</sub> = 3.6V<br>V <sub>I</sub> = 3.6V                                                 | 3.6V            | —                                | ±1.5                   | μA   |
| ΔI <sub>OFF</sub> | Delta Power Down Leakage Current | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                                                  | 0V to 0.2V      | —                                | ±2.5                   | μA   |
| I <sub>CC</sub>   | Supply Current                   | V <sub>I</sub> = GND or V <sub>CC</sub> , I <sub>O</sub> = 0                                   | 0.8V to 3.6V    | —                                | 3.0                    | μA   |
| ΔI <sub>CC</sub>  | Additional Supply Current        | Data Input at V <sub>CC</sub> -0.6V<br>OE = GND I <sub>O</sub> = 0A                            | 3.3V            | —                                | 75                     | μA   |
|                   |                                  | OE input at V <sub>CC</sub> -0.6V<br>Data Input = GND or V <sub>CC</sub> , I <sub>O</sub> = 0A | 3.3V            | —                                | 180                    | μA   |
|                   |                                  | OE Input at GND<br>Data Input = GND to 3.6V, I <sub>O</sub> = 0A                               | 0.8V to 3.6V    | —                                | 1                      | μA   |

## Switching Characteristics

 $C_L = 5\text{pF}$ , See Figure 1

| Parameter | From Input | To Output | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Max  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           | —                         | 20.6 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 2.5                       | 5.5  | 10.5 | 2.5                                             | 11.7 | 2.5                                              | 12.9 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.0                       | 3.9  | 6.1  | 2.0                                             | 7.3  | 2.0                                              | 8.1  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 1.9                       | 3.2  | 4.8  | 1.7                                             | 6.1  | 1.7                                              | 6.7  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.6                       | 2.6  | 3.6  | 1.4                                             | 4.3  | 1.4                                              | 4.9  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.4                       | 2.4  | 3.1  | 1.2                                             | 3.9  | 1.2                                              | 4.4  |      |
| $t_{en}$  | OE         | Y         | 0.8V                           | —                         | 71.6 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 2.8                       | 6.2  | 12.4 | 2.6                                             | 13.6 | 2.6                                              | 13.6 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.1                       | 4.2  | 6.9  | 2.1                                             | 7.4  | 2.1                                              | 7.7  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 1.7                       | 3.3  | 5.3  | 1.7                                             | 5.9  | 1.7                                              | 6.2  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.4                       | 2.4  | 3.6  | 1.4                                             | 3.8  | 1.4                                              | 4.1  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.3                       | 2.0  | 2.9  | 1.2                                             | 3.2  | 1.2                                              | 3.4  |      |
| $t_{dis}$ | OE         | Y         | 0.8V                           | —                         | 10.3 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 2.6                       | 4.2  | 8.2  | 2.6                                             | 8.9  | 2.6                                              | 8.9  |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.1                       | 3.2  | 6.7  | 2.1                                             | 7.0  | 2.1                                              | 7.0  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 1.7                       | 3.1  | 6.2  | 1.7                                             | 6.5  | 1.7                                              | 6.5  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.3                       | 2.9  | 5.7  | 1.3                                             | 5.8  | 1.3                                              | 5.8  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.2                       | 2.8  | 4.5  | 1.2                                             | 4.7  | 1.2                                              | 4.7  |      |

 $C_L = 10\text{pF}$ , See Figure 1

| Parameter | From Input | To Output | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Max  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           | —                         | 24.0 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 2.6                       | 6.4  | 12.3 | 2.6                                             | 13.8 | 2.6                                              | 15.2 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.1                       | 4.5  | 7.3  | 2.1                                             | 8.5  | 2.1                                              | 9.4  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 1.9                       | 3.8  | 5.5  | 1.9                                             | 6.8  | 1.9                                              | 7.6  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.7                       | 3.2  | 4.2  | 1.7                                             | 5.3  | 1.7                                              | 5.9  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.6                       | 3.0  | 3.8  | 1.6                                             | 4.6  | 1.6                                              | 5.2  |      |
| $t_{en}$  | OE         | Y         | 0.8V                           | —                         | 75.3 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 3.0                       | 7.1  | 14.1 | 3.0                                             | 15.4 | 3.0                                              | 15.4 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.1                       | 4.8  | 8.0  | 2.1                                             | 8.3  | 2.1                                              | 8.6  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 1.7                       | 3.9  | 5.9  | 1.7                                             | 6.5  | 1.7                                              | 6.8  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.4                       | 2.9  | 4.2  | 1.4                                             | 4.5  | 1.4                                              | 4.8  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.3                       | 2.6  | 3.6  | 1.3                                             | 3.8  | 1.3                                              | 4.0  |      |
| $t_{dis}$ | OE         | Y         | 0.8V                           | —                         | 12.2 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 3.3                       | 7.9  | 10.1 | 3.3                                             | 11.1 | 3.3                                              | 11.1 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.1                       | 7.0  | 9.3  | 2.1                                             | 10.1 | 2.1                                              | 10.1 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 1.7                       | 6.3  | 8.7  | 1.7                                             | 9.1  | 1.7                                              | 9.1  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.4                       | 4.9  | 7.6  | 1.4                                             | 7.8  | 1.4                                              | 7.8  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.3                       | 4.1  | 5.7  | 1.3                                             | 5.8  | 1.3                                              | 5.8  |      |

**Switching Characteristics** (continued)

 $C_L = 15\text{pF}$ , See Figure 1

| Parameter | From Input | To Output | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Max  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           | —                         | 27.4 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 3.6                       | 7.2  | 14.1 | 3.3                                             | 15.8 | 3.3                                              | 17.5 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 3.0                       | 5.1  | 8.1  | 2.5                                             | 9.8  | 2.5                                              | 10.9 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.2                       | 4.3  | 6.3  | 2.0                                             | 7.9  | 2.0                                              | 8.8  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 2.0                       | 3.7  | 4.9  | 1.8                                             | 6.0  | 1.8                                              | 6.7  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 2.0                       | 3.5  | 4.4  | 1.8                                             | 5.4  | 1.8                                              | 6.1  |      |
| $t_{en}$  | OE         | Y         | 0.8V                           | —                         | 79.2 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 3.6                       | 7.8  | 15.8 | 3.3                                             | 17.1 | 3.3                                              | 17.1 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 3.0                       | 5.4  | 8.8  | 2.9                                             | 9.4  | 2.9                                              | 9.7  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.1                       | 4.3  | 6.7  | 2.0                                             | 7.3  | 2.0                                              | 7.7  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.8                       | 3.4  | 4.8  | 1.7                                             | 5.2  | 1.7                                              | 5.6  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.6                       | 3.1  | 4.3  | 1.5                                             | 4.5  | 1.5                                              | 4.7  |      |
| $t_{dis}$ | OE         | Y         | 0.8V                           | —                         | 14.9 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 3.7                       | 9.0  | 12.7 | 3.7                                             | 13.0 | 3.7                                              | 13.0 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.5                       | 8.1  | 11.5 | 2.5                                             | 12.0 | 2.5                                              | 12.0 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.0                       | 7.9  | 10.1 | 2.0                                             | 10.4 | 2.0                                              | 10.4 |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.7                       | 7.7  | 9.7  | 1.7                                             | 9.9  | 1.7                                              | 9.9  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.5                       | 7.2  | 9.0  | 1.5                                             | 9.3  | 1.5                                              | 9.3  |      |

 $C_L = 30\text{pF}$ , See Figure 1

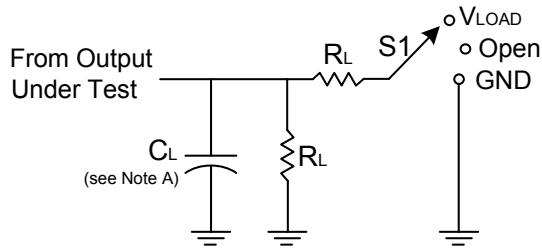
| Parameter | From Input | To Output | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Max  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           | —                         | 37.4 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 4.8                       | 9.5  | 18.7 | 4.4                                             | 21.4 | 4.4                                              | 24.0 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 4.0                       | 6.7  | 10.8 | 3.0                                             | 13.0 | 3.0                                              | 14.5 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.5                       | 5.6  | 8.4  | 2.5                                             | 10.3 | 2.5                                              | 11.5 |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 2.2                       | 4.8  | 6.3  | 2.2                                             | 7.8  | 2.2                                              | 8.7  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 2.0                       | 4.6  | 5.8  | 2.0                                             | 7.0  | 2.0                                              | 8.3  |      |
| $t_{en}$  | OE         | Y         | 0.8V                           | —                         | 90.6 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 4.7                       | 10.0 | 20.4 | 4.3                                             | 22.0 | 4.3                                              | 22.0 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 3.5                       | 6.9  | 11.3 | 3.5                                             | 12.0 | 3.5                                              | 12.5 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.6                       | 5.6  | 8.6  | 3.2                                             | 9.5  | 3.2                                              | 10.1 |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 2.3                       | 4.5  | 6.3  | 2.9                                             | 6.8  | 2.9                                              | 7.3  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 2.2                       | 4.2  | 5.8  | 2.7                                             | 6.4  | 2.7                                              | 6.7  |      |
| $t_{dis}$ | OE         | Y         | 0.8V                           | —                         | 51.6 | —    | —                                               | —    | —                                                | —    | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 4.7                       | 12.8 | 15.0 | 4.7                                             | 15.5 | 4.7                                              | 15.5 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 3.0                       | 11.8 | 13.5 | 3.0                                             | 13.9 | 3.0                                              | 13.9 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.6                       | 10.8 | 12.7 | 2.6                                             | 13.2 | 2.6                                              | 12.7 |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 2.3                       | 10.1 | 12.0 | 2.3                                             | 12.5 | 2.3                                              | 12.5 |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 2.2                       | 9.0  | 11.5 | 2.2                                             | 12.0 | 2.2                                              | 12.0 |      |

**Operating and Package Characteristics** (@T<sub>A</sub> = +25 °C, unless otherwise specified.)

| Parameter       |                                           | Test Conditions                         |          | V <sub>CC</sub> | Typ | Unit |
|-----------------|-------------------------------------------|-----------------------------------------|----------|-----------------|-----|------|
| C <sub>pd</sub> | Power Dissipation Capacitance             | f = 1MHz<br>No Load                     |          | 0.8V            | 6.9 | pF   |
|                 |                                           |                                         |          | 1.2V ± 0.1V     | 6.7 |      |
|                 |                                           |                                         |          | 1.5V ± 0.1V     | 6.6 |      |
|                 |                                           |                                         |          | 1.8V ± 0.15V    | 6.5 |      |
|                 |                                           |                                         |          | 2.5V ± 0.2V     | 6.4 |      |
|                 |                                           |                                         |          | 3.3V ± 0.3V     | 6.3 |      |
| C <sub>i</sub>  | Input Capacitance                         | V <sub>i</sub> = V <sub>CC</sub> or GND |          | 0V or 3.3V      | 1.5 | pF   |
| θ <sub>JA</sub> | Thermal Resistance<br>Junction-to-Ambient | SOT353                                  | (Note 9) | —               | 371 | °C/W |
|                 |                                           | X2-DFN0808-4                            |          | —               | 430 |      |
|                 |                                           | X1-DFN1010-6                            |          | —               | 435 |      |
|                 |                                           | X2-DFN1010-6                            |          | —               | 445 |      |
|                 |                                           | X2-DFN1409-6                            |          | —               | 470 |      |
|                 |                                           | X2-DFN1410-6                            |          | —               | 460 |      |
| θ <sub>JC</sub> | Thermal Resistance<br>Junction-to-Case    | SOT353                                  | (Note 9) | —               | 143 | °C/W |
|                 |                                           | X2-DFN0808-4                            |          | —               | 240 |      |
|                 |                                           | X1-DFN1010-6                            |          | —               | 250 |      |
|                 |                                           | X2-DFN1010-6                            |          | —               | 250 |      |
|                 |                                           | X2-DFN1409-6                            |          | —               | 275 |      |
|                 |                                           | X2-DFN1410-6                            |          | —               | 265 |      |

Note: 9. Test condition for each of the six package types: Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

## Parameter Measurement Information



| TEST              | S1    | $R_L$       |
|-------------------|-------|-------------|
| $t_{PLH}/t_{PHL}$ | Open  | 1M $\Omega$ |
| $t_{PLZ}/t_{PZL}$ | Vload | 5k $\Omega$ |
| $t_{PHZ}/t_{PZH}$ | GND   | 5k $\Omega$ |

| $V_{CC}$         | Inputs   |            | $V_M$      | $V_{LOAD}$        | $C_L$           | $V_{\Delta}$ |
|------------------|----------|------------|------------|-------------------|-----------------|--------------|
|                  | $V_I$    | $t_r/t_f$  |            |                   |                 |              |
| 0.8V             | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 5, 10, 15, 30pF | 0.1V         |
| $1.2V \pm 0.1V$  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 5, 10, 15, 30pF | 0.1V         |
| $1.5V \pm 0.1V$  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 5, 10, 15, 30pF | 0.1V         |
| $1.8V \pm 0.15V$ | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 5, 10, 15, 30pF | 0.15V        |
| $2.5V \pm 0.2V$  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 5, 10, 15, 30pF | 0.15V        |
| $3.3V \pm 0.3V$  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 5, 10, 15, 30pF | 0.3V         |

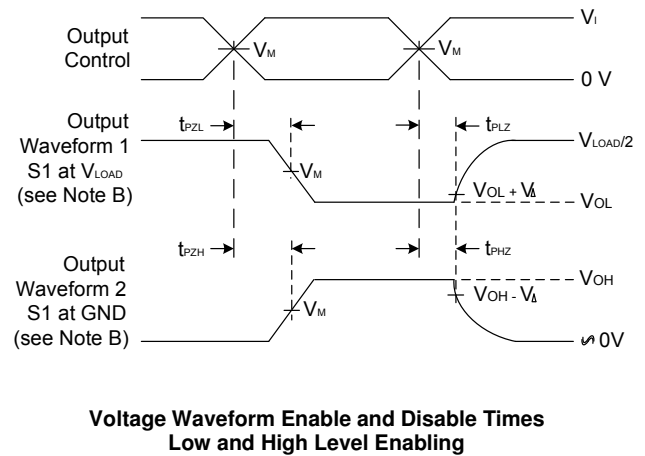
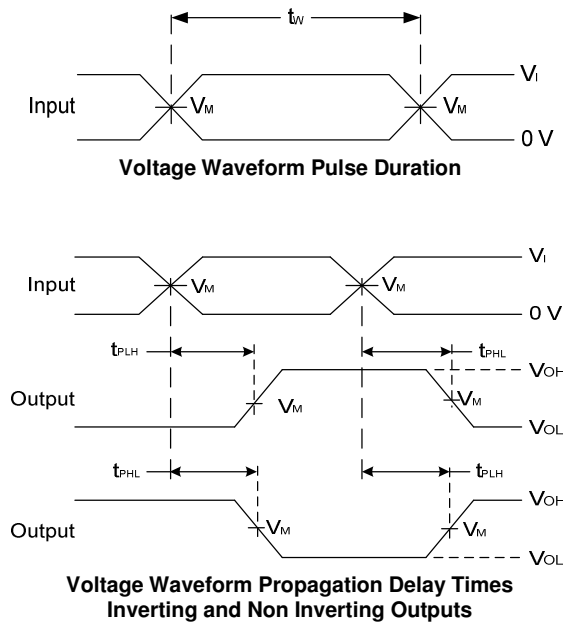


Figure 1 Load Circuit and Voltage Waveforms

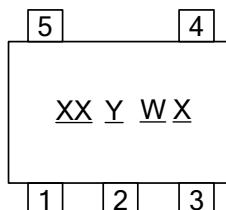
- Notes:
- A. Includes test lead and test apparatus capacitance.
  - B. All pulses are supplied at pulse repetition rate  $\leq 10MHz$ .
  - C. Inputs are measured separately one transition per measurement.
  - D.  $t_{PLZ}$  and  $t_{PHZ}$  are the same as  $t_{dis}$ .
  - E.  $t_{PZL}$  and  $t_{PZH}$  are the same as  $t_{EN}$ .
  - F.  $t_{PLH}$  and  $t_{PHL}$  are the same as  $t_{PD}$ .



## Marking Information

### (1) SOT353

#### (Top View)

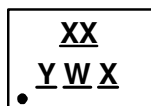


XX : Identification code  
Y : Year 0~9  
W : Week : A~Z : 1~26 week;  
           a~z : 27~52 week; z represents  
           52 and 53 week  
X : A~Z : Internal code

| Part Number    | Package | Identification Code |
|----------------|---------|---------------------|
| 74AUP1G126SE-7 | SOT353  | XZ                  |

### (2) X2-DFN0808-4, X2-DFN1010-6 X2-DFN1409-6 and X2-DFN1410-6

#### (Top View)

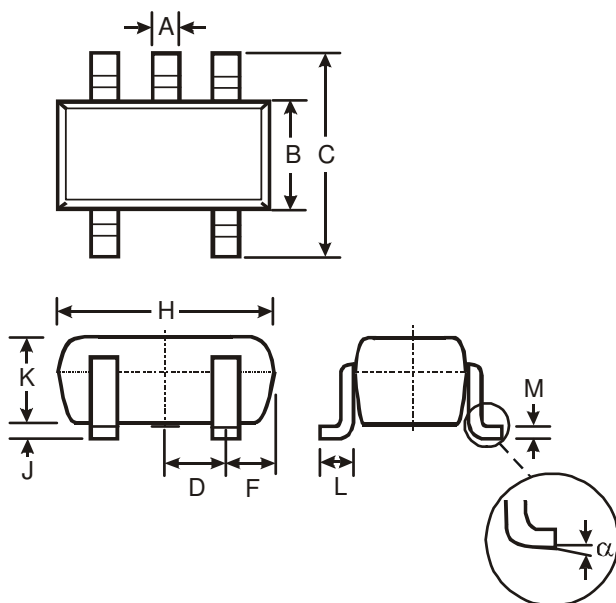


XX : Identification Code  
Y : Year : 0~9  
W : Week : A~Z : 1~26 week;  
           a~z : 27~52 week; z represents  
           52 and 53 week  
X : A~Z : Internal code

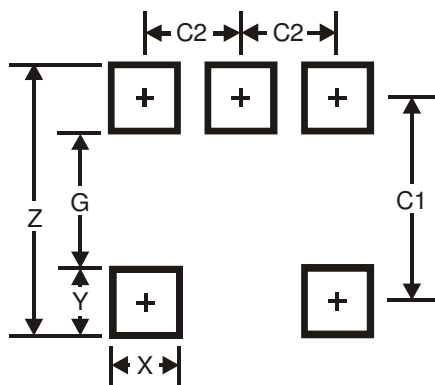
| Part Number     | Package      | Identification Code |
|-----------------|--------------|---------------------|
| 74AUP1G126FS3-7 | X2-DFN0808-4 | YZ                  |
| 74AUP1G126FW5-7 | X1-DFN1010-6 | QY                  |
| 74AUP1G126FW4-7 | X2-DFN1010-6 | XZ                  |
| 74AUP1G126FX4-7 | X2-DFN1409-6 | HR                  |
| 74AUP1G126FZ4-7 | X2-DFN1410-6 | XZ                  |

# SOT353 Package Outline Dimensions and Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



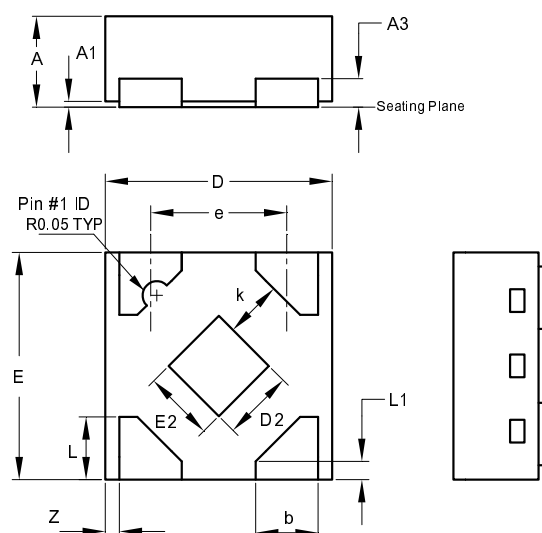
| SOT353               |          |      |       |
|----------------------|----------|------|-------|
| Dim                  | Min      | Max  | Typ   |
| A                    | 0.10     | 0.30 | 0.25  |
| B                    | 1.15     | 1.35 | 1.30  |
| C                    | 2.00     | 2.20 | 2.10  |
| D                    | 0.65 Typ |      |       |
| F                    | 0.40     | 0.45 | 0.425 |
| H                    | 1.80     | 2.20 | 2.15  |
| J                    | 0        | 0.10 | 0.05  |
| K                    | 0.90     | 1.00 | 1.00  |
| L                    | 0.25     | 0.40 | 0.30  |
| M                    | 0.10     | 0.22 | 0.11  |
| $\alpha$             | 0°       | 8°   | -     |
| All Dimensions in mm |          |      |       |



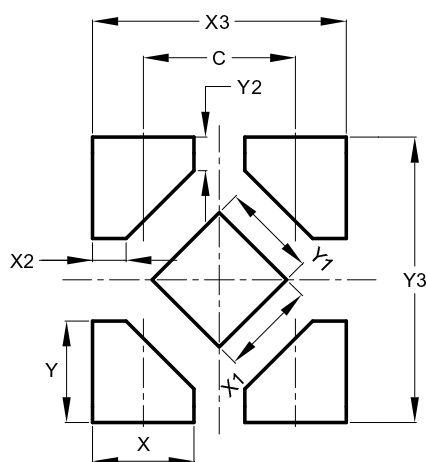
| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 2.5           |
| G          | 1.3           |
| X          | 0.42          |
| Y          | 0.6           |
| C1         | 1.9           |
| C2         | 0.65          |

## X2-DFN0808-4 Package Outline Dimensions and Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



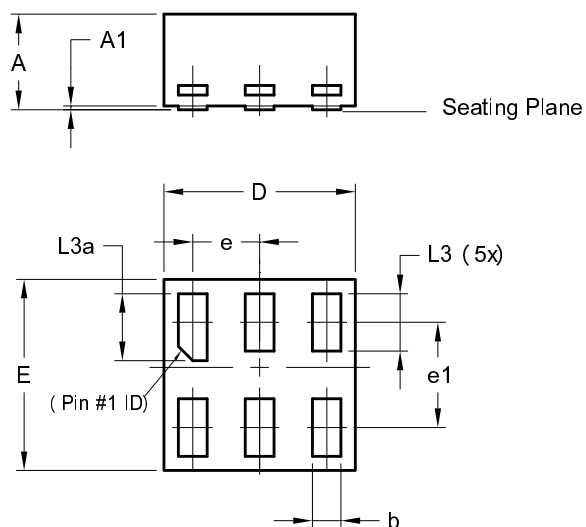
| X2-DFN0808-4         |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.25 | 0.35 | 0.30 |
| A1                   | 0    | 0.04 | 0.02 |
| A3                   | -    | -    | 0.13 |
| b                    | 0.17 | 0.27 | 0.22 |
| D                    | 0.75 | 0.85 | 0.80 |
| D2                   | 0.15 | 0.35 | 0.25 |
| E                    | 0.75 | 0.85 | 0.80 |
| E2                   | 0.15 | 0.35 | 0.25 |
| e                    | -    | -    | 0.48 |
| k                    | 0.20 | -    | -    |
| L                    | 0.17 | 0.27 | 0.22 |
| L1                   | 0.02 | 0.12 | 0.07 |
| z                    | -    | -    | 0.05 |
| All Dimensions in mm |      |      |      |



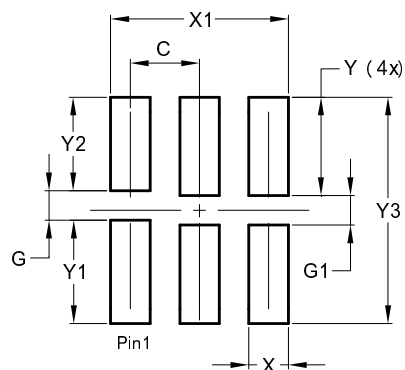
| Dimensions | Value |
|------------|-------|
| C          | 0.480 |
| X          | 0.320 |
| X1         | 0.300 |
| X2         | 0.106 |
| X3         | 0.800 |
| Y          | 0.320 |
| Y1         | 0.300 |
| Y2         | 0.106 |
| Y3         | 0.900 |

## X1-DFN1010-6 (Type B) Package Outline Dimensions and Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



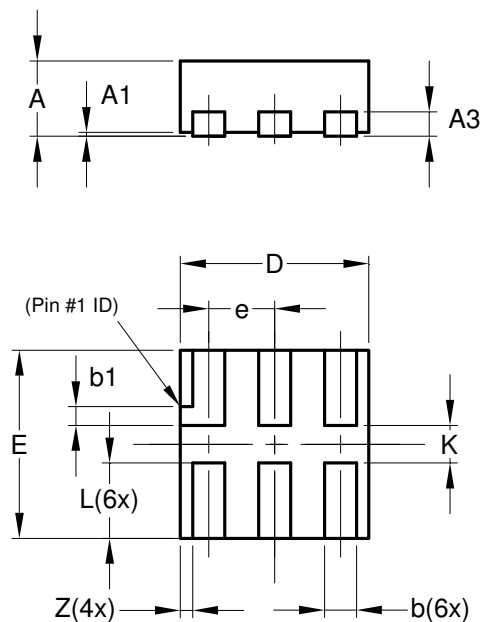
| X1-DFN1010-6<br>(Type B) |          |       |      |
|--------------------------|----------|-------|------|
| Dim                      | Min      | Max   | Typ  |
| A                        | -        | 0.50  | 0.39 |
| A1                       | -        | 0.04  | -    |
| b                        | 0.12     | 0.20  | 0.15 |
| D                        | 0.95     | 1.050 | 1.00 |
| E                        | 0.95     | 1.050 | 1.00 |
| e                        | 0.35 BSC |       |      |
| e1                       | 0.55 BSC |       |      |
| L3                       | 0.27     | 0.30  | 0.30 |
| L3a                      | 0.32     | 0.40  | 0.35 |
| All Dimensions in mm     |          |       |      |



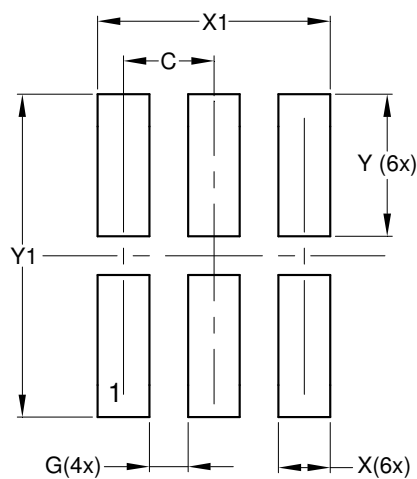
| Dimensions | Value<br>(in mm) |
|------------|------------------|
| C          | 0.350            |
| G          | 0.150            |
| G1         | 0.150            |
| X          | 0.200            |
| X1         | 0.900            |
| Y          | 0.500            |
| Y1         | 0.525            |
| Y2         | 0.475            |
| Y3         | 1.150            |

## X2-DFN1010-6 Package Outline Dimensions and Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



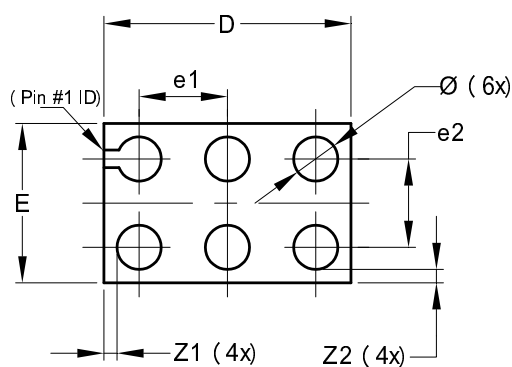
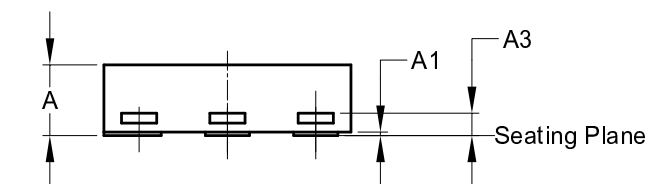
| X2-DFN1010-6         |      |      |       |
|----------------------|------|------|-------|
| Dim                  | Min  | Max  | Typ   |
| A                    | —    | 0.40 | 0.39  |
| A1                   | 0.00 | 0.05 | 0.02  |
| A3                   | —    | —    | 0.13  |
| b                    | 0.14 | 0.20 | 0.17  |
| b1                   | 0.05 | 0.15 | 0.10  |
| D                    | 0.95 | 1.05 | 1.00  |
| E                    | 0.95 | 1.05 | 1.00  |
| e                    | —    | —    | 0.35  |
| L                    | 0.35 | 0.45 | 0.40  |
| K                    | 0.15 | —    | —     |
| Z                    | —    | —    | 0.065 |
| All Dimensions in mm |      |      |       |



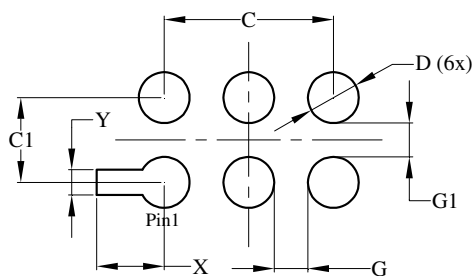
| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.350         |
| G          | 0.150         |
| X          | 0.200         |
| X1         | 0.900         |
| Y          | 0.550         |
| Y1         | 1.250         |

## X2-DFN1409-6 Package Outline Dimensions and Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



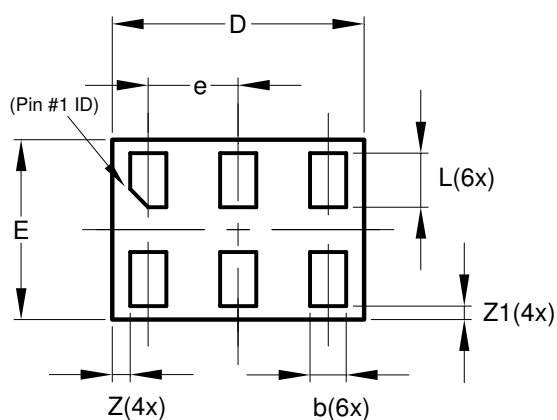
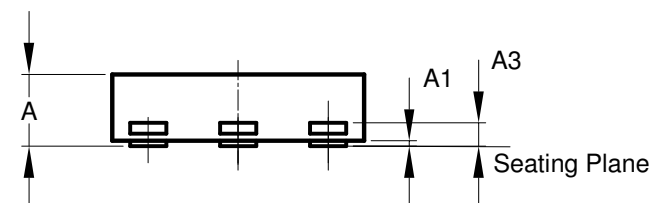
| X2-DFN1409-6         |      |      |       |
|----------------------|------|------|-------|
| Dim                  | Min  | Max  | Typ   |
| A                    | -    | 0.40 | 0.39  |
| A1                   | 0    | 0.05 | 0.02  |
| A3                   | -    | -    | 0.13  |
| Ø                    | 0.20 | 0.30 | 0.25  |
| D                    | 1.35 | 1.45 | 1.40  |
| E                    | 0.85 | 0.95 | 0.90  |
| e1                   | -    | -    | 0.50  |
| e2                   | -    | -    | 0.50  |
| Z1                   | -    | -    | 0.075 |
| Z2                   | -    | -    | 0.075 |
| All Dimensions in mm |      |      |       |



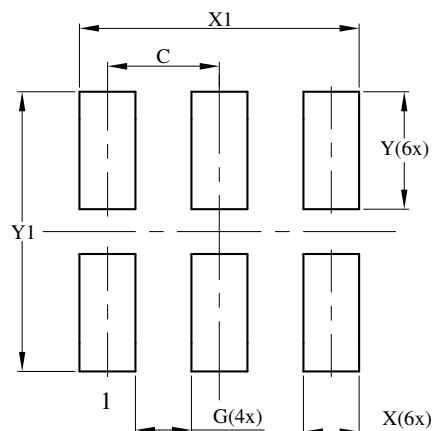
| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 1.000         |
| C1         | 0.500         |
| D          | 0.300         |
| G          | 0.200         |
| G1         | 0.200         |
| X          | 0.400         |
| Y          | 0.150         |

## X2-DFN1410-6 Package Outline Dimensions and Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| X2-DFN1410-6         |       |       |       |
|----------------------|-------|-------|-------|
| Dim                  | Min   | Max   | Typ   |
| A                    | —     | 0.40  | 0.39  |
| A1                   | 0.00  | 0.05  | 0.02  |
| A3                   | —     | —     | 0.13  |
| b                    | 0.15  | 0.25  | 0.20  |
| D                    | 1.35  | 1.45  | 1.40  |
| E                    | 0.95  | 1.05  | 1.00  |
| e                    | —     | —     | 0.50  |
| L                    | 0.25  | 0.35  | 0.30  |
| Z                    | —     | —     | 0.10  |
| Z1                   | 0.045 | 0.105 | 0.075 |
| All Dimensions in mm |       |       |       |



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.500         |
| G          | 0.250         |
| X          | 0.250         |
| X1         | 1.250         |
| Y          | 0.525         |
| Y1         | 1.250         |

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