Applications

- IEEE802.11b DSSS WLAN
- IEEE802.11g,n OFDM WLAN
- Embedded applications with Bluetooth (Mobile)

Features

- Dual Mode IEEE802.11b & IEEE802.11g
- Integrated PA, Harmonic Filter, LNA and BT port
- Integrated Positive Slope Power Detector
- 19 dBm @ 4.0 % EVM, 802.11g, 54 Mbps
- Simultaneous WLAN and Bluetooth receive mode
- Direct connection to battery with 3.3 V nominal supply
- Lead free, Halogen free and RoHS compliant
- Compact package, 3 x 3 x 0.5 mm, MSL 1

Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Package</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE2579U</td>
<td>20 pin QFN</td>
<td>Samples</td>
</tr>
<tr>
<td>SE2579U-R</td>
<td>20 pin QFN</td>
<td>Tape and Reel</td>
</tr>
<tr>
<td>SE2579U-EK1</td>
<td>N/A</td>
<td>Evaluation kit</td>
</tr>
</tbody>
</table>

Product Description

The SE2579U is a complete 802.11 b/g/n WLAN RF front-end module with a Bluetooth port. The device provides all the functionality of the power amplifier, power detector, filter, Switch, Low Noise Amplifier, 2170 MHz notch filtering and associated matching. The SE2579U provides a complete 2.4 GHz WLAN RF solution from the output of the transceiver to the antennas, and from the antennas to the input of the transceiver, in an ultra compact form factor.

The SE2579U is designed for ease of use, with all the critical matching and harmonic filtering integrated, also offering a simple 50 Ω interface to the antenna.

The SE2579U includes a low noise amplifier to increase the receive sensitivity of embedded solutions to improve range or to overcome the insertion loss of cellular filters often included for mobile applications. It offers simultaneous WLAN and Bluetooth receive mode.

The SE2579U also includes a transmitter power detector with 20 dB of dynamic range and a digital enable control for transmitter power ramp on/off control. The power ramp rise/fall time is 0.5 μs typical.

Functional Block Diagram

![Functional Block Diagram](Image)

Figure 1: Functional Block Diagram
Pin Out Diagram

Figure 2: SE2579U Pin out (Top View through Package)
## Pin Out Description

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DNC</td>
<td>Do Not Connect</td>
</tr>
<tr>
<td>2</td>
<td>CRX</td>
<td>WLAN Receive antenna switch control</td>
</tr>
<tr>
<td>3</td>
<td>DNC</td>
<td>Do Not Connect</td>
</tr>
<tr>
<td>4</td>
<td>CTX</td>
<td>WLAN Transmit antenna switch control</td>
</tr>
<tr>
<td>5</td>
<td>CREF</td>
<td>Control pin reference 'high' level input</td>
</tr>
<tr>
<td>6</td>
<td>ANT</td>
<td>Antenna Port (must be AC-coupled)</td>
</tr>
<tr>
<td>7</td>
<td>CBTB</td>
<td>Bluetooth antenna switch control</td>
</tr>
<tr>
<td>8</td>
<td>LEN</td>
<td>LNA Enable</td>
</tr>
<tr>
<td>9</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>10</td>
<td>VCC3</td>
<td>LNA Power Supply</td>
</tr>
<tr>
<td>11</td>
<td>BT</td>
<td>Bluetooth Port (must be AC coupled)</td>
</tr>
<tr>
<td>12</td>
<td>RX</td>
<td>WLAN Receive Port (must be AC-coupled)</td>
</tr>
<tr>
<td>13</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>14</td>
<td>TX</td>
<td>WLAN Transmit Port (must be AC-coupled)</td>
</tr>
<tr>
<td>15</td>
<td>DNC</td>
<td>Do Not Connect</td>
</tr>
<tr>
<td>16</td>
<td>DET</td>
<td>Transmit Power Detector Output</td>
</tr>
<tr>
<td>17</td>
<td>VCC1</td>
<td>Power Amplifier Power Supply</td>
</tr>
<tr>
<td>18</td>
<td>PEN</td>
<td>Power Amplifier Enable</td>
</tr>
<tr>
<td>19</td>
<td>CBTR</td>
<td>Bluetooth back-end switch control</td>
</tr>
<tr>
<td>20</td>
<td>VCC2</td>
<td>Power Amplifier Power Supply</td>
</tr>
<tr>
<td>Die paddle</td>
<td>GND</td>
<td>Ground</td>
</tr>
</tbody>
</table>
DATA SHEET
SE2579U: 2.4 GHz High Efficiency Wireless LAN/BT Front-End

Absolute Maximum Ratings

These are stress ratings only. Exposure to stresses beyond these maximum ratings may cause permanent damage to, or affect the reliability of the device. Avoid operating the device outside the recommended operating conditions defined below. This device is ESD sensitive. Handling and assembly of this device should be at ESD protected workstations.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Definition</th>
<th>Min.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCC</td>
<td>Supply Voltage on VCC</td>
<td>-0.3</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td>V_IN</td>
<td>DC input on control pins</td>
<td>-0.3</td>
<td>3.6</td>
<td>V</td>
</tr>
<tr>
<td>P_TXIN</td>
<td>TX Input Power, ANT terminated in 50Ω match</td>
<td>-</td>
<td>5</td>
<td>dBm</td>
</tr>
<tr>
<td>T_A</td>
<td>Operating Temperature Range</td>
<td>-30</td>
<td>85</td>
<td>°C</td>
</tr>
<tr>
<td>T_STG</td>
<td>Storage Temperature Range</td>
<td>-40</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>ESD_HBM</td>
<td>JEDEC JESD22-A114</td>
<td>1000</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>All pins except ANT, CBTB, LEN, Vcc3,BT, RX pins</td>
<td>400</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recommended Operating Conditions

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>T_A</td>
<td>Ambient temperature</td>
<td>-30</td>
<td>25</td>
<td>85</td>
<td>°C</td>
</tr>
<tr>
<td>V_CC</td>
<td>Supply voltage, relative to GND = 0 V</td>
<td>2.7</td>
<td>3.3</td>
<td>4.8</td>
<td>V</td>
</tr>
</tbody>
</table>

DC Electrical Characteristics

Conditions: $V_CC = PEN = 3.3 V$, $T_A = 25 ^{\circ}C$, as measured on Skyworks Solutions' SE2579U-EK1 evaluation board (de-embedded to device), all unused ports terminated with 50 ohms, unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I_CC_G</td>
<td>Total Supply Current</td>
<td>$P_{OUT} = 18$ dBm, 54 Mbps OFDM signal, 64QAM</td>
<td>-</td>
<td>185</td>
<td>210</td>
<td>mA</td>
</tr>
<tr>
<td>I_CC_B</td>
<td>Total Supply Current</td>
<td>$P_{OUT} = 20$ dBm, 11 Mbps CCK signal, $BT = 0.45$</td>
<td>-</td>
<td>215</td>
<td>248</td>
<td>mA</td>
</tr>
<tr>
<td>I_CQ</td>
<td>Quiescent Current</td>
<td>No RF</td>
<td>-</td>
<td>133</td>
<td>148</td>
<td>mA</td>
</tr>
<tr>
<td>I_CC_OFF</td>
<td>Total Supply Current</td>
<td>PEN = 0 V, No RF Applied, $CBTR = CBTB = CTX = CRX = 0$ V</td>
<td>-</td>
<td>5</td>
<td>10</td>
<td>μA</td>
</tr>
<tr>
<td>I_CC_LNA</td>
<td>Total Supply Current</td>
<td>LEN = Vcc</td>
<td>-</td>
<td>8</td>
<td>12</td>
<td>mA</td>
</tr>
<tr>
<td>I_CC_LNA_BYP</td>
<td>Total Supply Current in bypass mode</td>
<td>LEN = 0 V</td>
<td>-</td>
<td>50</td>
<td>100</td>
<td>μA</td>
</tr>
</tbody>
</table>
Control Logic Characteristics

Conditions: \( V_{CC} = P_{EN} = 3.3 \text{ V}, T_{A} = 25 \degree \text{C}, \) as measured on Skyworks Solutions’ SE2579U-EK1 evaluation board (de-embedded to device), all unused ports terminated with 50 ohms, unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_{IH} )</td>
<td>Logic High Voltage</td>
<td>-</td>
<td>2.7.</td>
<td>-</td>
<td>3.3</td>
<td>V</td>
</tr>
<tr>
<td>( V_{IL} )</td>
<td>Logic Low Voltage</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0.4</td>
<td>V</td>
</tr>
<tr>
<td>( I_{IH} )</td>
<td>Input Current Logic High Voltage</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>( \mu \text{A} )</td>
</tr>
<tr>
<td>( I_{IL} )</td>
<td>Input Current Logic Low Voltage</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>( \mu \text{A} )</td>
</tr>
</tbody>
</table>

Control Logic Table

<table>
<thead>
<tr>
<th>Mode#</th>
<th>Mode Description</th>
<th>CTX</th>
<th>CRX</th>
<th>CBTB</th>
<th>CREF</th>
<th>PEN</th>
<th>LEN</th>
<th>CBTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>All Off</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>BT</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>WLAN Rx, high gain</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>WLAN Rx, low gain</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>WLAN TX</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>WLAN TX + PA enabled</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>(BT+WLAN) Rx, high gain</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>(BT+WLAN) Rx, low gain</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>ANT to (BT+WLAN) connect</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

AC Electrical Characteristics

802.11g Transmit Characteristics

Conditions: \( V_{CC} = P_{EN} = 3.3 \text{ V}, T_{A} = 25 \degree \text{C}, \) as measured on Skyworks Solutions’ SE2579U-EK1 evaluation board (de-embedded to device), all unused ports terminated with 50 ohms, unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>( F_{IN} )</td>
<td>Frequency Range</td>
<td>-</td>
<td>2400</td>
<td>-</td>
<td>2500</td>
<td>MHz</td>
</tr>
</tbody>
</table>

\[ EVM \]

- \( V_{cc} = 3.3 \text{ V}, P_{OUT} = 19 \text{ dBm}, 54 \text{ Mbps OFDM signal}, 64 \text{ QAM} \)
- \( V_{cc} = 3.0 \text{ V}, P_{OUT} = 18 \text{ dBm}, 54 \text{ Mbps, OFDM signal}, 64 \text{ QAM} \)
- \( V_{cc} = 2.7 \text{ V}, P_{OUT} = 17 \text{ dBm}, 54 \text{ Mbps, OFDM signal}, 64 \text{ QAM} \)
## DATA SHEET
SE2579U: 2.4 GHz High Efficiency Wireless LAN/BT Front-End

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPRb</td>
<td>Adjacent Channel Power Ratio 11b</td>
<td>Pout = 20dBm, 11Mbps CCK, BT = 0.45 ±11 MHz offset ±22 MHz offset</td>
<td>-</td>
<td>-37</td>
<td>-32</td>
<td>dBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-58</td>
<td>-55</td>
<td></td>
</tr>
<tr>
<td>ACPRg</td>
<td>Adjacent Channel Power Ratio 11g</td>
<td>Pout = 18 dBm, 54 Mbps OFDM, 64QAM ±11 MHz offset ±20 MHz offset ±30 MHz offset</td>
<td>-20</td>
<td>-28</td>
<td>-40</td>
<td>dBC</td>
</tr>
<tr>
<td>P_{max-OOB}</td>
<td>Out-of-band limited output power</td>
<td>11g - 54 Mbps 11b – 11 Mbps PSD_{OOB} = -43 dBm/MHz, RB = 1 MHz 2310-2390 MHz 2483.5-2500 MHz</td>
<td>16</td>
<td>17</td>
<td>20</td>
<td>dBM</td>
</tr>
<tr>
<td>S_{21}</td>
<td>Small Signal Gain</td>
<td>-</td>
<td>25</td>
<td>27</td>
<td>30</td>
<td>dB</td>
</tr>
<tr>
<td>ΔS_{21}</td>
<td>Small Signal Gain Variation Over Band</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.5</td>
<td>dBpp</td>
</tr>
<tr>
<td>2f</td>
<td>Harmonics</td>
<td>P_{OUT} = 20 dBm, 1 Mbps, 802.11b</td>
<td>-</td>
<td>-35</td>
<td>-25</td>
<td>dBm/MHz</td>
</tr>
<tr>
<td>3f</td>
<td>Harmonics</td>
<td>P_{OUT} = 18 dBm, 54Mbps OFDM signal, 64 QAM</td>
<td>-52</td>
<td>-43</td>
<td></td>
<td>dBm/MHz</td>
</tr>
<tr>
<td>t_{rr}, t_{rf}</td>
<td>Delay and rise/fall Time</td>
<td>50 % of V_{PEN} edge and 90/10 % of final output power level</td>
<td>-</td>
<td>0.5</td>
<td>1</td>
<td>μs</td>
</tr>
<tr>
<td>S_{11}</td>
<td>Input Return Loss</td>
<td>TX port</td>
<td>-</td>
<td>-15</td>
<td>-10</td>
<td>dB</td>
</tr>
<tr>
<td>S_{21WCDMA}</td>
<td>Small Signal Gain in WCDMA band</td>
<td>2110-2170 MHz, relative to min in-band gain</td>
<td>-11</td>
<td></td>
<td></td>
<td>dBr</td>
</tr>
<tr>
<td>P_{NWCDMA}</td>
<td>Output noise power in WCDMA band</td>
<td>2110-2170 MHz P_{OUT} = 20 dBm, 1 Mbps, 802.11b P_{OUT} = 18 dBm, 54Mbps OFDM signal, 64 QAM</td>
<td>-130</td>
<td>-127</td>
<td></td>
<td>dBm/Hz</td>
</tr>
<tr>
<td>STAB</td>
<td>Stability</td>
<td>CW, P_{in} = -5 dBm 0.1 GHz – 20 GHz Load VSWR = 6:1</td>
<td>All non-harmonically related outputs less than -43 dBm/MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RGGD</td>
<td>Ruggedness</td>
<td>CW, P_{in} = -5 dBm 0.1 GHz – 20 GHz Load VSWR = 10:1</td>
<td>No permanent damage or performance degradation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Power Detector Characteristics**

Conditions: $V_{CC} = P_{E-N} = 3.3 \, V$, $T_A = 25 \, ^\circ C$, as measured on Skyworks Solutions’ SE2579U-EK1 evaluation board (de-embedded to device), unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$F_{OUT}$</td>
<td>Frequency Range</td>
<td>-</td>
<td>2400</td>
<td>-</td>
<td>2500</td>
<td>MHz</td>
</tr>
<tr>
<td>$P_{DR}$</td>
<td>Power detect range, CW</td>
<td>Measured at ANT</td>
<td>0</td>
<td>-</td>
<td>22</td>
<td>dBm</td>
</tr>
<tr>
<td>$P_{DZLOAD}$</td>
<td>Output Impedance</td>
<td>-</td>
<td>2.2</td>
<td></td>
<td></td>
<td>KΩ</td>
</tr>
<tr>
<td>$P_{DV_{NRF}}$</td>
<td>Output Voltage, $P_{OUT} = \text{No RF}$</td>
<td>Measured in to 1MΩ</td>
<td>0.1</td>
<td>0.125</td>
<td>0.150</td>
<td>V</td>
</tr>
<tr>
<td>$P_{DV_{18.5}}$</td>
<td>Output Voltage, $P_{OUT} = 18.5 , \text{dBm CW}$</td>
<td>Measured in to 1MΩ</td>
<td>0.56</td>
<td>0.66</td>
<td>0.76</td>
<td>V</td>
</tr>
<tr>
<td>$P_{DV_{20}}$</td>
<td>Output Voltage, $P_{OUT} = 20 , \text{dBm CW}$</td>
<td>Measured in to 1MΩ</td>
<td>0.70</td>
<td>0.80</td>
<td>0.90</td>
<td>V</td>
</tr>
<tr>
<td>$P_{D_{TVAR}}$</td>
<td>Detector variation over temperature</td>
<td>-30 to 25 deg C 25 to 85 deg C given detector voltage</td>
<td>-0.6</td>
<td></td>
<td>+0.5</td>
<td>dB</td>
</tr>
<tr>
<td>$P_{D_{FVAR}}$</td>
<td>Detector variation over frequency</td>
<td>2400-2500 MHz given detector voltage</td>
<td>-0.5</td>
<td></td>
<td>0.5</td>
<td>dB</td>
</tr>
<tr>
<td>$P_{D_{VSWR}}$</td>
<td>Detector variation over load VSWR</td>
<td>Forward power ANT VSWR 3:1 all phases given detector voltage</td>
<td>-2</td>
<td></td>
<td>+1</td>
<td>dB</td>
</tr>
<tr>
<td>$P_{DBW}$</td>
<td>Detector bandwidth</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>MHz</td>
</tr>
</tbody>
</table>
Figure 3: Power Detector Characteristic
Bluetooth Characteristics
Conditions: \( V_{CC} = 3.3 \, \text{V}, \, T_A = 25 \, ^{\circ}\text{C} \), as measured on Skyworks Solutions' SE2579U-EK1 evaluation board (de-embedded to device), all unused ports terminated with 50 ohms, unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>F_{OUT}</td>
<td>Frequency Range</td>
<td>-</td>
<td>2400</td>
<td>-</td>
<td>2500</td>
<td>MHz</td>
</tr>
<tr>
<td>BT_{IL}</td>
<td>Insertion Loss</td>
<td>BT-ANT, CBTB=hi, CBTB=lo</td>
<td>-</td>
<td>1.2</td>
<td>1.5</td>
<td>dB</td>
</tr>
<tr>
<td>S_{11}</td>
<td>BT Port Return Loss</td>
<td>CBTB=hi, CBR=CX=CRX=lo</td>
<td>-20</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>ISOL_{SW}</td>
<td>Switch Isolation</td>
<td>ANT-RX, CBTB=hi, CBTB=lo</td>
<td>20</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
</tbody>
</table>

2.4 GHz Receive Characteristics
Conditions: \( V_{CC} = 3.3 \, \text{V}, \, \text{LEN} = \text{CRX} = \text{CBT} = \text{CREF} = 3.3\, \text{V}, \, \text{PEN} = \text{CBT} = \text{CTX} = 0 \, \text{V}, \, T_A = 25 \, ^{\circ}\text{C} \), as measured on Skyworks Solutions' SE2579U-EK1 evaluation board (de-embedded to device), all unused ports terminated with 50 ohms, unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
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<tbody>
<tr>
<td>F_{OUT}</td>
<td>Frequency Range</td>
<td>(BT+WLAN) Rx, high gain</td>
<td>11</td>
<td>13</td>
<td>15</td>
<td>dB</td>
</tr>
<tr>
<td>S_{21}</td>
<td>Receive Gain, LNA enabled.</td>
<td>WLAN Rx, high gain only, LEN = CRX = CREF = 3.3V, PEN = CBTB = CTX = 0 V</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>dB</td>
</tr>
<tr>
<td>ΔS_{21}</td>
<td>Gain Variation</td>
<td>2400 – 2485 MHz, Over any 20MHz band</td>
<td>-</td>
<td>-</td>
<td>0.5</td>
<td>dB</td>
</tr>
<tr>
<td>NF</td>
<td>Noise Figure</td>
<td></td>
<td>-</td>
<td>2.0</td>
<td>2.5</td>
<td>dB</td>
</tr>
<tr>
<td>IIP3</td>
<td>Third Order Intercept</td>
<td></td>
<td>-3</td>
<td>-</td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>S_{11}</td>
<td>Input Return Loss</td>
<td></td>
<td>-10</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>S_{12}</td>
<td>Reverse Isolation</td>
<td></td>
<td>-20</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>IP1dB</td>
<td>Input P1dB</td>
<td></td>
<td>-13</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>T_{EN}</td>
<td>Enable Time</td>
<td>10% to 90% of RX RF power, from time that LEN is at 50%</td>
<td>500</td>
<td></td>
<td></td>
<td>nsec</td>
</tr>
<tr>
<td>S_{21-BYP}</td>
<td>Receive Gain, LNA bypassed</td>
<td>LEN = 0 V</td>
<td>-20</td>
<td>-10</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>S_{11-BYP}</td>
<td>Input Return Loss, LNA bypassed</td>
<td>LEN = 0 V</td>
<td>-7</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>ISOL_{SW}</td>
<td>Switch Isolation</td>
<td>CBTB=CBT=lo, CRX=hi, ANT-BT + BT-RX</td>
<td>20</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
</tbody>
</table>
Package Handling Information

Branding Information
The device branding is shown in Figure 4.

Figure 4: SE2579U Branding and Pin 1 Location

Package Diagram
The package diagram is shown in Figure 5.

Figure 5: SE2579U Package Diagram
Recommended PCB Footprint and Solder pattern

Package Handling Information

Because of its sensitivity to moisture absorption, instructions on the shipping container label must be followed regarding exposure to moisture after the container seal is broken, otherwise, problems related to moisture absorption may occur when the part is subjected to high temperature during solder assembly. The SE2579U is capable of withstanding a Pb free solder reflow. Care must be taken when attaching this product, whether it is done manually or in a production solder reflow environment. If the part is manually attached, precaution should be taken to insure that the device is not subjected to temperatures above its rated peak temperature for an extended period of time. For details on both attachment techniques, precautions, and handling procedures recommended, please refer to:

- “QFN solder reflow and rework information application note”, Document Number QAD-00045
- “Handling, packing, shipping and use of moisture sensitive QFN application note”, Document Number QAD-00044
Tape and Reel Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tr>
<td>Devices Per Reel</td>
<td>3000</td>
</tr>
<tr>
<td>Reel Diameter</td>
<td>13 inches</td>
</tr>
<tr>
<td>Tape Width</td>
<td>12 millimeters</td>
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Figure 7: SE2579U-R Tape and Reel Information.

Document Change History

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<th>Revision</th>
<th>Date</th>
<th>Notes</th>
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<tr>
<td>1.0</td>
<td>03/02/2009</td>
<td>Initial Release</td>
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<tr>
<td>1.1</td>
<td>3/17/2009</td>
<td>Updated specification</td>
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<tr>
<td>1.2</td>
<td>04/06/2009</td>
<td>Updated maximum control pin voltage to 3.6V</td>
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<tr>
<td>1.3</td>
<td>05/27/2009</td>
<td>Updated specification, and updated back page</td>
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<tr>
<td>1.4</td>
<td>06/25/2009</td>
<td>Updated ESD specification</td>
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<td>1.5</td>
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<td>Updated ACPRb specification</td>
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<td>1.6</td>
<td>09/20/2009</td>
<td>Updated Power detector specification, and pcb footprint recommendation</td>
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<td>1.7</td>
<td>Jan-12-2010</td>
<td>Clarified ESD ratings</td>
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<td>1.8</td>
<td>Apr-10-2012</td>
<td>Updated with Skyworks logo and disclaimer statement</td>
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