To learn more about ON Semiconductor, please visit our website at www.onsemi.com

Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.
FODM611
High Noise Immunity, 5V, 10Mbit/sec Logic Gate Output (Open Collector) Optocoupler

**Features**
- High Noise Immunity characterized by common mode transient immunity (CMTi)
  - 20kV/μs Minimum CMTi
- High Speed
  - 10Mbit/sec Date Rate (NRZ)
  - 100ns max. Propagation Delay
  - 35ns max. Pulse Width Distortion
  - 40ns max. Propagation Delay Skew
- -40 to +85°C temperature range
- Safety and regulatory approvals
  - UL1577, 3750 VAC RMS for 1 min.
  - IEC60747-5-2 (pending approval)

**Applications**
- Microprocessor system interface
  - SPI, I²C
- Industrial fieldbus communications
  - DeviceNet, CAN, RS485
- Programmable logic control
- Isolated data acquisition system
- Voltage level translator
- Isolating MOSFET/IGBT gate drivers

**Description**
The FODM611 is a 5V high-speed logic gate output (open collector) optocoupler, which supports isolated communications allowing digital signals to communicate between systems without conducting ground loops or hazardous voltages. It utilizes Fairchild’s proprietary coplanar packaging technology, Optoplanar®, and optimized IC design to achieve high noise immunity, characterized by high common mode transient immunity specifications.

This optocoupler consists of an AlGaAS LED at the input, optically coupled to a high speed integrated photodetector logic gate. The output of the detector IC is an open collector schottky-clamped transistor. The coupled parameters are guaranteed over the wide temperature range of -40°C to +85°C. A maximum input signal of 5mA will provide a minimum output sink current of 13mA (fan out of 8).

**Related Resources**
- www.fairchildsemi.com/products/opto/
- www.fairchildsemi.com/pf/FO/FODM8061.html
- www.fairchildsemi.com/pf/FO/FODM8071.html

**Functional Schematic**

**Truth Table**

<table>
<thead>
<tr>
<th>LED</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>High</td>
</tr>
<tr>
<td>On</td>
<td>Low</td>
</tr>
</tbody>
</table>
### Pin Definitions

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Function Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ANODE</td>
<td>Anode</td>
</tr>
<tr>
<td>3</td>
<td>CATHODE</td>
<td>Cathode</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Output Ground</td>
</tr>
<tr>
<td>5</td>
<td>$V_O$</td>
<td>Output Voltage</td>
</tr>
<tr>
<td>6</td>
<td>$V_{CC}$</td>
<td>Output Supply Voltage</td>
</tr>
</tbody>
</table>

### Safety and Insulation Ratings for Mini-Flat Package (SO5 Pin)

As per IEC60747-5-2 (Pending Certification). This optocoupler is suitable for “safe electrical insulation” only within the safety limit data. Compliance with the safety ratings shall be ensured by means of protective circuits.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Installation Classifications per DIN VDE 0110/1.89 Table 1</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>For rated main voltage &lt; 150Vrms</td>
<td>I-IV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>For rated main voltage &lt; 300Vrms</td>
<td>I-III</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Climatic Classification</td>
<td>40/85/21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pollution Degree (DIN VDE 0110/1.89)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTI</td>
<td></td>
<td>Comparative Tracking Index</td>
<td>175</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$V_{PR}$</td>
<td>Input to Output Test Voltage, Method b, $VIORM \times 1.875 = V_{PR}$, 100% Production Test with $t_m = 1$ sec, Partial Discharge &lt; 5 pC</td>
<td>1060</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$V_{PR}$</td>
<td>Input to Output Test Voltage, Method a, $VIORM \times 1.5 = V_{PR}$, Type and Sample Test with $t_m = 60$ sec, Partial Discharge &lt; 5 pC</td>
<td>848</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>$V_{IORM}$</td>
<td>Max Working Insulation Voltage</td>
<td>565 $V_{peak}$</td>
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<tr>
<td>$V_{IOTM}$</td>
<td>Highest Allowable Over Voltage</td>
<td>4000 $V_{peak}$</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>External Creepage</td>
<td>5.0 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>External Clearance</td>
<td>5.0 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insulation thickness</td>
<td>0.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$T_{Case}$</td>
<td>Safety Limit Values, Maximum Values allowed in the event of a failure, Case Temperature</td>
<td>150 $^{\circ}$C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R_{IO}$</td>
<td>Insulation Resistance at $T_S$, $V_{IO} = 500V$</td>
<td>$10^9$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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FODM611 Rev. 1.0.3
Absolute Maximum Ratings (TA=25°C unless otherwise specified)
Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSTG</td>
<td>Storage Temperature</td>
<td>-40 to +125°C</td>
<td>°C</td>
</tr>
<tr>
<td>TOPR</td>
<td>Operating Temperature</td>
<td>-40 to +85°C</td>
<td>°C</td>
</tr>
<tr>
<td>TJ</td>
<td>Junction Temperature</td>
<td>-40 to +125°C</td>
<td>°C</td>
</tr>
<tr>
<td>TSOE</td>
<td>Lead Solder Temperature (Refer to Reflow Temperature Profile)</td>
<td>260 for 10sec</td>
<td>°C</td>
</tr>
<tr>
<td>I_F</td>
<td>Forward Current</td>
<td>50 mA</td>
<td></td>
</tr>
<tr>
<td>V_R</td>
<td>Reverse Voltage</td>
<td>5.0 V</td>
<td></td>
</tr>
<tr>
<td>V_CC</td>
<td>Supply Voltage</td>
<td>0 to 7.0 V</td>
<td></td>
</tr>
<tr>
<td>V_O</td>
<td>Output Voltage</td>
<td>-0.5 to V_CC*0.5 V</td>
<td></td>
</tr>
<tr>
<td>I_O</td>
<td>Average Output Current</td>
<td>50 mA</td>
<td></td>
</tr>
<tr>
<td>PD_I</td>
<td>Input Power Dissipation</td>
<td>100 mW</td>
<td></td>
</tr>
<tr>
<td>PD_O</td>
<td>Output Power Dissipation</td>
<td>85 mW</td>
<td></td>
</tr>
</tbody>
</table>

Recommended Operating Conditions
The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. Fairchild does not recommend exceeding them or designing to Absolute Maximum Ratings.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Min.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA</td>
<td>Ambient Operating Temperature</td>
<td>-40</td>
<td>+85</td>
<td>°C</td>
</tr>
<tr>
<td>V_CC</td>
<td>Supply Voltages (3)</td>
<td>4.5</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td>V_FL</td>
<td>Logic Low Input Voltage</td>
<td>0</td>
<td>0.8</td>
<td>V</td>
</tr>
<tr>
<td>I_FH</td>
<td>Logic High Input Current</td>
<td>6.3</td>
<td>15</td>
<td>mA</td>
</tr>
<tr>
<td>I_FL</td>
<td>Logic Low Input Current</td>
<td>250</td>
<td>µA</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Fan Out (at R_L = 1kΩ)</td>
<td>5</td>
<td></td>
<td>TTL Loads</td>
</tr>
<tr>
<td>R_L</td>
<td>Output Pull-up Resistor</td>
<td>330</td>
<td>4k</td>
<td>Ω</td>
</tr>
</tbody>
</table>

Isolation Characteristics (TA=25°C)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_ISO</td>
<td>Input-Output Isolation Voltage</td>
<td>freq= 60Hz, t = 1.0min, I_{I-O} ≤ 10µA(4)(5)</td>
<td>3750</td>
<td></td>
<td></td>
<td>VACRMS</td>
</tr>
<tr>
<td>R_ISO</td>
<td>Isolation Resistance</td>
<td>V_{I-O} = 500V(4)</td>
<td></td>
<td>10¹²</td>
<td></td>
<td>Ω</td>
</tr>
<tr>
<td>C_ISO</td>
<td>Isolation Capacitance</td>
<td>V_{I-O} = 0V, freq=1.0MHz(4)</td>
<td></td>
<td>0.6</td>
<td></td>
<td>pF</td>
</tr>
</tbody>
</table>

Notes:
1. No derate required to 85°C.
2. Functional operation under these conditions is not implied. Permanent damage may occur if the device is subjected to conditions outside these ratings.
3. 0.1µF bypass capacitor must be connected between pins 4 and 6.
4. Device is considered a two terminal device: Pins 1 and 3 are shorted, and Pins 4, 5, and 6 are shorted together.
5. 3,750 VACRMS for 1 minute duration is equivalent to 4,500 VACRMS for 1 second duration.
**Electrical Characteristics** (Apply over all recommended conditions)

(T\(_A\) = -40\(^\circ\)C to +85\(^\circ\)C, 4.5V \(\leq V_{CC} \leq 5.5\)V), unless otherwise specified.

Typical value is measured at T\(_A\) = 25\(^\circ\)C and V\(_{CC}\) = 5.0V.

### Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units
--- | --- | --- | --- | --- | --- | ---
\(V_F\) | Forward Voltage | \(I_F = 10\)mA, Fig. 1 | 1.05 | 1.45 | 1.8 | V
\(BV_R\) | Input Reverse Breakdown Voltage | \(I_R = 10\)µA | 5.0 | | | V
\(I_{FHL}\) | Threshold Input Current | \(V_O = 0.6V, I_{OL}(\text{sinking}) = 13\)mA, \(T_A < 85^\circ\)C, Fig. 2 | 3.4 | 5.0 | | mA

### OUTPUT CHARACTERISTICS

### Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units
--- | --- | --- | --- | --- | --- | ---
\(V_{OL}\) | Logic LOW Output Voltage | \(I_F = \text{rated} I_{FHL}, I_{OL}(\text{sinking}) = 13\)mA, Fig. 3 | 0.4 | 0.6 | | V
\(I_{OH}\) | Logic HIGH Output Current | \(I_F = 250\)µA, \(V_O = 5.0V\), Fig. 4 | 2.1 | 30.0 | | µA
\(I_{CCL}\) | Logic LOW Output Supply Current | \(I_F = 10mA, V_{CC} = 5.0V\), Fig. 5, 7 | 7.5 | 10.0 | | mA
\(I_{CCH}\) | Logic HIGH Output Supply Current | \(I_F = 0mA, V_{CC} = 5.0V\), Fig. 6, 7 | 6.0 | 9.0 | | mA

### Switching Characteristics** (Apply over all recommended conditions)

(T\(_A\) = -40\(^\circ\)C to +85\(^\circ\)C, 4.5V \(\leq V_{CC} \leq 5.5\)V, \(I_F = 7.5\)mA), unless otherwise specified.

Typical value is measured at T\(_A\) = 25\(^\circ\)C and V\(_{CC}\) = 5.0V.

### Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units
--- | --- | --- | --- | --- | --- | ---
\(t_{PHL}\) | Propagation Delay Time to Logic Low Output | \(R_L = 350\)Ω, \(C_L = 15\)pF, Fig. 8 and 11 | 43 | 100 | | ns
\(t_{PLH}\) | Propagation Delay Time to Logic High Output | \(R_L = 350\)Ω, \(C_L = 15\)pF, Fig. 8 and 11 | 50 | 100 | | ns
\(PWD\) | Pulse Width Distortion, \(| t_{PHL} - t_{PLH} | | \(R_L = 350\)Ω, \(C_L = 15\)pF, Fig. 9 | 7 | 35 | | ns
\(t_{PSK}\) | Propagation Delay Skew | \(R_L = 350\)Ω, \(C_L = 15\)pF\(^{(6)}\) | 40 | | | ns
\(t_R\) | Output Rise Time, (10% to 90%) | \(R_L = 350\)Ω, \(C_L = 15\)pF, Fig. 10 and 11 | 20 | | | ns
\(t_F\) | Output Fall Time, (90% to 10%) | \(R_L = 350\)Ω, \(C_L = 15\)pF, Fig. 10 and 11 | 10 | | | ns
\(|CMH|\) | Common Mode Transient Immunity at Output High | \(V_I = 5.0V, V_O > 0.8 \times V_{CC}, V_{CM} = 1000V\(^{(7)}\), Fig. 12 | 20 | 40 | | kV/µs
\(|CML|\) | Common Mode Transient Immunity at Output Low | \(V_I = 0V, V_O < 0.8V, V_{CM} = 1000V\(^{(7)}\), Fig. 12 | 20 | 40 | | kV/µs

**Notes**

6. \(t_{PSK}\) is equal to the magnitude of the worst case difference in \(t_{PHL}\) and/or \(t_{PLH}\) that will be seen between any two units from the same manufacturing date code that are operated at same case temperature (\(\pm5\)\(^\circ\)C), at same operating conditions, with equal loads (\(R_L = 350\)Ω and \(C_L = 15\)pF), and with an input rise time less than 5ns.

7. Common mode transient immunity at output high is the maximum tolerable positive d\(V_{CM}\)/d\(t\) on the leading edge of the common mode impulse signal, \(V_{CM}\), to assure that the output will remain high. Common mode transient immunity at output low is the maximum tolerable negative d\(V_{CM}\)/d\(t\) on the trailing edge of the common pulse signal, \(V_{CM}\), to assure that the output will remain low.
Typical Performance Curves

**Fig. 1** Input LED Current vs Forward Voltage

- **If** - INPUT LED CURRENT (mA)
- **Vf** - FORWARD VOLTAGE (V)
- **TA** - AMBIENT TEMPERATURE (°C)

**Fig. 2** Threshold Input Current vs Ambient Temperature

- **IHL** - THRESHOLD INPUT CURRENT (mA)
- **VCC** = 5.0V
- **IOL** = 13mA

**Fig. 3** Low Level Output Voltage vs. Ambient Temperature

- **VOL** - LOW LEVEL OUTPUT VOLTAGE (V)
- **IOL** = 13mA
- **IF** = 5mA
- **VF** - FORWARD VOLTAGE (V)
- **TA** - AMBIENT TEMPERATURE (°C)

**Fig. 4** Logic High Output Current vs Ambient Temperature

- **IOH** - LOGIC HIGH OUTPUT CURRENT (µA)
- **VCC** = 5.0V
- **IF** = 250µA
- **VO** = 3.3V

**Fig. 5** Typical Logic Low Output Supply Current vs. Ambient Temperature

- **ICCL** - TYPICAL LOGIC LOW OUTPUT SUPPLY CURRENT (mA)
- **VCC** = 5.0V
- **IF** = 10mA
- **TA** - AMBIENT TEMPERATURE (°C)

**Fig. 6** Typical Logic High Output Supply Current vs. Ambient Temperature

- **ICCH** - TYPICAL LOGIC HIGH OUTPUT SUPPLY CURRENT (mA)
- **VCC** = 5.0V
- **IF** = 0mA
- **TA** - AMBIENT TEMPERATURE (°C)
Typical Performance Curves (Continued)

Fig. 7 Typical Logic Output Supply Current vs. Output Supply Voltage

- $I_C = 0 \text{mA (for ICCH), 10mA (for ICCL)}$
- $T_A = 25^\circ \text{C}$

Fig. 8 Typical Propagation Delay vs. Ambient Temperature

- Frequency $= 5 \text{MHz}$
- Duty Cycle $= 50\%$
- $I_F = 7.5 \text{mA}$
- $V_C C = 5.0 \text{V}$
- $R_L = 350 \Omega$

Fig. 9 Pulse Width Distortion vs. Ambient Temperature

- Frequency $= 5 \text{MHz}$
- Duty Cycle $= 50\%$
- $I_F = 7.5 \text{mA}$
- $V_C C = 5 \text{V}$
- $R_L = 350 \Omega$

Fig. 10 Rise and Fall Time vs. Ambient Temperature

- Frequency $= 5 \text{MHz}$
- Duty Cycle $= 50\%$
- $I_F = 7.5 \text{mA}$
- $V_C C = 5 \text{V}$
- $R_L = 350 \Omega$
Figure 11. Test Circuit for Propagation Delay Time, Rise Time and Fall Time

Figure 12. Test Circuit for Instantaneous Common Mode Rejection Voltage
Package Dimensions

Notes:
1. No standard applies to this package.
2. All dimensions are in millimeters.
3. Dimensions are exclusive of burrs, mold flash, and tie bar extrusion.
4. Drawings filename and revision: MKT-MFP05A.

Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

Always visit Fairchild Semiconductor's online packaging area for the most recent package drawings:
http://www.fairchildsemi.com/packaging/
## Ordering Information

<table>
<thead>
<tr>
<th>Option</th>
<th>Order Entry Identifier (Example)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Suffix</td>
<td>FODM611</td>
<td>Mini-Flat 5-pin, shipped in tubes (100 units per tube)</td>
</tr>
<tr>
<td>R2</td>
<td>FODM611R2</td>
<td>Mini-Flat 5-pin, tape and reel (2,500 units per reel)</td>
</tr>
</tbody>
</table>

All packages are lead free per JEDEC: J-STD-020B standard.

## Marking Information

![Marking Diagram]

### Definitions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fairchild logo</td>
</tr>
<tr>
<td>2</td>
<td>Device number</td>
</tr>
<tr>
<td>3</td>
<td>IEC60747-5-2 (VDE marking)</td>
</tr>
<tr>
<td>4</td>
<td>One digit year code, e.g., ’9’</td>
</tr>
<tr>
<td>5</td>
<td>Two digit work week ranging from ’01’ to ’53’</td>
</tr>
<tr>
<td>6</td>
<td>Assembly package code</td>
</tr>
</tbody>
</table>
Tape and Reel Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol</th>
<th>Dimensions (mm)</th>
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</thead>
<tbody>
<tr>
<td>Tape Width</td>
<td>W</td>
<td>12.00 ±0.30/-0.10</td>
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<tr>
<td>Tape Thickness</td>
<td>t</td>
<td>0.30 ±0.05</td>
</tr>
<tr>
<td>Sprocket Hole Pitch</td>
<td>P₀</td>
<td>4.00 ±0.10</td>
</tr>
<tr>
<td>Sprocket Hole Diameter</td>
<td>D₀</td>
<td>1.50 ±0.10/-0.0</td>
</tr>
<tr>
<td>Sprocket Hole Location</td>
<td>E</td>
<td>1.75 ±0.10</td>
</tr>
<tr>
<td>Pocket Location</td>
<td>F</td>
<td>5.50 ±0.10</td>
</tr>
<tr>
<td></td>
<td>P₁</td>
<td>2.00 ±0.10</td>
</tr>
<tr>
<td>Pocket Pitch</td>
<td>P</td>
<td>8.00 ±0.10</td>
</tr>
<tr>
<td>Pocket Dimension</td>
<td>A₀</td>
<td>4.40 ±0.10</td>
</tr>
<tr>
<td></td>
<td>B₀</td>
<td>7.30 ±0.10</td>
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<tr>
<td></td>
<td>K₀</td>
<td>2.30 ±0.10</td>
</tr>
<tr>
<td>Pocket Hole Diameter</td>
<td>D₁</td>
<td>1.50 Min.</td>
</tr>
<tr>
<td>Cover Tape Width</td>
<td>W₁</td>
<td>9.20</td>
</tr>
<tr>
<td>Cover Tape Thickness</td>
<td>d</td>
<td>0.065 ±0.010</td>
</tr>
<tr>
<td>Max. Component Rotation or Tilt</td>
<td></td>
<td>10° Max.</td>
</tr>
<tr>
<td>Devices Per Reel</td>
<td></td>
<td>2500</td>
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<tr>
<td>Reel Diameter</td>
<td></td>
<td>330mm (13&quot;)</td>
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</tbody>
</table>
Reflow Profile

<table>
<thead>
<tr>
<th>Profile Feature</th>
<th>Pb-Free Assembly Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Min. (Tsmin)</td>
<td>150°C</td>
</tr>
<tr>
<td>Temperature Max. (Tmax)</td>
<td>200°C</td>
</tr>
<tr>
<td>Time (ts) from (Tsmin to Tmax)</td>
<td>60–120 seconds</td>
</tr>
<tr>
<td>Ramp-up Rate (tL to tp)</td>
<td>3°C/second max.</td>
</tr>
<tr>
<td>Liquidus Temperature (Tl)</td>
<td>217°C</td>
</tr>
<tr>
<td>Time (tL) Maintained Above (Tl)</td>
<td>60–150 seconds</td>
</tr>
<tr>
<td>Peak Body Package Temperature</td>
<td>260°C +0°C / –5°C</td>
</tr>
<tr>
<td>Time (tp) within 5°C of 260°C</td>
<td>30 seconds</td>
</tr>
<tr>
<td>Ramp-down Rate (Tp to Tl)</td>
<td>6°C/second max.</td>
</tr>
<tr>
<td>Time 25°C to Peak Temperature</td>
<td>8 minutes max.</td>
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PRODUCT STATUS DEFINITIONS

<table>
<thead>
<tr>
<th>Datasheet Identification</th>
<th>Product Status</th>
<th>Definition</th>
</tr>
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<tr>
<td>Advance Information</td>
<td>Formative / In Design</td>
<td>Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.</td>
</tr>
<tr>
<td>Preliminary</td>
<td>First Production</td>
<td>Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.</td>
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<tr>
<td>No Identification Needed</td>
<td>Full Production</td>
<td>Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.</td>
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<tr>
<td>Obsolete</td>
<td>Not In Production</td>
<td>Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.</td>
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