

### 12W Stereo Class-D Audio Amplifier with Synchronous Boost, SSM, and NCPL

The PAM8965 is a high-efficiency, Class-D, stereo, audio power amplifier with an integrated synchronous boost converter.

The integrated current-mode boost converter provides regulated power to this feature-laden device. These features include: Spread Spectrum Modulation (SSM) for EMI suppression (audio and boost), Non-Clip Power Limit (NCPL), directly coupled outputs to speakers, and thermal foldback.

Protection features include: VBAT undervoltage and overvoltage protection, PVDD overvoltage protection, short-circuit protection on all audio outputs, cycle-by-cycle current limit on boost converter, thermal shutdown of the entire system, DC input signal detection for speakers, and an FLT pin that provides a fault flag.

The PAM8965 is available in the W-QFN5050-40 package.



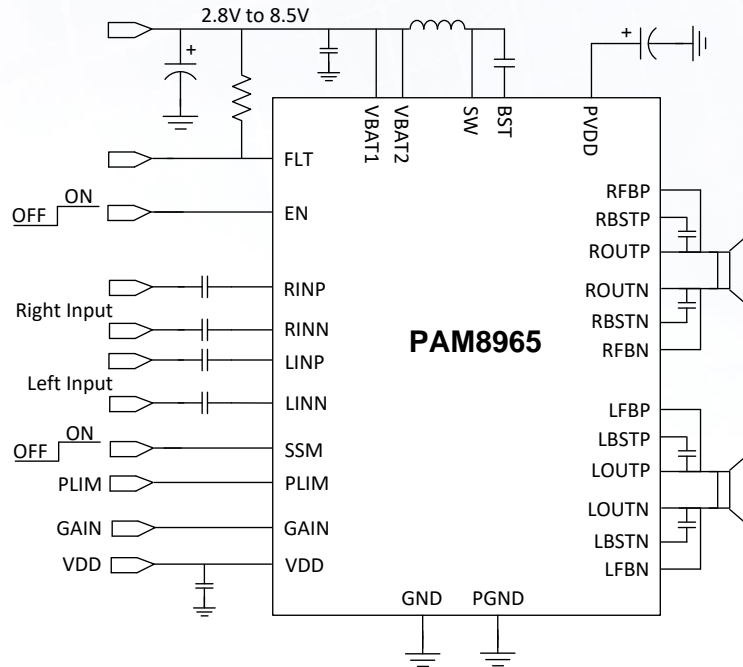
#### The Diodes Advantage

- Wide input supply range from 2.8V to 8.5V**  
 Supports 1SxP or 2SxP Li-ion battery applications as well as applications with battery and adapter in parallel
- High-efficiency boost converter delivers high system efficiency of 92%**  
 Greatly extended battery run-time
- Exceptional audio fidelity**
  - THD+N = 0.035% at 5W stereo output power
  - SNR = 100dB
  - 50 $\mu$ V Output Integrated Noise (A-weighted) at Gain = 20dB
  - No pop noise at power on/off, or enable/disable
- Multiple speaker protection features**
  - PLIM pin sets max NCPL output power-match speaker capability
  - Linear NCPL control minimizes distortion
  - DC signal audio input detection disables audio output
  - Fault Flag for safe system control
- External audio feedback connection**  
 Incorporates bondwires and PCB traces within the feedback loop for improved audio performance

#### Applications

- Bluetooth/wireless speakers
- Gaming machines
- Boom boxes
- Portable electronics
- TV/monitors
- Sound bars
- Multimedia speaker systems

### Typical Application Circuit



### Product Portfolio

Product	Description	Vin (V)	Iq (mA)	Efficiency (%)	Gain (dB)	SNR (dB)	PSRR (dB)	Package
<a href="#">PAM8006A</a>	15Wx2 Audio Amplifier with PL	8 - 18	16.5	90	32	90	-65	QFN5050-32
<a href="#">PAM8320</a>	20W Mono Audio Amplifier	4.5 - 15	15	95	20	95	-60	SO-16EP
<a href="#">PAM8945</a>	4.0W Mono Class-G Audio Amplifier	2.8 – 5.2	4	86	20	95	-70	W-QFN2030-12
<a href="#">PAM8965</a>	12W Stereo Class-D Audio Amplifier with Synchronous Boost, SSM, AND NCPL	2.8 – 8.5	10	92	26	100	-67	W-QFN5050-40

### Ordering Information

Part Number	Compliance	Package Code	Packaging	Moisture Sensitivity	13" Tape and Reel	
					Quantity	Part Number Suffix
<a href="#">PAM8965ZLA40-13</a>	Standard	ZLA40	W-QFN5050-40 (Type US)	MSL-3	3000/Tape & Reel	-13