This manual describes the operation of the TAS5717/19EVM to evaluate the performance of the TAS5717/19 integrated digital audio power amplifiers. These EVMs will be collectively referred to as the TAS5717/19EVM in this document, except when explaining their differences. The main contents of this document are:

- How to properly connect a TAS5717/19 Evaluation Module (EVM) and the details of the EVM
- How to install and use the GUI to program the TAS5717/19EVM
- How to use the audio processing features such as EQ and Dynamic Range Control (DRC)
- Quick-Start Guide for the common modes in which TAS5717/19EVM can be used
1 Overview

The TAS5717/19EVM evaluation module demonstrates the TAS5717 and TAS5719 devices from Texas Instruments. The TAS5717/19 combines a high-performance PWM processor with a class-D audio power amplifier. This EVM can be configured with two bridge-tied loads (BTL) (2.0). For detailed information about the TAS5717 and TAS5719 devices, review the device data sheet SLOS655. For the remainder of the User’s Guide, these devices are referred to as the TAS5717/19EVM. The Pulse Width Modulator (PWM) is based on TI's Equibit™ technology. The TAS5717/19 has additional audio processing features like 3D, Bass Boost and 2-band DRC. The TAS5717/19 can also drive a headphone load through TI's DirectPath(TM) headphone amplifier.

The EVM software, with its graphic user interface (GUI), facilitates evaluation by providing access to the TAS5717/19EVM registers through a USB port. See the Using the EVM Software section for further details.

Figure 1. TAS5717EVM Printed-Circuit Board
The EVM together with other TI components on this board, is a complete 2.0-channel digital audio amplifier system. The MC57XXPSIA Controller board includes a USB interface, a digital input (SPDIF), analog inputs via the ADC, power inputs, and other features like a mute function and power down.

1.1 **TAS5717/19EVM and MC57xxPSIA Features**

- Channel evaluation module design
- Self-contained protection systems and control pins
- USB interface
- Standard I²S data input using optical or coaxial inputs
- Analog input through analog-to-digital converter
- Subwoofer connection—the PWM terminal provides the PWM signal and power to an external subwoofer board
- Double-sided, plated-through PCB, 1oz copper, 2mm
- Access to control signal gain and data format through EVM-software GUI
2 Installation

This section describes the EVM and software installation.

2.1 EVM Installation

The following are the basic tools for the initial EVM power up.

- 5V, 1A power supply (VIN)
- 4.5–26V, 4A power supply (PVDD)
- Banana-plug test leads for power supplies and speakers
- Optical or coaxial cable for SPDIF interface based on signal source
- USB cable
- EVM software
- Two 8Ω speakers or loads

The following sections describe the TAS5717/19EVM board in regards to power supply (PSU) and system interfaces.

2.1.1 Connecting the TAS5717/19EVM to MC57xxPSIA

On the right side of the MC57xxPSIA is a terminal block and another on the left of the TAS5717/19EVM (labeled J1). Carefully place the MC57xxPSIA block above the TAS5717/19EVM block and gently push down.
2.1.2 PSU Interface

The TAS5717/19EVM is powered by two power supplies connected to the MC57xxPSIA controller board: a 5V power supply (VIN), and a 4.5V-to-26V (PVDD) power supply. The 3.3V level is generated from the 5V supply by an on-board voltage regulator.

NOTE: The power-supply cable length must be minimized. Increasing the length of the PSU cable increases the distortion of the amplifier at high output levels and low frequencies.

The maximum output-stage supply voltage depends on the speaker load resistance. See the recommended maximum supply voltage in the TAS5717/19EVM data sheet.

Table 1. Recommended Power Supplies

<table>
<thead>
<tr>
<th>Description</th>
<th>Voltage Limitations (8-Ω Load)</th>
<th>Current Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>System power supply</td>
<td>5V</td>
<td>1A</td>
</tr>
<tr>
<td>Output power stage supply</td>
<td>4.5–26V</td>
<td>4A(^{(1)})</td>
</tr>
</tbody>
</table>

\(^{(1)}\) The rated current corresponds to two channels, full scale.

2.1.3 Loudspeaker Connectors

CAUTION

All speaker outputs are biased at Vcc/2 and must not be connected to ground (e.g., through an oscilloscope ground).

Loudspeaker connections vary by device setup. When connecting a speaker in BTL mode, connect the speaker’s two terminals (A and B or C and D) across two outputs on the TAS5717/19EVM.

Speakers or loads can be connected to the outputs A-D with clip leads, or cables can be made with female connectors (JST VHR-2N) that can mate to male connectors on the EVM board.

![Figure 6. BTL Connection](image)

2.1.4 USB Interface

The TAS5717/19 registers are accessed through I^2^C™ bus lines SDA and SCL. The USB circuit and USB connector on the MC57xxPSIA board facilitates the connection between a host computer and the device. The EVM USB circuit is powered by the 5V USB line of the host PC and is independent of the power supplies available on the board. The USB device that is used is a TAS1020B from Texas Instruments.
2.1.5 Digital Audio Interface SPDIF

The Digital Audio Interface SPDIF (RCA/OPTO) accepts digital audio data using the I²S protocol. See the TAS5717/19 data sheet for more information.

The RCA connector and the OPTO connector are the two SPDIF interfaces on the MC57xxPSIA board. The switch S3 toggles between the OPTO and RCA connector to accommodate the signal source. When the RCA cable or optical cable is connected and the signal source is powered up, verify that the SPDIF lock indicator (blue LED5) illuminates, confirming that a viable signal is available to the device. Install a jumper on JP4 across the middle pin and the pin marked SPDIF to connect the digital source to SDIN1. Install a jumper on JP5 to connect the digital source to SDIN2.

For detailed information on how the data and clocks are provided to the TAS5717/19, see the schematic appearing at the end of this document and the DIR9001 device data sheet (SLES198).

2.1.6 ADC Interface

In the absence of a digital signal source, the PCM1808 ADC can be used to convert an analog audio signal to a digital signal to the TAS5717/19. The DIR9001 still provides clock signals to the ADC in this process. A 12MHz crystal is installed on the MC57xxPSIA board. The ADC is an additional feature of this board to provide flexibility in sourcing an audio signal to the TAS5717/19. Review the PCM1808 data sheet (SLES177) for a detailed description of the ADC on this EVM. Install the jumper on JP4 across the middle pin and the pin marked ADC to select ADC as the source for SDIN1.

2.1.7 Board Power-Up General Guidelines

Connect the MC57xxPSIA and the TAS5717/19EVM boards by locating pin 1 on each board, indicated by a small white triangle. The MC57xxPSIA plugs down onto the TAS5717/19EVM board (i.e., the TAS5717/19EVM board fits underneath the MC57xxPSIA board). Pin 1 on each board must be connected to each other.

Install the EVM software on the PC before powering up the board. After connecting the loudspeakers or other loads, power supplies, and the data line, power up the 5V power supply first; then power up the PVDD power supply. It is recommended initially to set the PVDD level to 10V, then ramp it up to 20V to verify cable connections.

2.2 Software Installation

Download the TAS57X GUI from the TI Web site. The TI Web site always has the latest release and any updates to versions of the GUI.

Execute the GUI install program, Setup.exe. Once the program is installed, the program group and shortcut icon is created in Start → Program → Texas Instruments Inc → TAS57x → TAS57x GUI. The GUI launches as shown in Figure 8.

The TAS5717 tab opens when the GUI starts. Select Devices → TAS57XX → TAS5719 to open the TAS5719 tab. The TAS5717/19 tab has two subwindows. One shows the Process Flow window. From the Process Flow window, each of the signal-processing function tools can be selected by clicking on it. The Biquad GUI and the DRC GUI can be opened by right-clicking. This window also shows Input select, Mode select, Channel, and Master Volume. All functions are shown in the same order as in the device.

The other subwindow, the Properties window, has the properties that a user can update by selecting from the available options. The properties available depend on the device selected.
Figure 7. Process Structure
3 Using the EVM Software

3.1 Connect the GUI to the EVM

Open the GUI by clicking Start → All Programs → Texas Instruments Inc → TAS57x → TAS57x GUI. Connect the MC57xxPSIA board (attached to the TAS5717EVM) to your PC with a USB cable. In the Properties window, select 1-band or 2-band DRC and select Stereo or Woofer. Stereo is selected for BTL and Woofer is selected for PBTL Mode. This sends the initialization commands to the device.

The master volume is muted by default. Select the master volume block. Type the required volume in the Properties window.

Connect the GUI to the EVM hardware by clicking Target → Connect. Un-check Shutdown and Mute. At this time, if connected properly, audio plays through the device. When the Connect command is issued, if an error appears indicating a USB problem, check the connections, and press the USB RESET button on the controller board. Then disconnect and re-connect from the Target menu.

3.2 I2C Memory Tool

This tool can be opened from GDE (Tools → I2C Memory Tool) or independent of GDE from Start → Program → Texas Instruments Inc → Memory Tool.

Select I2C as shown in Figure 9.

I2C registers can be written or read using this tool. The I2C command file can be sent by selecting the command file and Execute command.

Figure 8. Main GUI Display

Figure 9. Memory Tool Window
3.3 Volume Function

The Individual and Master volume can be selected, and the required volume value can be entered in the Properties window after selecting the function with the mouse. (See Figure 10.)

![Figure 10. Volume Control](image)

3.4 Speaker/Headphone Selection

The user can use the GUI to select whether the TAS5717/19EVM will drive a speaker load or a headphone load. To select a headphone output, click the PWM_OUT setting and select "Headphone" in the Properties window. (See Figure 11.)

![Figure 11. Speaker/Headphone Selection](image)

3.5 Biquad GUI

Using the left mouse button, select the PEQ block. In the Properties window, change BiQuadSrc to Biquad GUI. Then double-click on the PEQ block. (See Figure 12.) The Biquad GUI window pops up (Figure 13).

![Figure 12. Selecting Biquad GUI](image)
A check mark selects the Biquad. If not selected, the Biquad is in ALL PASS Mode.

The frequency response and phase response plots for the current settings can be viewed and adjusted in the Frequency Response and Phase Response areas of the Biquad GUI as shown in Figure 13. The individual Biquad gains must be within ±12db.

Clicking the **Apply & Draw** button sends all the three banks of coefficients to the Frequency Response and Phase response plots (providing auto bank is enabled).

### 3.6 DRC GUI

The TAS5717/19 supports 1-band and 2-band DRC. Select one of the DRC modes from the Properties window. Then set the DRC threshold for each band by double-clicking the UPPERBAND or LOWERBAND block and adjusting the sliders as shown in Figure 14.
The crossover frequency for the 2-band DRC by default is 300Hz. This can be modified by entering a new value in the property window.

The DRC rates for the softening filter, attack, and release can also be adjusted. To set these rates, first click on the UPPERBAND or LOWERBAND block. Second, set the RateSliders property to On for that block. Third, double-click on the block to bring up an advanced DRC options window, as shown in Figure 15.

**Figure 15. Advanced DRC Options**

**PBTL Mode:** To run the device in PBTL Mode, the PBTL pin must be driven high. Then in the GUI, select woofer instead of stereo (stereo is the default value). The source for PBTL is selected as (L+R)/2, but that be changed by updating input mixer values.

### 3.6.1 MODULATION SCHEMES

**Using The FAULT PIN As An Error Indicator:**

The A_SEL_FAULTZ pin is the I²C device address select by default. To re-define this pin as an output, write ‘1’ to bit D1 of reg 0X05. Once re-programmed as output, this pin indicates a fault condition. Output will go low for Overcurrent (OC) or undervoltage (UVP) error or overtemperature error (OTE) or overvoltage error.

**Common Configurations:**

1. 2 x BTL BD Mode
2. 2 x BTL AD Mode

**Note:**

AD: AD Modulation-Outputs are 180° out of phase
BD: BD Modulation
BTL: Bridge-Tied Load
Jumpers and Control Utilities on MC57xxPSIA board

### 3.6.1.1 2 X BTL BD (BD mode)
1. Set up the hardware.
2. Select the Input MUX from GDE. In the Properties window, select BD Mode.
3. GDE: **Target > Connect**.
4. Finally uncheck the **shutdown** box to bring the device out of Shutdown mode, and adjust the **Master Volume** as desired.

### 3.6.1.2 2 X BTL AD (Default: AD mode)
1. Set up the hardware.
2. Select the Input MUX from GDE. In the Properties window, select AD Mode.
3. GDE: **Target > Connect**.
4. Finally uncheck the **shutdown** box to bring the device out of Shutdown mode, and adjust the **Master Volume** as desired.

### 4 Jumpers and Control Utilities on MC57xxPSIA board

#### 4.1 RCA/OPTICAL Jumpers
Select the jumper to reflect the source whether it is RCA or OPTICAL.

#### 4.2 Switches
JP1 on the daughter card is for PBTL select. Jumper IN means non-PBTL mode. For PBTL, remove this jumper.

Reset is an active-low function. Pressing the master reset switch (S2) resets the TAS5717/19 device; USB RESET (S1) resets the USB bus. Pressing PDNZ (S4) powers down the TAS5717/19, and pressing MUTE (S5) mutes (volume mute) the TAS5717/19.

#### 4.3 LED Indicators
- **LED1**: USB Power connector installed at J1
- **LED2**: 3.3V Power is valid
- **LED3**: RCA connection made
- **LED4**: Optical connection made
- **LED5**: SPDIF signal locked
- **LED6**: FAULT (This LED should be ignored until FAULT is programmed to be an output via I²C write to reg 0X05.)
- **LED7**: PDN switch (S4) is pressed (closed)
5 Board Layouts, Bill of Materials, and Schematic

5.1 TAS5717/19EVM and MC57xxPSIA Board Layouts

Figure 16. TAS5717EVM Top Composite Assembly

Figure 17. TAS5719EVM Top Composite Assembly
Figure 18. MC57xxPSIA Top Composite Assembly
## 5.2 Bill of Materials

### Table 2. Bill of Materials for TAS5717EVM

<table>
<thead>
<tr>
<th>Manufacturer Part No.</th>
<th>Qty</th>
<th>Ref Des</th>
<th>Vendor Part No.</th>
<th>Description</th>
<th>Vendor</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPACITORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRM1885C1H221JAP01D</td>
<td>2</td>
<td>C21, C24</td>
<td>490-1435-1</td>
<td>CAP SMD0603 CERM 2200PF 50V 5% COG ROHS</td>
<td>DIGI-KEY</td>
<td>MURATA</td>
</tr>
<tr>
<td>GRM1885C1H331JAP01D</td>
<td>4</td>
<td>C37, C38, C39, C40</td>
<td>490-1439-1</td>
<td>CAP SMD0603 CERM 3300PF 50V 5% COG ROHS</td>
<td>DIGI-KEY</td>
<td>MURATA</td>
</tr>
<tr>
<td>C1608C0G1H102J</td>
<td>2</td>
<td>C20, C23</td>
<td>445-1293-1</td>
<td>CAP SMD0603 CERM 1000PF 50V 5% COG ROHS</td>
<td>DIGI-KEY</td>
<td>TDK</td>
</tr>
<tr>
<td><strong>RESISTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETC0350FR-0718K2L</td>
<td>2</td>
<td>C40</td>
<td>31505N701C</td>
<td>RESISTOR SMD0603 700OHM 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>STACKPOLE</td>
</tr>
<tr>
<td><strong>INDUCTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HEADERS AND JACKS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SWITCHES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SHUNTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STANDOFFS AND HARDWARE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component Count:</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COMPONENTS NOT ASSEMBLED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The table contains a list of components used in the TAS5717EVM board, with details such as manufacturer, part number, and description. The component count is 2029.
### Table 3. Bill of Materials for TAS5719EVM

<table>
<thead>
<tr>
<th>Manufacturer Part No.</th>
<th>Qty</th>
<th>Ref Des</th>
<th>Vendor Part No.</th>
<th>Description</th>
<th>Vendor</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TI-SEMICONDUCTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAS5719PHP</td>
<td>1</td>
<td>U1</td>
<td>TAS5719PHP</td>
<td>30W DIGAMP WITH DAP HTQFP48-PHP ROHS</td>
<td>TEXAS INSTRUMENTS</td>
<td>TEXAS INSTRUMENTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CAPACITORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRM1885C1H221JA01D</td>
<td>2</td>
<td>C21, C24</td>
<td>490-1435-1</td>
<td>CAP SMD0603 CERM 220PF 50V 5% COG ROHS</td>
<td>DIGI-KEY</td>
<td>MURATA</td>
</tr>
<tr>
<td>GRM1885C1H331JA01D</td>
<td>4</td>
<td>C37, C38, C39, C40</td>
<td>490-1439-1</td>
<td>CAP SMD0603 CERM 330PF 50V 5% COG ROHS</td>
<td>DIGI-KEY</td>
<td>MURATA</td>
</tr>
<tr>
<td>C1608CG01H102J</td>
<td>2</td>
<td>C20, C23</td>
<td>445-1293-1</td>
<td>CAP SMD0603 CERM 1000PF 50V 5% COG ROHS</td>
<td>DIGI-KEY</td>
<td>TDK</td>
</tr>
<tr>
<td>GRM188R71H221KA01D</td>
<td>1</td>
<td>C9</td>
<td>490-1500-1</td>
<td>CAP SMD0603 CERM 2200PF 50V 10% X7R ROHS</td>
<td>DIGI-KEY</td>
<td>MURATA</td>
</tr>
<tr>
<td>GRM188R71H472KA01D</td>
<td>2</td>
<td>C12, C14</td>
<td>490-1506-1</td>
<td>CAP SMD0603 CERM 4700PF 50V 10% X7R ROHS</td>
<td>DIGI-KEY</td>
<td>MURATA</td>
</tr>
<tr>
<td>GRM188R71H334KA88D</td>
<td>4</td>
<td>C34, C35, C36, C41</td>
<td>490-3286-1</td>
<td>CAP SMD0603 CERM 0.033uf 50V 10% X7R ROHS</td>
<td>DIGI-KEY</td>
<td>MURATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RESISTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMCF0603ZT0R00</td>
<td>1</td>
<td>R1</td>
<td>RMCF0603ZT0R00</td>
<td>RESISTOR SMD0603 0.0 OHM 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>STACKPOLE ELECTRONICS</td>
</tr>
<tr>
<td>ERJ-3GEYJ180V</td>
<td>4</td>
<td>R16, R17, R18, R19</td>
<td>P18GCT</td>
<td>RESISTOR SMD0603 18 OHMS 5% 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>PANASONIC</td>
</tr>
<tr>
<td>ERJ-3GEYJ471V</td>
<td>2</td>
<td>R6, R7</td>
<td>P470GCT</td>
<td>RESISTOR SMD0603 470 OHMS 5% 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>PANASONIC</td>
</tr>
<tr>
<td>ERJ-3EKF5601V</td>
<td>6</td>
<td>R8, R9, R10, R12, R13, R14</td>
<td>P5.60KHC T</td>
<td>RESISTOR SMD0603 5.60K 1% THICK FILM 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>PANASONIC</td>
</tr>
<tr>
<td>ERJ-3EKF602V</td>
<td>3</td>
<td>R4, R11, R15</td>
<td>P10.0KHC</td>
<td>RESISTOR SMD0603 10K OHMS 5% 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>PANASONIC</td>
</tr>
<tr>
<td>ERJ-3GEYJ153V</td>
<td>1</td>
<td>R5</td>
<td>P15KHC</td>
<td>RESISTOR SMD0603 15K OHMS 5% 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>PANASONIC</td>
</tr>
<tr>
<td>RC0603FR-0718K2L</td>
<td>1</td>
<td>R3</td>
<td>311-18.2KHCRT</td>
<td>RESISTOR SMD0603 THICK FILM 18.2K 1% 1/10W ROHS</td>
<td>DIGI-KEY</td>
<td>YAGEO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INDUCTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DG6045C-150M</td>
<td>4</td>
<td>L1, L2, L3, L4</td>
<td>DG6045C-150M</td>
<td>INDUCTOR SMT 15uH X.XA X.X mOHMS 20% DG6045C ROHS</td>
<td>DIGI-KEY</td>
<td>TOKO JAPAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HEADERS AND JACKS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC035AAN</td>
<td>2</td>
<td>J1</td>
<td>S0111E-03-ND</td>
<td>HEADER THRU MALE 3 PIN 100LS GOLD ROHS</td>
<td>DIGI-KEY</td>
<td>SULLINS</td>
</tr>
<tr>
<td>PBC09DAAN</td>
<td>1</td>
<td>J1</td>
<td>S2011E-09</td>
<td>HEADER THRU MALE 2X9 100LS GOLD ROHS</td>
<td>DIGI-KEY</td>
<td>SULLINS</td>
</tr>
<tr>
<td>B2PS-VH(LF)(SN)</td>
<td>3</td>
<td>LEFT, RIGHT</td>
<td>455-1648</td>
<td>JACK JST-VH RA 2-PIN 3.96mmLS ROHS</td>
<td>DIGI-KEY</td>
<td>JST</td>
</tr>
<tr>
<td>STX-3150-5N-577C</td>
<td>1</td>
<td>HP-OUT</td>
<td>806-STX-31505N77C</td>
<td>JACK MINI STEREO 3.5mm LIME GREEN W/SHUNTS ROHS</td>
<td>MOUSER</td>
<td>KYCON</td>
</tr>
<tr>
<td>STX-3150-5N-701C</td>
<td>1</td>
<td>HP-OUT</td>
<td>806-STX-31505N701C</td>
<td>JACK MINI STEREO 3.5mm PINK W/SHUNTS ROHS</td>
<td>MOUSER</td>
<td>KYCON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SWITCHES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TL1015AF600G</td>
<td>1</td>
<td>S1</td>
<td>EG4344CT</td>
<td>SWITCH, MOM, 160G SMT 4X3MM ROHS</td>
<td>DIGI-KEY</td>
<td>E-SWITCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SHUNTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPC02SYAN</td>
<td>2</td>
<td>JP1(1-2), JP2(1-2)</td>
<td>S9001</td>
<td>SHUNT, BLACK AU FLASH 0.100LS</td>
<td>DIGI-KEY</td>
<td>SULLINS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STANDOFFS AND HARDWARE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMS 440 0025 PH</td>
<td>4</td>
<td>NA</td>
<td>H342</td>
<td>4-40 SCREW, STEEL 0.250 IN</td>
<td>DIGI-KEY</td>
<td>BUILDING FASTENERS</td>
</tr>
<tr>
<td>2029</td>
<td>4</td>
<td>NA</td>
<td>2031K</td>
<td>STANDOFF, 4-40, 1.0INX3/16IN, ALUM RND F-F</td>
<td>DIGI-KEY</td>
<td>KEYSTONE ELECTRONICS</td>
</tr>
</tbody>
</table>

Component Count: 80

**COMPONENTS NOT ASSEMBLED**

C1, C33, R2
5.3 Schematics

The schematic for TAS5717/19EVM follows. The schematics for MC57xxPSIA appear on the following pages.
TO ADC
(HIGH)(LOW)
FMT1
TO
(DEFAULT)
MASTER RESET
INPUTSELECT
OPTO INPUT
RCA INPUT
SPDIF INPUT
TO SPDIF
SPDIF DECOUPLING
3.3V@1A
TO ADC
U5
DIR9001PW
5V POWER INPUT
TO EVM BOARD
JP1 IN: SCKO = 512 Fs
JP1 OUT: SCKO = 256 Fs
SPDIF RECEIVER
ENGINEERING EVALUATION ONLY
NOTES ON JUMPER:
IN: LIN/RIN = 1Vrms MAX.
OUT: LIN/RIN = 2Vrms MAX.
EVALUATION BOARD/KIT IMPORTANT NOTICE

Texas Instruments (TI) provides the enclosed product(s) under the following conditions:

This evaluation board/kit is intended for use for ENGINEERING DEVELOPMENT, DEMONSTRATION, OR EVALUATION PURPOSES ONLY and is not considered by TI to be a finished end-product fit for general consumer use. Persons handling the product(s) must have electronics training and observe good engineering practice standards. As such, the goods being provided are not intended to be complete in terms of required design-, marketing-, and/or manufacturing-related protective considerations, including product safety and environmental measures typically found in end products that incorporate such semiconductor components or circuit boards. This evaluation board/kit does not fall within the scope of the European Union directives regarding electromagnetic compatibility, restricted substances (RoHS), recycling (WEEE), FCC, CE or UL, and therefore may not meet the technical requirements of these directives or other related directives.

Should this evaluation board/kit not meet the specifications indicated in the User’s Guide, the board/kit may be returned within 30 days from the date of delivery for a full refund. THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY MADE BY SELLER TO BUYER AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

The user assumes all responsibility and liability for proper and safe handling of the goods. Further, the user indemnifies TI from all claims arising from the handling or use of the goods. Due to the open construction of the product, it is the user’s responsibility to take any and all appropriate precautions with regard to electrostatic discharge.

EXCEPT TO THE EXTENT OF THE INDEMNITY SET FORTH ABOVE, NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

TI currently deals with a variety of customers for products, and therefore our arrangement with the user is not exclusive.

TI assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein.

Please read the User’s Guide and, specifically, the Warnings and Restrictions notice in the User’s Guide prior to handling the product. This notice contains important safety information about temperatures and voltages. For additional information on TI’s environmental and/or safety programs, please contact the TI application engineer or visit www.ti.com/esh.

No license is granted under any patent right or other intellectual property right of TI covering or relating to any machine, process, or combination in which such TI products or services might be or are used.

FCC Warning

This evaluation board/kit is intended for use for ENGINEERING DEVELOPMENT, DEMONSTRATION, OR EVALUATION PURPOSES ONLY and is not considered by TI to be a finished end-product fit for general consumer use. It generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment in other environments may cause interference with radio communications, in which case the user at his own expense will be required to take whatever measures may be required to correct this interference.

EVM WARNINGS AND RESTRICTIONS

It is important to operate this EVM within the input voltage range of -0.5V to 4.1V and the output voltage range of 26Vp-p.

Exceeding the specified input range may cause unexpected operation and/or irreversible damage to the EVM. If there are questions concerning the input range, please contact a TI field representative prior to connecting the input power.

Applying loads outside of the specified output range may result in unintended operation and/or possible permanent damage to the EVM. Please consult the EVM User’s Guide prior to connecting any load to the EVM output. If there is uncertainty as to the load specification, please contact a TI field representative.

During normal operation, some circuit components may have case temperatures greater than 85°C. The EVM is designed to operate properly with certain components above 85°C as long as the input and output ranges are maintained. These components include but are not limited to linear regulators, switching transistors, pass transistors, and current sense resistors. These types of devices can be identified using the EVM schematic located in the EVM User's Guide. When placing measurement probes near these devices during operation, please be aware that these devices may be very warm to the touch.
IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products. Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

|----------|------------|----------------------|-----------------|-------------------------|--------------|-------------|-----|-----------|-----------------|----------------|-----------|---------------|------|-------------|------------|-------------|----------------|----------------|-------------|------------------------|----------------|