Evaluation Kit Contents
- TPA3255 device
- PCB, heat sink, and external components to evaluate at full power
- RCA input jacks
- Banana output connectors

Not included:
- Power supply: up to 53.5 V, 12 A for max power
- Speakers
- High-Resolution Audio Source

Supported Output Audio Source
See full User’s Guide online for more information.

More Information
- TPA32xx Product Family
- TPA3255 Product Webpage
- TPA3255 Datasheet
- Complete TPA3255EVM User’s Guide
- Schematics and layout

Available on: ti.com/tpa3255
Available on: ti.com/highpoweraudio

Device TPA3244 TPA3245 TPA3250 TPA3251 TPA3255
Max Power to BTL/Ch (W) 100 160 130 205 340
Max Power to PBTL (W) 160 255 190 355 640
Min Supported BTL Load (Ω) 4 3 4 3 4
Power Stage Supply Max (V) 31.5 31.5 38 38 53.5
Thermal Pad Location Bottom Top Bottom Top Top
Package 44HTSSOP1 44HTSSOP1 44HTSSOP1 44HTSSOP1 44HTSSOP1
Dimensions 6.1 x 14mm

Supported Output Configurations
- 4-Channels—single-ended (SE)
- 2-Channels—bridge-tied load (BTL)
- 1-Channel—parallel bridge tied load (PBTL)

More Information
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- TPA3255 Datasheet
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### TPA32xx Product Family

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<tr>
<th>Device</th>
<th>TPA3244</th>
<th>TPA3245</th>
<th>TPA3250</th>
<th>TPA3251</th>
<th>TPA3255</th>
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<td>100</td>
<td>160</td>
<td>130</td>
<td>205</td>
<td>340</td>
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<tr>
<td>Max Power to PBTL (W)</td>
<td>160</td>
<td>255</td>
<td>190</td>
<td>355</td>
<td>640</td>
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<tr>
<td>Min Supported BTL Load (Ω)</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Power Stage Supply Max (V)</td>
<td>31.5</td>
<td>31.5</td>
<td>38</td>
<td>38</td>
<td>53.5</td>
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<tr>
<td>Thermal Pad Location</td>
<td>Bottom</td>
<td>Top</td>
<td>Bottom</td>
<td>Top</td>
<td>Top</td>
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<td>Package</td>
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<td>44HTSSOP</td>
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<td>6.1 x 14mm</td>
</tr>
</tbody>
</table>

1Pad-Up, pin-compatible package
2Pad-Down, pin-compatible package

### More Information

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- Class-D Amplifier
- 4-Channels—single-ended (SE)
- 2-Channels—bridge-tied load (BTL)
- 1-Channel—parallel bridge—tied load (PBTL)

- Class-D Amplifier
- 1Pad-Up, pin-compatible package
- 2Pad-Down, pin-compatible package

TPA3255EVM Quick-Start Guide

Start Here
### Getting Started

1. Ensure the RESET switch (S1) is in theRESET position.
2. Connect the power supply to the EVM using the PVDD and GND terminals.
3. Connect the first speaker to the output terminals OUTA and OUTB.
4. Connect the second speaker to the output terminals OUTC and OUTD.
5. Connect a high-resolution audio source to INA (J3) and INC (J18) for single-ended operation, which are default RCA input terminals.
6. Apply power (14V-53.5V) and move the RESET switch (S1) to the NORMAL position.
**Indicator Descriptions**

3.3V – indicates the 3.3V rail used for GPIO control is active
12V – indicates the 12V rail used for amplifier gate drive is active
CLP_OTWz – indicates when clipping or over-temperature warning occur
FAULTz – indicates when a fault condition occurs (requires toggling reset to clear fault)

<table>
<thead>
<tr>
<th>FAULTz</th>
<th>CLP_OTWz</th>
<th>Possible Faults</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
<td>OTW, OTE, UVP, OLP</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>UVP, OLP</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>OTW (solid), Early Clipping (flickering)</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>No Fault</td>
</tr>
</tbody>
</table>

**Default Jumper Configuration**

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Default</th>
<th>Comment</th>
<th>Jumper</th>
<th>Default</th>
<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>J28</td>
<td>IN</td>
<td>PVDD to 15V BUCK</td>
<td>J24</td>
<td>IN</td>
<td>OUTC CAP SHUNT</td>
</tr>
<tr>
<td>J31</td>
<td>IN</td>
<td>15V BUCK to 12V TERM</td>
<td>J25</td>
<td>IN</td>
<td>OUTC CAP SHUNT</td>
</tr>
<tr>
<td>J32</td>
<td>IN</td>
<td>12V LDO to 12V TERM</td>
<td>J26</td>
<td>2 to 3</td>
<td>INC SELECT</td>
</tr>
<tr>
<td>J33</td>
<td>IN</td>
<td>3.3V LDO to 3.3V TERM</td>
<td>J27</td>
<td>2 to 3</td>
<td>IND SELECT</td>
</tr>
<tr>
<td>J21</td>
<td>OUT</td>
<td>CSTART SE</td>
<td>J7</td>
<td>OUT</td>
<td>PBTL SELECT INC</td>
</tr>
<tr>
<td>J16</td>
<td>3 to 4</td>
<td>MASTER MODE</td>
<td>J8</td>
<td>OUT</td>
<td>PBTL SELECT IND</td>
</tr>
<tr>
<td>J5</td>
<td>2 to 3</td>
<td>M1-BTL</td>
<td>J10</td>
<td>OUT</td>
<td>INA/B DIFF INPUT</td>
</tr>
<tr>
<td>J6</td>
<td>2 to 3</td>
<td>M2-BTL</td>
<td>J12</td>
<td>OUT</td>
<td>INC/D DIFF INPUT</td>
</tr>
<tr>
<td>J22</td>
<td>IN</td>
<td>OUTA CAP SHUNT</td>
<td>J4</td>
<td>1 to 2</td>
<td>INA/B SE INPUT</td>
</tr>
<tr>
<td>J23</td>
<td>IN</td>
<td>OUTB CAP SHUNT</td>
<td>J19</td>
<td>1 to 2</td>
<td>INC/D SE INPUT</td>
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</tbody>
</table>

**Features & Benefits**

- **High-Resolution**
  Deliver audio as it was recorded all the way to the speaker. The TPA32xx family supports hi-res audio.
- **High-Bandwidth**
  The TPA32xx family of devices support up to 100 kHz audio bandwidth.
- **High-Power**
  Devices with 35 W to 650 W of output power that deliver large sound in a compact size.
- **Low-Distortion**
  A new closed-loop design enables ultra-low THD across all frequencies.
- **Efficient Design**
  Best power efficiency and idle losses enable low power consumption and smaller heat sink.
- **Easy to use**
  Simplify PCB design with fewer external components, integrated protection, and scalable power options.
Po – Output Power – W
THD+N – Total Harmonic Distortion + Noise – %

0.001 0.01 0.1 1 10 10m 100m 1

TA = 75
q
c

Jumper Default Comment Jumper Default Comment
J29 IN PVDD to 15V BUCK
J24 IN OUTC CAP SHUNT

J31 IN 15V BUCK to 12V TERM
J25 IN OUTD CAP SHUNT

J32 IN 12V LDO to 12V TERM
J26 2 to 3 INC SELECT

J33 IN 3.3V LDO to 3.3V TERM
J27 2 to 3 IND SELECT

J21 OUT CSTART SE
J7 OUT PBTL SELECT INC

J16 3 to 4 MASTER MODE
J8 OUT PBTL SELECT IND

J5 2 to 3 M1-BTL
J10 OUT INA/B DIFF INPUT

J6 2 to 3 M2-BTL
J12 OUT INC/D DIFF INPUT

J22 IN OUTA CAP SHUNT
J4 1 to 2 INA/B SE INPUT

J23 IN OUTB CAP SHUNT
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ON ON OTW, OTE, UVP , OLP
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THD+N vs Output Power – 4Ω, BTL, 1kHz

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<td>315</td>
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Class-D Amplifier

4-Channels—single-ended (SE)

2-Channels—bridge-tied load (BTL)

1-Channel—parallel bridge tied load (PBTL)

Class-D Amplifier

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