DEMO MANUAL DC1767

LTC2997 Remote/Internal Temperature Sensor

DESCRIPTION

Demonstration circuit 1767 features the LTC®2997, a high accuracy, analog output, temperature sensor. DC1767 is designed to allow easy evaluation of the LTC2997.

QUICK START PROCEDURE

Jumper Settings

D+/D–: These jumpers select which temperature input connects to the LTC2997. INT uses the internal temperature sensor, EXT uses an off-board sensor connected to the D+/D– analog inputs, and Q1 uses the transistor stuffed in Q1 (the MMBT3904 by default).

Analog Connections

Analog signal connections are made via the row of turret posts along the edges of the board.

GND: (2 turrets) These turrets connect directly to the internal ground planes.

VCC: Connect a 2.25V to 5.5V power supply to this turret.

D+/D–: Should be set to EXT. This is where the external diode should be connected.

VREF: Output Only. 1.8V output that can drive up to ±200μA of load.

VPTAT: The voltage on this turret is proportional to the sensor’s absolute temperature, with a slope of 4mV/K. VPTAT can drive up to a ±200μA load and up to 1000pF capacitive load.

Figure 1. Proper Measurement Equipment Setup
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>REFERENCE</th>
<th>PART DESCRIPTION</th>
<th>MANUFACTURER/PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>C1</td>
<td>CAP, X7R, 0.1μF 10V 20% 0603</td>
<td>AVX, 0603ZC104MAT</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>C2</td>
<td>CAP, X7R, 470pF 10V 10% 0603</td>
<td>AVX, 0603ZC471KAT2A</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>E1, E2, E3, E4, E5, E6, E7</td>
<td>TESTPOINT, TURRET, 0.094, PBF</td>
<td>MILL- MAX, 2501-2-00-80-00-00-07-0</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>JP1, JP2</td>
<td>HEADER, 3 PIN 0.079 DUAL ROW</td>
<td>SAMTEC, TMM-103-02-L-D</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Q1</td>
<td>XISTOR MMBT3904 SOT-23</td>
<td>ON SEMI., MMBT3904LT1G</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>R1</td>
<td>RES., CHIP, 1k, 1/10W, 5% 0603</td>
<td>YAGEO, R0603JR-071KL</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>U1</td>
<td>IC, LTC2997IDCB</td>
<td>LINEAR TECH., LTC2997IDCB#TRP8F</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>XJ1, XJ2</td>
<td>SHUNT, 0.079&quot; CENTER</td>
<td>DEMO CIRCUIT 1767A</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>FAB</td>
<td>PRINTED CIRCUIT BD</td>
<td>DEMO CIRCUIT 1767A</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td></td>
<td>STENCIL (TOP &amp; BOTTOM)</td>
<td>STENCIL DC1767A</td>
</tr>
</tbody>
</table>
SCHEMATIC DIAGRAM

NOTE: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTORS ARE IN OHMS, 0603.
2. ALL CAPACITORS ARE 0603.

VCC 2.25 - 5.5V
GND
D+
D-
VPTAT
GND
VREF

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CIRCUIT THAT WILL FUNCTION RATIONALLY. HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO
VERIFY THE DESIGN USING ITS SPECIFIC CIRCUIT PARAMETERS.

APP SPORTS COPY
VIN, VOUT, OR INPUT TO OUTPUT VOLTAGE REGULATION:
5V POTENTIAL

REV. 1
Sheet 1 of 1
11/19/2010

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DEMO MANUAL DC1767

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This notice contains important safety information about temperatures and voltages. For further safety concerns, please contact a LTC application engineer.

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