

Voice Processors

VOICE PROCESSING



VOICE/DATA

Part #	ZL38002	ZL38004	ZL38005
Description	Digital echo canceller for hands-free communication	Voice processor with wideband Codecs & audio dual band DACs	Voice processor with narrowband dual Codecs
CODECs (Channels)		2	2
ADC Sampling (KHz)		8/16	8
DAC Sampling (KHz)		8/16/44.1/48	8
Interfaces	ST.BUS/GCI/SSI	ST.BUS/GCI/I ² S/SSI/SPI/UART	ST.BUS/GCI/I ² S/SSI/SPI/UART
GPIOs		11	8
Power Dissipation (mW)	66	50	50
Core Voltage (V)	3.3	1.2	1.2
I/O Tolerance	5	3.3	3.3
Packaging	SSOP, TQFP	LQFP, LFBGA	LQFP, LFBGA

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Firmware		ZLS38500	ZLS38501	ZLS38502	ZLS38503	ZLS38512	ZLS38002
Load		loaded through microport or flash	loaded through microport or flash	loaded through microport or flash	loaded through microport or flash	loaded through microport	On chip ROM
Description		Advanced firmware for Hands Free Carkits & Personal Navigational Devices	Firmware for generic hands free applications	Advanced firmware for advanced hands free speakerphone	Firmware for telephony hands free applications featuring VM & P	Firmware for telephony hands free applications featuring AEC and LEC	Firmware for hands free applications featuring AEC with NR
Acoustic Echo Cancellation (AEC)	1 channel; 112 ms					•	•
Line Echo Cancellation (LEC)	1 channel; 16 ms					•	
AEC & LEC	1 channel each; Up to 256 ms shared	•	•	•	•		
Noise Reduction (NR)	Up to 12 dB						•
	Up to 20 dB		•				
	Up to 30 dB with psycho acoustic	•		•			
Full Duplex		•	•	•		•	•
Clipping Compensation		•					
Programmable Side Tone			•	•			
Gains	User gain + system tuning gains					•	•
	0 to 30 dB programmable on ADC Input	•	•	•			
Convergence During DT & ERL	Up to 6 dB					•	•
	Up to 10 dB	•	•	•			
Howling Prevention		•	•	•	•	•	•
Equalizer	16 band	•		•			
	22 band			•			
Telephony Signaling Generation				•	•		
Non-Linear Echo Control		•	•	•			
G.169 Automatic Level Control (Mic Path)		•		•			
Audio Bypass		•		•			
Voice Recording (messaging)					•		
Voice Playback (prompting)					•		
DTMF Tone Detection					•		
Caller ID					•		
Call Progress Tone Detection					•		



Firmware Selection		Hardware Selection	
ZLS38002	On-chip ROM. Firmware for Hands Free applications featuring AEC with NR	ZL38002	Voice Processor
ZLS38512	Loaded via microport. Firmware for Hands Free telephony applications featuring AEC & LEC	ZL38002	Voice Processor
ZLS38500	Loaded via microport or flash. Advanced firmware for Hands Free carkits & Personal Navigation Devices featuring AEC, LEC, NR and clipping compensation	ZL38004	Voice Processor with wide band dual CODECs
ZLS38501	Loaded via microport or flash. Firmware for generic Hands Free applications, featuring AEC, LEC and NR	ZL38005	Voice Processor with narrow band dual CODECs
ZLS38502	Loaded via microport or flash. Advanced firmware for Hands Free speakerphone featuring AEC, LEC, NR, tone generation & wide band operation	ZL38004	Voice Processor with wide band dual CODECs
ZLS38503	Loaded via microport or flash. Firmware for telephony Hands Free applications featuring voice messaging, voice prompting and telephony signaling	ZL38004	Voice Processor with wide band CODECs and audio dual band DACs

AEC Acoustic Echo Cancellation
 LEC Line Echo Cancellation
 NR Noise Reduction



Pre-defined Kit ZLK385003

Firmware		Hardware	
ZLS38502	Loaded via microport or flash. Advanced firmware for generic Hands Free desktop telephones featuring AEC, LEC, NR, tone generation & wide band operation	ZL38004	Voice Processor with wide band dual CODECs
ZLS38503	Loaded via microport or flash. Firmware for telephony Hands Free applications featuring voice messaging, voice prompting and telephony signaling	ZL38004	Voice Processor with wide band dual CODECs



Part #	Product Description			Hands Free Applications					
	Evaluation Boards	Firmware	Description	Conference Phone	IP / Video Phone	PSTN Phone	Car Kits	Personal Navigational Devices	Home Automation
ZL38002	MEB38002	ROM	Acoustic Echo Canceller				•	•	
		ZLS38512	AEC & LEC	•	•	•			•
ZL38005	ZL38004 (fully featured) ZLE38450 (Mini board) ZLE38000 (Diagnostic tool)	ZLS38501	Voice Processor with narrow band dual CODECs	•	•	•	•	•	•
ZL38004	ZL38004 (fully featured) ZLE38450 (Mini board) ZLE38000 (Diagnostic tool)	ZLS38500	Voice Processor with wide band CODECs & audio dual band DACs				•	•	
		ZLS38502		•	•	•			•
		ZLS38503		•	•	•			•

AEC Acoustic Echo Cancellation
 LEC Line Echo Cancellation
 NR Noise Reduction