NXP DSP-based single-chip radio tuner ICs TEF665x

High-performance AM/FM tuner with software-defined radio signal processing

These advanced radio-tuner ICs offer highest performance levels at lowest system costs and, when used in combination with a coprocessor, support HD Radio and DRM.

KEY FEATURES

▶ Alignment-free digital receiver with tuner and software-defined radio processing
▶ Full band coverage of AM (LW, MW, SW) and FM (65 to 108 MHz)
▶ Advanced RDS and RBDS demodulation and decoding
▶ Support of HD Radio and DRM with external digital radio coprocessor (e.g. SAF360x)
▶ Blending function for HD Radio reception
▶ AM and FM noise blanking, signal quality detection, and weak signal processing
▶ MPX output supporting DARC demodulator
▶ One stereo I²S input, one stereo I²S output
▶ Two mono audio DACs
▶ Configurable GPIO pins for RDS, quality status interrupt, and generic I²C-controlled I/O
▶ Single 3.3 V supply voltage
▶ Qualified in accordance with AEC-Q100

APPLICATIONS

▶ Mainstream automotive applications that support analog AM/FM, HD Radio, and DRM reception
▶ Aftermarket platforms for mainstream car radios
▶ High-end consumer audio systems

The TEF6657 and TEF6659 are NXP's latest generation of DSP-based single-chip radio tuner ICs with software-defined radio signal processing. As successors to the industry-proven TEF661x series, they offer improved performance and a broader feature set at lower system costs.

Enhanced handling of weak signals and improved PACS or FM multipath enhancement are just a few of the features that take performance to a new level.

General Description

Both devices provide audio in analog and digital format. When combined with an NXP coprocessor, such as the SAF356x or SAF360x, these devices also support the digital radio standards HD radio and Digital Radio Mondiale (DRM). Both devices are available in HVQFN packages that minimize PCB real estate and optimize design cost.

Selection guide

Features	TEF6657	TEF6659
Digital-to-analog converters (DACs)	2	2
Audio I²S output (can be disabled or enabled)	√	√
Radio Bands		
▸ FM	√	
▸ AM: LW-MW	√	
▸ AM: SW	√	
HD Radio and DRM support	-	√
Standard radio features		
▸ RDS demodulator and decoder	√	
▸ FM PACS	√	
▸ Softmute	√	
▸ HighCut	√	
▸ Stereo blend	√	
Advanced radio features		
▸ EMS (Enhanced Multipath Suppression)	√	
▸ AM & FM IF noise blanking	√	
Package	HVQFN32	