HV5812

20-Channel Serial-Input Vacuum Fluorescent Display Driver for Anode or Grid

**Features**
- HVCMOS® Technology for High Performance
- Operating Voltage of up to 80V
- High-speed Source Driver
- 5V CMOS Logic Circuitry
- Up to 5 MHz Data Input Rate
- Excellent Noise Immunity
- Flexible High-voltage Supplies

**Applications**
- Display Driver

**General Description**

The HV5812 is a 20-channel serial-input vacuum fluorescent display driver. It combines a 20-bit CMOS shift register, data latches and control circuitry with high-voltage MOSFET outputs. The HV5812 is primarily designed for vacuum fluorescent displays.

The CMOS shift register and latches allow direct interfacing with microprocessor-based systems. Data input rates are typically over 5 MHz with 5V logic supply. Especially useful for interdigit blanking, the blanking input disables the output source drives and turns on the sink drivers. Using with TTL may require external pull-up resistors to ensure an input logic high.

**Package Types**

- 28-lead PDIP (Top view)
- 28-lead PLCC (Top view)
- 28-lead SOW (Top view)

See Table 2-1 for pin information.
Functional Block Diagram

![Functional Block Diagram](image-url)
1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings†

Supply Voltage, \( V_{DD} \) ........................................................................................................... –0.5V to +7.5V
Supply Voltage, \( V_{PP} \) ........................................................................................................... –0.5V to +90V
Logic Input Levels .................................................................................................................. –0.3V to \( V_{DD} \) +0.3V
Maximum Operating Junction Temperature ............................................................... +125°C
Storage Temperature ........................................................................................................ +55°C to +150°C
Power Dissipation:
  28-lead PDIP ................................................................................................................ 2000 mW
  28-lead PLCC ................................................................................................................ 1900 mW
  28-Lead SOW .............................................................................................................. 1700 mW

† Notice: Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only, and functional operation of the device at those or any other conditions above those indicated in the operational sections of this specification is not intended. Exposure to maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sym.</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>( V_{DD} )</td>
<td>4.5</td>
<td>—</td>
<td>5.5</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>( V_{PP} )</td>
<td>20</td>
<td>—</td>
<td>80</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Operating Junction Temperature</td>
<td>( T_J )</td>
<td>–40</td>
<td>—</td>
<td>125</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

DC ELECTRICAL CHARACTERISTICS

Electrical Specifications: Over recommended operating conditions; \( T_A = 25°C \) unless otherwise indicated.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sym.</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Leakage Current</td>
<td>( I_{DSS} )</td>
<td>—</td>
<td>–5</td>
<td>–15</td>
<td>µA</td>
<td>( V_{OUT} = 0V, \ T_J = +70°C )</td>
</tr>
<tr>
<td>High-level Output</td>
<td>( V_{OH} )</td>
<td>78</td>
<td>78.5</td>
<td>—</td>
<td>V</td>
<td>( I_{OUT} = –25 \text{ mA}, \ V_{PP} = 80V, \ T_J = +25°C )</td>
</tr>
<tr>
<td></td>
<td>( V_{OH} )</td>
<td>77</td>
<td>78</td>
<td>—</td>
<td>V</td>
<td>( I_{OUT} = –25 \text{ mA}, \ V_{PP} = 80V, \ T_J = +125°C )</td>
</tr>
<tr>
<td></td>
<td>( V_{OL} )</td>
<td>4.5</td>
<td>4.7</td>
<td>—</td>
<td>V</td>
<td>( I_{OUT} = –200 \text{ µA}, \ V_{DD} = 5V )</td>
</tr>
<tr>
<td>Low-level Output</td>
<td>( V_{OL} )</td>
<td>—</td>
<td>1.5</td>
<td>3</td>
<td>V</td>
<td>( I_{OUT} = 1 \text{ mA}, \ T_J = +25°C, \ V_{DD} = 5V )</td>
</tr>
<tr>
<td></td>
<td>( V_{OL} )</td>
<td>—</td>
<td>2.3</td>
<td>4</td>
<td>V</td>
<td>( I_{OUT} = 1 \text{ mA}, \ T_J = +125°C, \ V_{DD} = 5V )</td>
</tr>
<tr>
<td></td>
<td>( V_{OL} )</td>
<td>—</td>
<td>200</td>
<td>250</td>
<td>V</td>
<td>( I_{OUT} = +200 \text{ µA}, \ V_{DD} = 5V )</td>
</tr>
<tr>
<td>Output Pull-down Current</td>
<td>( I_{SINK} )</td>
<td>2</td>
<td>3.5</td>
<td>—</td>
<td>mA</td>
<td>( V_{OUT} = 5V ) to ( V_{PP}, \ V_{DD} = 5V )</td>
</tr>
<tr>
<td>High-level Logic Input Voltage</td>
<td>( V_{IH} )</td>
<td>3.5</td>
<td>—</td>
<td>5.3</td>
<td>V</td>
<td>( V_{DD} = 5V )</td>
</tr>
<tr>
<td>Low-level Logic Input Voltage</td>
<td>( V_{IL} )</td>
<td>–0.3</td>
<td>—</td>
<td>0.8</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>High-level Logic Input Current</td>
<td>( I_{IH} )</td>
<td>—</td>
<td>0.05</td>
<td>0.5</td>
<td>µA</td>
<td>( V_{IN} = V_{DD}, \ V_{DD} = 5V )</td>
</tr>
<tr>
<td>Low-level Logic Input Current</td>
<td>( I_{IL} )</td>
<td>—</td>
<td>–0.05</td>
<td>–0.5</td>
<td>µA</td>
<td>( V_{IN} = 0.8V, \ V_{DD} = 5V )</td>
</tr>
<tr>
<td>Quiescent ( V_{DD} ) Supply Current</td>
<td>( I_{DDQ} )</td>
<td>—</td>
<td>100</td>
<td>300</td>
<td>µA</td>
<td>All outputs high, ( V_{DD} = 5V )</td>
</tr>
<tr>
<td></td>
<td>( I_{DDQ} )</td>
<td>—</td>
<td>100</td>
<td>300</td>
<td>µA</td>
<td>All outputs low, ( V_{DD} = 5V )</td>
</tr>
<tr>
<td>Quiescent ( V_{PP} ) Supply Current</td>
<td>( I_{PPQ} )</td>
<td>—</td>
<td>10</td>
<td>100</td>
<td>µA</td>
<td>All outputs high, no load</td>
</tr>
<tr>
<td></td>
<td>( I_{PPQ} )</td>
<td>—</td>
<td>10</td>
<td>100</td>
<td>µA</td>
<td>All outputs low, no load</td>
</tr>
</tbody>
</table>
### AC ELECTRICAL CHARACTERISTICS

**Electrical Specifications**: Over recommended operating conditions; \( T_A = 25^\circ C \) unless otherwise indicated.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sym.</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanking to Output Delay</td>
<td>( t_{PHL} )</td>
<td>2000</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>( C_L = 30 , \text{pF}, 50% \text{ to } 50%, , V_{DD}=5\text{V} )</td>
</tr>
<tr>
<td></td>
<td>( t_{PHH} )</td>
<td>1000</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Output Fall Time</td>
<td>( t_r )</td>
<td>1450</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>( C_L = 30 , \text{pF}, 90% \text{ to } 10%, , V_{DD}=5\text{V} )</td>
</tr>
<tr>
<td>Output Rise Time</td>
<td>( t_f )</td>
<td>650</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>( C_L = 30 , \text{pF}, 10% \text{ to } 90%, , V_{DD}=5\text{V} )</td>
</tr>
<tr>
<td>Data Set-up Time</td>
<td>( t_{SU} )</td>
<td>75</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>See Timing Waveforms.</td>
</tr>
<tr>
<td>Data Hold Time</td>
<td>( t_H )</td>
<td>75</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>See Timing Waveforms.</td>
</tr>
<tr>
<td>Minimum Data Pulse Width</td>
<td>( t_{PWD} )</td>
<td>150</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>See Timing Waveforms.</td>
</tr>
<tr>
<td>Minimum Clock Pulse Width</td>
<td>( t_{PWCLK} )</td>
<td>150</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>See Timing Waveforms.</td>
</tr>
<tr>
<td>Minimum Time between Clock</td>
<td>( t_{CKS} )</td>
<td>300</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>See Timing Waveforms.</td>
</tr>
<tr>
<td>Activation and Strobe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Strobe Pulse Width</td>
<td>( t_{PWS} )</td>
<td>100</td>
<td>—</td>
<td>—</td>
<td>ns</td>
<td>See Timing Waveforms.</td>
</tr>
<tr>
<td>Typical Time between Strobe</td>
<td>( t_{STO} )</td>
<td>—</td>
<td>500</td>
<td>—</td>
<td>ns</td>
<td>See Timing Waveforms.</td>
</tr>
<tr>
<td>Activation and Output Transition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Clock Frequency</td>
<td>( f_{CLK} )</td>
<td>—</td>
<td>8</td>
<td>—</td>
<td>MHz</td>
<td>( T_J = +25^\circ C, , V_{DD}=5\text{V} )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>—</td>
<td></td>
<td>( T_J = +125^\circ C, , V_{DD}=5\text{V} )</td>
</tr>
</tbody>
</table>

### TEMPERATURE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sym.</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPERATURE RANGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Junction Temperature</td>
<td>( T_J )</td>
<td>40</td>
<td>—</td>
<td>+125</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>( T_S )</td>
<td>55</td>
<td>—</td>
<td>+150</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

### PACKAGE THERMAL RESISTANCE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sym.</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>28-lead PDIP</td>
<td>( \theta_{JA} )</td>
<td>43</td>
<td>—</td>
<td>—</td>
<td>°C/W</td>
</tr>
<tr>
<td>28-lead PLCC</td>
<td>( \theta_{JA} )</td>
<td>48</td>
<td>—</td>
<td>—</td>
<td>°C/W</td>
</tr>
<tr>
<td>28-lead SOW</td>
<td>( \theta_{JA} )</td>
<td>55</td>
<td>—</td>
<td>—</td>
<td>°C/W</td>
</tr>
</tbody>
</table>
Timing Waveforms

- CLK
- DATA IN
- STROBE
- BL
- HVout

Symbols:
- tPWCLK
- tPWS
- tPHL
- tf
- tr
- tSU
- 50%
- 90%
- 10%
- 50%
- tSU
- tSU
- tSU
- tSU
- tSU
- 90%
- 90%
- 90%
- 90%
- 90%
- 90%
- 90%
- 90%

Parameters:
- VIH
- VIL
- VOH
- VOL
## 2.0 PIN DESCRIPTION

The details on the pins of HV5812 28-lead PDIP, 28-lead PLCC and 28-lead SOW are listed on 
Table 2-1. Refer to Package Types for the location of pins.

**TABLE 2-1: PIN FUNCTION TABLE**

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Pin Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VPP</td>
<td>High-voltage power rail</td>
</tr>
<tr>
<td>2</td>
<td>Data Out</td>
<td>Serial data output. Data output for cascading to the data input of the next device.</td>
</tr>
<tr>
<td>3</td>
<td>HVOUT20</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>4</td>
<td>HVOUT19</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>5</td>
<td>HVOUT18</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>6</td>
<td>HVOUT17</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>7</td>
<td>HVOUT16</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>8</td>
<td>HVOUT15</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>9</td>
<td>HVOUT14</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>10</td>
<td>HVOUT13</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>11</td>
<td>HVOUT12</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>12</td>
<td>HVOUT11</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>13</td>
<td>BLANKING</td>
<td>Blank</td>
</tr>
<tr>
<td>14</td>
<td>GND</td>
<td>Logic and high-voltage ground</td>
</tr>
<tr>
<td>15</td>
<td>CLOCK</td>
<td>Data shift register clock</td>
</tr>
<tr>
<td>16</td>
<td>STROBE</td>
<td>Strobe</td>
</tr>
<tr>
<td>17</td>
<td>HVOUT10</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>18</td>
<td>HVOUT9</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>19</td>
<td>HVOUT8</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>20</td>
<td>HVOUT7</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>21</td>
<td>HVOUT6</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>22</td>
<td>HVOUT5</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>23</td>
<td>HVOUT4</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>24</td>
<td>HVOUT3</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>25</td>
<td>HVOUT2</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>26</td>
<td>HVOUT1</td>
<td>High-voltage output</td>
</tr>
<tr>
<td>27</td>
<td>Data In</td>
<td>Serial data input</td>
</tr>
<tr>
<td>28</td>
<td>VDD</td>
<td>Low-voltage logic power rail</td>
</tr>
</tbody>
</table>
3.0 FUNCTIONAL DESCRIPTION

Follow the steps below to power up and power down the HV5812:

POWER-UP AND POWER-DOWN SEQUENCE

<table>
<thead>
<tr>
<th>Step</th>
<th>Power-up Description</th>
<th>Step</th>
<th>Power-down Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connect ground.</td>
<td>1</td>
<td>Remove VPP.</td>
</tr>
<tr>
<td>2</td>
<td>Apply VDD.</td>
<td>2</td>
<td>Remove all inputs.</td>
</tr>
<tr>
<td>3</td>
<td>Set all inputs (Data, CLK, etc.) to a known state</td>
<td>3</td>
<td>Remove VDD.</td>
</tr>
<tr>
<td>4</td>
<td>Apply VPP. (Note 1)</td>
<td>4</td>
<td>Disconnect ground.</td>
</tr>
</tbody>
</table>

Note 1: The VPP should not drop below VDD during operation.

FUNCTION TABLE (Note 1)

<table>
<thead>
<tr>
<th>Serial Data Input</th>
<th>Clock Input</th>
<th>Shift Register Contents</th>
<th>Serial Data Output</th>
<th>Strobe Input</th>
<th>Latch Contents</th>
<th>Blanking</th>
<th>Output Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>L to H</td>
<td>R1, R2, R3, ..., Rn-1, Rn</td>
<td>H</td>
<td>I1, I2, I3, ..., In-1, In</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>L</td>
<td>L to H</td>
<td>R1, R2, R3, ..., Rn-1, Rn</td>
<td>L</td>
<td>I1, I2, I3, ..., In-1, In</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>X</td>
<td>H to L</td>
<td>R1, R2, R3, ..., Rn-1, Rn</td>
<td>X</td>
<td>I1, I2, I3, ..., In-1, In</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Note 1: L = Low logic level
H = High logic level
X = Irrelevant
P = Present state
R = Previous state

FIGURE 3-1: IO Circuits.
4.0 PACKAGE MARKING INFORMATION

4.1 Packaging Information

Legend:

XX...X  Product Code or Customer-specific information
Y       Year code (last digit of calendar year)
YY      Year code (last 2 digits of calendar year)
WW      Week code (week of January 1 is week '01')
NNN     Alphanumeric traceability code
@3      Pb-free JEDEC® designator for Matte Tin (Sn)
*

This package is Pb-free. The Pb-free JEDEC designator (@3) can be found on the outer packaging for this package.

Note: In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for product code or customer-specific information. Package may or not include the corporate logo.
28-Lead PDIP (.600in Row Spacing) Package Outline (P)

1.565x.580in body, .250in height (max), .100in pitch

Note 1 (Index Area)

Note: For the most current package drawings, see the Microchip Packaging Specification at www.microchip.com/packaging.

Symbol | A | A1 | A2 | b | b1 | D | D1 | E | E1 | e | eA | eB | L
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>.140*</td>
<td>.015</td>
<td>.125</td>
<td>.014</td>
<td>.030</td>
<td>1.380</td>
<td>.065*</td>
<td>.590*</td>
<td>.485</td>
<td>-</td>
<td>-</td>
<td>-.060*</td>
<td>.115</td>
</tr>
<tr>
<td>NOM</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MAX</td>
<td>.250</td>
<td>.055*</td>
<td>.195</td>
<td>.023*</td>
<td>.070</td>
<td>1.565</td>
<td>.085*</td>
<td>.625</td>
<td>.580</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.700</td>
</tr>
</tbody>
</table>


* This dimension is not specified in the JEDEC drawing.
† This dimension differs from the JEDEC drawing.

Drawings not to scale.
28-Lead PLCC Package Outline (PJ)
.453x.453in. body, .180in. height (max), .050in. pitch

Drawings not to scale.

Notes:
1. A Pin 1 identifier must be located in the index area indicated. The Pin 1 identifier can be: a molded mark/identifier; an embedded metal marker; or a printed indicator.
2. Actual shape of this feature may vary.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>b</th>
<th>b1</th>
<th>D</th>
<th>D1</th>
<th>E</th>
<th>E1</th>
<th>e</th>
<th>R</th>
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<tbody>
<tr>
<td>Dimension (inches)</td>
<td>MIN</td>
<td>.165</td>
<td>.090</td>
<td>.062</td>
<td>.013</td>
<td>.026</td>
<td>.485</td>
<td>.450</td>
<td>.485</td>
<td>.450</td>
<td>.050</td>
</tr>
<tr>
<td></td>
<td>NOM</td>
<td>.172</td>
<td>.105</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.490</td>
<td>.453</td>
<td>.490</td>
<td>.453</td>
<td>.035</td>
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<tr>
<td></td>
<td>MAX</td>
<td>.180</td>
<td>.120</td>
<td>.083</td>
<td>.021</td>
<td>.032</td>
<td>.495</td>
<td>.456</td>
<td>.495</td>
<td>.456</td>
<td>.045</td>
</tr>
</tbody>
</table>

Note: For the most current package drawings, see the Microchip Packaging Specification at www.microchip.com/packaging.
28-Lead SOW (Wide Body) Package Outline (WG)

17.90x7.50mm body, 2.65mm height (max), 1.27mm pitch

**Top View**

**Side View**

**View B**

**View A - A**

Note: For the most current package drawings, see the Microchip Packaging Specification at www.microchip.com/packaging.

**Note:**
1. A Pin 1 identifier must be located in the index area indicated. The Pin 1 identifier can be: a molded mark/identifier; an embedded metal marker; or a printed indicator.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>b</th>
<th>D</th>
<th>E</th>
<th>E1</th>
<th>e</th>
<th>h</th>
<th>L</th>
<th>L1</th>
<th>L2</th>
<th>θ</th>
<th>B1</th>
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</thead>
<tbody>
<tr>
<td><strong>Dimension (mm)</strong></td>
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<td>0.10</td>
<td>2.05</td>
<td>0.31</td>
<td>17.70*</td>
<td>9.97*</td>
<td>7.40*</td>
<td>0.25</td>
<td>0.40</td>
<td>-</td>
<td>1.27 BSC</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NOM</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>0.25 BSC</td>
<td>-</td>
<td>-</td>
<td>1.40 REF</td>
<td>0.25 BSC</td>
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<tr>
<td>MAX</td>
<td>2.65</td>
<td>0.30</td>
<td>2.55*</td>
<td>0.51</td>
<td>18.10*</td>
<td>10.63*</td>
<td>7.60*</td>
<td>0.75</td>
<td>1.27</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8°</td>
<td>15°</td>
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</tbody>
</table>

* This dimension is not specified in the JEDEC drawing.

Drawings are not to scale.
APPENDIX A: REVISION HISTORY

Revision A (October 2016)

• Converted Supertex Doc# DSFP-HV5812 to Microchip DS20005629A
• Changed the packaging quantity of 28-lead PLCC (PJ M904) from 500/Reel to 750/Reel and 28-lead SOW (WG) from 1000/Reel to 1600/Reel
• Made minor text changes throughout the document
# HV5812

## PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>Device</th>
<th>Package Options</th>
<th>Environmental</th>
<th>Media Type</th>
</tr>
</thead>
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<td>Device:</td>
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<td>= 20-Channel Serial-Input Vacuum Fluorescent Display Driver for Anode or Grid</td>
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<td></td>
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<tr>
<td>Packages:</td>
<td>P</td>
<td>= 28-lead PDIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PJ</td>
<td>= 28-lead PLCC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WG</td>
<td>= 28-lead SOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental:</td>
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<td>= Lead (Pb)-free/RoHS-compliant Package</td>
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<tr>
<td>Media Types:</td>
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<td></td>
</tr>
<tr>
<td>= 38/Tube for a PJ Package</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 1600/Reel for a WG Package</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>M904</td>
<td>= 750/Reel for a PJ Package</td>
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<td></td>
<td></td>
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</tbody>
</table>

### Examples:

- **a)** HV5812P-G: 20-Channel Serial-Input Vacuum Fluorescent Display Driver for Anode or Grid, 28-lead PDIP, 13/Tube
- **b)** HV5812PJ-G: 20-Channel Serial-Input Vacuum Fluorescent Display Driver for Anode or Grid, 28-lead PLCC, 38/Tube
- **c)** HV5812PJ-G-M904: 20-Channel Serial-Input Vacuum Fluorescent Display Driver for Anode or Grid, 28-lead PLCC, 750/Reel
- **d)** HV5812WG-G: 20-Channel Serial-Input Vacuum Fluorescent Display Driver for Anode or Grid, 28-lead SOW, 1600/Reel
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