DESCRIPTION
The \( \mu \)PC2757TB and \( \mu \)PC2758TB are silicon monolithic integrated circuit designed as 1st frequency down-converter for cellular/cordless telephone receiver stage. The ICs consist of mixer and local amplifier. The \( \mu \)PC2757TB features low current consumption and the \( \mu \)PC2758TB features improved intermodulation. From these two version, you can chose either IC corresponding to your system design. These TB suffix ICs which are smaller package than conventional T suffix ICs contribute to reduce your system size.

The \( \mu \)PC2757TB and \( \mu \)PC2758TB are manufactured using Renesas 20 GHz fT NESAT™III silicon bipolar process. This process uses silicon nitride passivation film and gold electrodes. These materials can protect chip surface from external pollution and prevent corrosion/migration. Thus, this IC has excellent performance, uniformity and reliability.

FEATURES
- Wideband operation : \( f_{\text{RF in}} = 0.1 \text{ to } 2.0 \text{ GHz} \), \( f_{\text{IF out}} = 20 \text{ to } 300 \text{ MHz} \)
- High-density surface mounting : 6-pin super minimold package
- Low current consumption : \( I_{\text{CC}} = 5.6 \text{ mA TYP.} \) @ \( \mu \)PC2757TB
  \( I_{\text{CC}} = 11 \text{ mA TYP.} \) @ \( \mu \)PC2758TB
- Supply voltage : \( V_{\text{CC}} = 2.7 \text{ to } 3.3 \text{ V} \)
- Minimized carrier leakage : Due to double balanced mixer
- Equable output impedance : Single-end push-pull IF amplifier
- Built-in power save function

APPLICATIONS
- Cellular/cordless telephone up to 2.0 GHz MAX. (example: GSM, PDC800M, PDC1.5G and so on): \( \mu \)PC2758TB
- Cellular/cordless telephone up to 2.0 GHz MAX. (example: CT1, CT2 and so on): \( \mu \)PC2757TB

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
<th>Markings</th>
<th>Supplying Form</th>
<th>Product Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \mu )PC2757TB-E3</td>
<td>6-pin super minimold</td>
<td>C1X</td>
<td>Embossed tape 8 mm wide. Pin 1, 2, 3 face the tape perforation side. Qty 3kpcs/reel.</td>
<td>Low current consumption</td>
</tr>
<tr>
<td>( \mu )PC2758TB-E3</td>
<td>6-pin super minimold</td>
<td>C1Y</td>
<td>Embossed tape 8 mm wide. Pin 1, 2, 3 face the tape perforation side. Qty 3kpcs/reel.</td>
<td>High OIPs</td>
</tr>
</tbody>
</table>

Remark To order evaluation samples, please contact your nearby sales office (Part number for sample order: \( \mu \)PC2757TB-A, \( \mu \)PC2758TB-A).

Caution Electro-static sensitive devices
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1. PIN CONNECTIONS

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Pin Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RFinput</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>LOinput</td>
</tr>
<tr>
<td>4</td>
<td>PS</td>
</tr>
<tr>
<td>5</td>
<td>Vcc</td>
</tr>
<tr>
<td>6</td>
<td>IFoutput</td>
</tr>
</tbody>
</table>

Example marking is for µPC2757TB

![Diagram](Top View)

![Diagram](Bottom View)

2. PRODUCT LINE-UP (TA = +25°C, VCC = VPS = 3.0 V, ZS = ZL = 50 Ω)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Items</th>
<th>No RF ICC (mA)</th>
<th>900 MHz SSB · NF (dB)</th>
<th>1.5 GHz SSB · NF (dB)</th>
<th>1.9 GHz SSB · NF (dB)</th>
<th>900 MHz CG (dB)</th>
<th>1.5 GHz CG (dB)</th>
<th>1.9 GHz CG (dB)</th>
<th>900 MHz IIP3 (dBm)</th>
<th>1.5 GHz IIP3 (dBm)</th>
<th>1.9 GHz IIP3 (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>µPC2757T</td>
<td></td>
<td>5.6</td>
<td>10</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>13</td>
<td>−14</td>
<td>−14</td>
<td>−12</td>
</tr>
<tr>
<td>µPC2757TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>µPC2758T</td>
<td></td>
<td>11</td>
<td>9</td>
<td>10</td>
<td>13</td>
<td>19</td>
<td>18</td>
<td>17</td>
<td>−13</td>
<td>−12</td>
<td>−11</td>
</tr>
<tr>
<td>µPC2758TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>µPC8112T</td>
<td></td>
<td>8.5</td>
<td>9</td>
<td>11</td>
<td>11</td>
<td>15</td>
<td>13</td>
<td>13</td>
<td>−10</td>
<td>−9</td>
<td>−7</td>
</tr>
<tr>
<td>µPC8112TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Part No.      | Items       | 900 MHz PO(sat) (dBm) | 1.5 GHz PO(sat) (dBm) | 1.9 GHz PO(sat) (dBm) | 900 MHz RFLO (dB) | 1.5 GHz RFLO (dB) | 1.9 GHz RFLO (dB) | IF Output Configuration | Packages       |
|---------------|-------------|-----------------------|-----------------------|----------------------|-------------------|-------------------|-------------------|-------------------------|----------------|-----------------|
| µPC2757T      |             | −3                    | −8                    | −8                   | −                 | −                 | −                 | Emitter follower        | 6-pin minimold |
| µPC2757TB     |             |                       |                       |                      |                   |                   |                   |                         | 6-pin super minimold |
| µPC2758T      |             | +1                    | −4                    | −4                   | −                 | −                 | −                 |                         | 6-pin minimold |
| µPC2758TB     |             |                       |                       |                      |                   |                   |                   |                         | 6-pin super minimold |
| µPC8112T      |             | −2.5                  | −3                    | −3                   | −80               | −57               | −55               | Open collector           | 6-pin minimold |
| µPC8112TB     |             |                       |                       |                      |                   |                   |                   |                         | 6-pin super minimold |

Remark  Typical performance. Please refer to ELECTRICAL CHARACTERISTICS in detail.

Cautions 1. The µPC2757 and µPC2758’s IIP3 are calculated with ΔIM3 = 3 which is the same IM3 inclination as µPC8112. On the other hand, OIP3 of Standard characteristics in page 7 is cross point IP.
2. This document is to be specified for µPC2757TB, µPC2758TB. The other part number mentioned in this document should be referred to the data sheet of each part number.
3. INTERNAL BLOCK DIAGRAM (\(\mu\)PC2757TB, \(\mu\)PC2758TB in common)

4. SYSTEM APPLICATION EXAMPLE

DIGITAL CELLULAR TELEPHONE
### 5. PIN EXPLANATION (Both μPC2757TB, 2758TB)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Pin Name</th>
<th>Applied Voltage (V)</th>
<th>Pin Voltage (V)_{\text{Note}}</th>
<th>Function and Application</th>
<th>Internal Equivalent Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RFinput</td>
<td>–</td>
<td>1.2</td>
<td>This pin is RF input for mixer designed as double balance type. This circuit contributes to suppress spurious signal with minimum LO and bias power consumption. Also this symmetrical circuit can keep specified performance insensitive to process-condition distribution.</td>
<td><img src="https://via.placeholder.com/50" alt="Diagram" /></td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>GND</td>
<td>–</td>
<td>This pin is ground of IC. Must be connected to the system ground with minimum inductance. Ground pattern on the board should be formed as wide as possible. (Track length should be kept as short as possible.)</td>
<td><img src="https://via.placeholder.com/50" alt="Diagram" /></td>
</tr>
<tr>
<td>3</td>
<td>LOinput</td>
<td>–</td>
<td>1.3</td>
<td>This pin is LO input for local buffer designed as differential amplifier. Recommendable input level is –15 to 0 dBm. Also this symmetrical circuit can keep specified performance insensitive to process-condition distribution.</td>
<td><img src="https://via.placeholder.com/50" alt="Diagram" /></td>
</tr>
<tr>
<td>4</td>
<td>PS</td>
<td>Vcc or GND</td>
<td>–</td>
<td>This pin is for power-save function. This pin can control ON/OFF operation with bias as follows:</td>
<td><img src="https://via.placeholder.com/50" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bias: V</td>
<td>Operation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>V_{\text{PS}} ≥ 2.5</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 to 0.5</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rise time/fall time using this pin are approximately 10 µs.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Vcc</td>
<td>2.7 to 3.3</td>
<td>–</td>
<td>Supply voltage 3.0 ±0.3 V for operation. Must be connected bypass capacitor. (example: 1 000 pF) to minimize ground impedance.</td>
<td><img src="https://via.placeholder.com/50" alt="Diagram" /></td>
</tr>
<tr>
<td>6</td>
<td>IFoutput</td>
<td>–</td>
<td>1.7</td>
<td>This pin is output from IF buffer amplifier designed as single-ended push-pull type. This pin is assigned for emitter follower output with low-impedance. In the case of connecting to high-impedance stage, please attach external matching circuit.</td>
<td><img src="https://via.placeholder.com/50" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**Note** Each pin voltage is measured at Vcc = 3.0 V
6. ABSOLUTE MAXIMUM RATINGS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>VCC</td>
<td>T&lt;sub&gt;A&lt;/sub&gt; = +25°C</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td>Power Dissipation of Package Allowance</td>
<td>Pd</td>
<td>Mounted on 50 × 50 × 1.6 mm double sided copper clad epoxy glass board at T&lt;sub&gt;A&lt;/sub&gt; = +85°C</td>
<td>270</td>
<td>mW</td>
</tr>
<tr>
<td>Operating Ambient Temperature</td>
<td>T&lt;sub&gt;A&lt;/sub&gt;</td>
<td></td>
<td>–40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>T&lt;sub&gt;stg&lt;/sub&gt;</td>
<td></td>
<td>–55 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>PS Pin Voltage</td>
<td>V&lt;sub&gt;PS&lt;/sub&gt;</td>
<td>T&lt;sub&gt;A&lt;/sub&gt; = +25°C</td>
<td>5.5</td>
<td>V</td>
</tr>
</tbody>
</table>

7. RECOMMENDED OPERATING RANGE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>V&lt;sub&gt;CC&lt;/sub&gt;</td>
<td>2.7</td>
<td>3.0</td>
<td>3.3</td>
<td>V</td>
</tr>
<tr>
<td>Operating Ambient Temperature</td>
<td>T&lt;sub&gt;A&lt;/sub&gt;</td>
<td>–40</td>
<td>+25</td>
<td>+85</td>
<td>°C</td>
</tr>
<tr>
<td>LO Input Power</td>
<td>P&lt;sub&gt;LOin&lt;/sub&gt;</td>
<td>–15</td>
<td>–10</td>
<td>0</td>
<td>dBm</td>
</tr>
</tbody>
</table>

8. ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = +25°C, V<sub>CC</sub> = V<sub>PS</sub> = 3.0 V, P<sub>LOin</sub> = –10 dBm, Z<sub>S</sub> = Z<sub>L</sub> = 50 Ω)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuit Current</td>
<td>I&lt;sub&gt;CC&lt;/sub&gt;</td>
<td>No input signal</td>
<td>3.7</td>
<td>5.6</td>
<td>7.7</td>
<td>6.6</td>
<td>11</td>
<td>14.8</td>
</tr>
<tr>
<td>RF Input Frequency</td>
<td>f&lt;sub&gt;RFin&lt;/sub&gt;</td>
<td>CG ≥ (CG1 –3 dB) f&lt;sub&gt;IFout&lt;/sub&gt; = 130 MHz constant</td>
<td>0.1</td>
<td>–</td>
<td>2.0</td>
<td>0.1</td>
<td>–</td>
<td>2.0</td>
</tr>
<tr>
<td>IF Output Frequency</td>
<td>f&lt;sub&gt;IFout&lt;/sub&gt;</td>
<td>CG ≥ (CG1 –3 dB) f&lt;sub&gt;IFout&lt;/sub&gt; = 0.8 GHz constant</td>
<td>20</td>
<td>–</td>
<td>300</td>
<td>20</td>
<td>–</td>
<td>300</td>
</tr>
<tr>
<td>Conversion Gain 1</td>
<td>CG1</td>
<td>f&lt;sub&gt;RFin&lt;/sub&gt; = 0.8 GHz, f&lt;sub&gt;IFout&lt;/sub&gt; = 130 MHz P&lt;sub&gt;RFin&lt;/sub&gt; = –40 dBm, Upper local</td>
<td>12</td>
<td>15</td>
<td>18</td>
<td>16</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>Conversion Gain 2</td>
<td>CG2</td>
<td>f&lt;sub&gt;RFin&lt;/sub&gt; = 2.0 GHz, f&lt;sub&gt;IFout&lt;/sub&gt; = 250 MHz P&lt;sub&gt;RFin&lt;/sub&gt; = –40 dBm, Lower local</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>14</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>SSB Noise Figure 1</td>
<td>SSB • NF1</td>
<td>f&lt;sub&gt;RFin&lt;/sub&gt; = 0.8 GHz, f&lt;sub&gt;IFout&lt;/sub&gt; = 130 MHz, SSB mode, Upper local</td>
<td>–</td>
<td>10</td>
<td>13</td>
<td>–</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>SSB Noise Figure 2</td>
<td>SSB • NF2</td>
<td>f&lt;sub&gt;RFin&lt;/sub&gt; = 2.0 GHz, f&lt;sub&gt;IFout&lt;/sub&gt; = 250 MHz, SSB mode, Lower local</td>
<td>–</td>
<td>13</td>
<td>16</td>
<td>–</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Saturated Output Power 1</td>
<td>P&lt;sub&gt;Out1&lt;/sub&gt;</td>
<td>f&lt;sub&gt;RFin&lt;/sub&gt; = 0.8 GHz, f&lt;sub&gt;IFout&lt;/sub&gt; = 130 MHz P&lt;sub&gt;RFin&lt;/sub&gt; = –10 dBm, Upper local</td>
<td>–11</td>
<td>–3</td>
<td>–7</td>
<td>–</td>
<td>+1</td>
<td>–</td>
</tr>
<tr>
<td>Saturated Output Power 2</td>
<td>P&lt;sub&gt;Out2&lt;/sub&gt;</td>
<td>f&lt;sub&gt;RFin&lt;/sub&gt; = 2.0 GHz, f&lt;sub&gt;IFout&lt;/sub&gt; = 250 MHz P&lt;sub&gt;RFin&lt;/sub&gt; = –10 dBm, Lower local</td>
<td>–11</td>
<td>–8</td>
<td>–7</td>
<td>–4</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>
9. STANDARD CHARACTERISTICS FOR REFERENCE
(Unless otherwise specified: $T_A = +25^\circ C$, $V_{CC} = V_{PS} = 3.0$ V, $P_{LOin} = –10$ dBm, $Z_S = Z_L = 50$ $\Omega$)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Reference Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Order Distortion Output</td>
<td>$OIP_3$</td>
<td>$f_{RFin} = 0.8$ to 2.0 GHz, $f_{IFout} = 0.1$ GHz, Cross point IP</td>
<td>+5</td>
<td>dBm</td>
</tr>
<tr>
<td>Intercept Point</td>
<td></td>
<td></td>
<td>+11</td>
<td>dBm</td>
</tr>
<tr>
<td>LO Leakage at RF pin</td>
<td>$LO_{RF}$</td>
<td>$f_{LOin} = 0.8$ to 2.0 GHz</td>
<td>–35</td>
<td>dBm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>–30</td>
<td>dBm</td>
</tr>
<tr>
<td>LO Leakage at IF pin</td>
<td>$LO_{IF}$</td>
<td>$f_{LOin} = 0.8$ to 2.0 GHz</td>
<td>–23</td>
<td>dBm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>–15</td>
<td>dBm</td>
</tr>
<tr>
<td>Circuit Current at Power Save Mode</td>
<td>$I_{CC(PS)}$</td>
<td>$V_{PS} = 0.5$ V</td>
<td>0.1</td>
<td>$\mu$A</td>
</tr>
</tbody>
</table>

DISCONTINUED
10. TEST CIRCUIT

**µPC2757TB, µPC2758TB**

![Circuit Diagram](image)

11. ILLUSTRATION OF THE TEST CIRCUIT ASSEMBLED ON EVALUATION BOARD

![Board Diagram](image)

Component List

<table>
<thead>
<tr>
<th>No.</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>C₁, C₂</td>
<td>1 000 pF</td>
</tr>
<tr>
<td>C₃ to C₅</td>
<td>3 300 pF</td>
</tr>
</tbody>
</table>

Notes

1. 35 × 42 × 0.4 mm double sided copper clad polyimide board.
2. Back side: GND pattern
3. Solder plated on pattern
4. °O: Through holes

Application explanation

This IC is guaranteed on the test circuit constructed with 50 Ω equipment and transmission line.

This IC, however, does not have 50 Ω input/output impedance, but electrical characteristics such as conversion gain and intermodulation distortion are described herein on these conditions without impedance matching. So, you should understand that conversion gain and intermodulation distortion at input level will vary when you improve VS of RF input with external circuit (50 Ω termination or impedance matching.)
12. TYPICAL CHARACTERISTICS (TA = +25°C, on Measurement Circuit)

12.1 μPC2757TB

CIRCUIT CURRENT vs. SUPPLY VOLTAGE

CONVERSION GAIN vs. RF INPUT FREQUENCY

SSB NOISE FIGURE vs. RF INPUT FREQUENCY

CONVERSION GAIN vs. IF OUTPUT FREQUENCY

CONVERSION GAIN vs. LO INPUT POWER

CONVERSION GAIN vs. LO INPUT POWER

No input signal
VCC = VPS

VCC = VPS = 3.0 V
P_{RFin} = –40 dBm
P_{LOin} = –10 dBm
f_{IFout} = 130 MHz

VCC = VPS = 3.0 V
f_{RFin} = 2.0 GHz
f_{LOin} = 1.9 GHz
P_{RFin} = –40 dBm

Supply Voltage VCC (V)

Circuit Current Icc (mA)

RF Input Frequency f_{RFin} (GHz)

SSB Noise Figure \cdot NF (dB)

Conversion Gain CG (dB)

Conversion Gain CG (dB)

Conversion Gain CG (dB)

Conversion Gain CG (dB)

Conversion Gain CG (dB)

Conversion Gain CG (dB)

Conversion Gain CG (dB)

Conversion Gain CG (dB)

DISCONTINUED
**Remark** The graphs indicate nominal characteristics.
12.2 μPC2758TB

**CIRCUIT CURRENT vs. SUPPLY VOLTAGE**

- No input signal
- $V_{CC} = V_{PS}$

**CONVERSION GAIN vs. RF INPUT FREQUENCY**

- $V_{CC} = V_{PS} = 3.0\, V$
- $P_{RFin} = -40\, \text{dBm}$
- $P_{LOin} = -10\, \text{dBm}$
- $f_{IFout} = 130\, \text{MHz}$

**SSB NOISE FIGURE vs. RF INPUT FREQUENCY**

- $V_{CC} = V_{PS} = 3.0\, V$
- $P_{RFin} = -40\, \text{dBm}$
- $P_{LOin} = -10\, \text{dBm}$
- $f_{RFin} = 800\, \text{MHz}$

**CONVERSION GAIN vs. IF OUTPUT FREQUENCY**

- $V_{CC} = V_{PS} = 3.0\, V$
- $P_{RFin} = -40\, \text{dBm}$
- $P_{LOin} = -10\, \text{dBm}$
- $f_{RFin} = 800\, \text{MHz}$

**CONVERSION GAIN vs. LO INPUT POWER**

- $V_{CC} = V_{PS} = 3.0\, V$
- $f_{RFin} = 800\, \text{MHz}$
- $f_{LOin} = 930\, \text{MHz}$
- $P_{RFin} = -40\, \text{dBm}$

- $V_{CC} = V_{PS} = 3.0\, V$
- $f_{RFin} = 2.0\, \text{GHz}$
- $f_{LOin} = 1.9\, \text{GHz}$
- $P_{RFin} = -40\, \text{dBm}$

DISCONTINUED
Remark  The graphs indicate nominal characteristics.
13. S-PARAMETERS

13.1 μPC2757TB

Calibrated on pin of DUT

RF PORT
VCC = VPS = 3.0V
1: 500 MHz  56.42Ω -j275.59Ω
2: 250 MHz  59.46Ω -j243.41Ω

RF PORT
VCC = 3.0V VPS = GND
1: 500 MHz  104.03Ω -j413.42Ω
2: 250 MHz  88.28Ω -j725.41Ω

LO PORT
VCC = VPS = 3.0V
1: 500 MHz  90.97Ω -j243.41Ω
2: 250 MHz  22.73Ω -j12.90Ω

LO PORT
VCC = 3.0V VPS = GND
1: 500 MHz  114.16Ω -j400.03Ω
2: 250 MHz  88.28Ω -j725.41Ω

IF PORT
VCC = VPS = 3.0V
1: 130 MHz  19.14Ω -j7.20Ω
2: 250 MHz  22.73Ω -j12.90Ω

IF PORT
VCC = 3.0V VPS = GND
1: 130 MHz  66.38Ω -j1.3174 kΩ
2: 250 MHz  88.28Ω -j725.41Ω
13.2 μPC2758TB
Calibrated on pin of DUT

RF PORT
V CC = V PS = 3.0V
1:500 MHz  63.312 Ω –261.34 Ω
2:900 MHz  40.227 Ω –142.36 Ω
3:1 500 MHz  32.441 Ω –79.68 Ω
4:1 900 MHz  31.107 Ω –58.273 Ω
5:2 500 MHz  30.871 Ω –39.08 Ω

LO PORT
V CC = V PS = 3.0V
1:500 MHz  73.398 Ω –188.13 Ω
2:900 MHz  64.551 Ω –112.66 Ω
3:1 500 MHz  53.133 Ω –72.941 Ω
4:1 900 MHz  48.111 Ω –148.82 Ω
5:2 500 MHz  44.541 Ω –79.078 Ω

IF PORT
V CC = V PS = 3.0V
1:130 MHz  15.696 Ω  9.5011 Ω
2:250 MHz  21.4 Ω –16.33 Ω
14. PACKAGE DIMENSIONS

6-PIN SUPER MINIMOLD (UNIT: mm)

0.7
0.7
0.1
0.1
0.9±0.1

2.1±0.1
1.25±0.1
0.2±0.05
0.2±0.05
0.65
0.65
1.3
2.0±0.2
0.9±0.1

0.1 MIN.
15. NOTE ON CORRECT USE

(1) Observe precautions for handling because of electrostatic sensitive devices.
(2) Form a ground pattern as widely as possible to minimize ground impedance (to prevent undesired oscillation).
   Keep the track length of the ground pins as short as possible.
(3) Connect a bypass capacitor (example: 1 000 pF) to the Vcc pin.
(4) The DC cut capacitor must be attached to input pin.

16. RECOMMENDED SOLDERING CONDITIONS

This product should be soldered under the following recommended conditions.

<table>
<thead>
<tr>
<th>Soldering Method</th>
<th>Soldering Condition</th>
<th>Recommended Condition Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrared Reflow</td>
<td>Package peak temperature: 235°C or below</td>
<td>IR35-00-3</td>
</tr>
<tr>
<td></td>
<td>Time: 30 seconds or less (at 210°C)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Count: 3, Exposure limit: None^Note</td>
<td></td>
</tr>
<tr>
<td>VPS</td>
<td>Package peak temperature: 215°C or below</td>
<td>VP15-00-3</td>
</tr>
<tr>
<td></td>
<td>Time: 40 seconds or less (at 200°C)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Count: 3, Exposure limit: None^Note</td>
<td></td>
</tr>
<tr>
<td>Wave Soldering</td>
<td>Soldering bath temperature: 260°C or below</td>
<td>WS60-00-1</td>
</tr>
<tr>
<td></td>
<td>Time: 10 seconds or less</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Count: 1, Exposure limit: None^Note</td>
<td></td>
</tr>
<tr>
<td>Partial Heating</td>
<td>Pin temperature: 300°C</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Time: 3 seconds or less (per side of device)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exposure limit: None^Note</td>
<td></td>
</tr>
</tbody>
</table>

Note  After opening the dry pack, keep it in a place below 25°C and 65% RH for the allowable storage period.

Caution  Do not use different soldering methods together (except for partial heating).

For details of recommended soldering conditions for surface mounting, refer to information document SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL (C10535E).
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