



# STw5093

## 2.7V SUPPLY 14-BIT LINEAR CODEC WITH HIGH-PERFORMANCE AUDIO FRONT-END

PRELIMINARY DATA

### FEATURES:

#### Complete CODEC and FILTER system including:

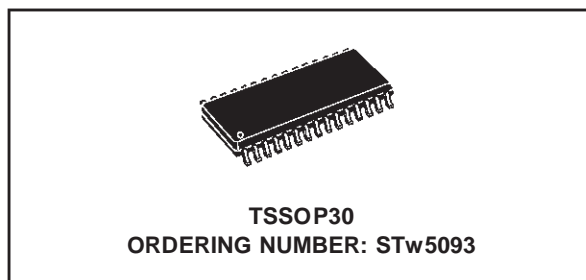
- 14 BIT LINEAR ANALOG TO DIGITAL AND DIGITAL TO ANALOG CONVERTERS.
- 8 BIT COMPANDED ANALOG TO DIGITAL AND DIGITAL TO ANALOG CONVERTERS A-LAW OR  $\mu$ -LAW.
- TRANSMIT AND RECEIVE BAND-PASS FILTERS
- ACTIVE ANTIALIAS NOISE FILTER.

#### Phone Features:

- ONE MICROPHONE BIASING OUTPUT
- REMOTE CONTROL (REMOCON) FUNCTION
- THREE SWITCHABLE MICROPHONE AMPLIFIER INPUTS. GAIN PROGRAMMABLE: 0 . . 42.5 dB AMPLIFIER, 1.5 dB STEPS (+ MUTE).
- EARPIECE AUDIO OUTPUT. ATTENUATION PROGRAMMABLE: 0 . . 30 dB, 2 dB STEPS.
- EXTERNAL AUDIO OUTPUT. ATTENUATION PROGRAMMABLE: 0 . . 30 dB, 2 dB STEPS.
- DRIVING CAPABILITY: 140mW OVER  $\Omega$
- TRANSIENT SUPPRESSION SIGNAL DURING POWER ON AND DURING AMPLIFIER SWITCHING.
- INTERNAL PROGRAMMABLE SIDETONE CIRCUIT. ATTENUATION PROGRAMMABLE: 16 dB RANGE, 1 dB STEP.
- INTERNAL RING, TONE AND DTMF GENERATOR, SINEWAVE OR SQUAREWAVE WAVEFORMS. ATTENUATION PROGRAMMABLE: 27dB RANGE, 3dB STEP. THREE FREQUENCY RANGES:
  - a) 3.9Hz . . . . 996Hz, 3.9Hz STEP
  - b) 7.8Hz . . . . 1992Hz, 7.8Hz STEP
  - c) 15.6Hz . . . . 3984Hz, 15.6Hz STEP
- PROGRAMMABLE PULSE WIDTH MODULATED BUZZER DRIVER OUTPUT.

#### General Features:

- SINGLE 2.7V to 3.3V SUPPLY
- EXTENDED TEMPERATURE RANGE OPERATION (\*) -40°C to 85°C.
- 1.0 $\mu$ W STANDBY POWER (TYP. AT 2.7V).
- 13mW OPERATING POWER (TYP. AT 2.7V).



- 1.8V TO 3.3V CMOS COMPATIBLE DIGITAL INTERFACES.
- PROGRAMMABLE PCM AND CONTROL INTERFACE MICROWIRE COMPATIBLE.

#### APPLICATIONS:

- GSM/DCS1800/PCS1900/JDC DIGITAL CELLULAR TELEPHONES.
- CDMA CELLULAR TELEPHONES.
- DECT/CT2/PHS DIGITAL CORDLESS TELEPHONES.
- BATTERY OPERATED AUDIO FRONT-ENDS FOR DSPs.

(\*) Functionality guaranteed in the range - 40°C to +85°C; Timing and Electrical Specifications are guaranteed in the range - 30°C to +85°C.

#### GENERAL DESCRIPTION

STw5093 is a high performance low power combined PCM CODEC/FILTER device tailored to implement the audio front-end functions required by low voltage/low power consumption digital cellular terminals. STw5093 offers a number of programmable functions accessed through a serial control channel that easily interfaces to any classical microcontroller. The PCM interface supports both non-delayed (normal and reverse) and delayed frame synchronization modes.

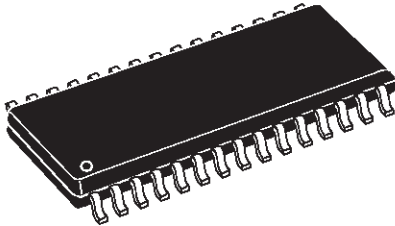
STw5093 can be configured either as a 14-bit linear or as an 8-bit companded PCM coder.

Additionally to the CODEC/FILTER function, STw5093 includes a Tone/Ring/DTMF generator, a sidetone generation, and a buzzer driver output. STw5093 fulfills and exceeds D3/D4 and CCITT recommendations and ETSI requirements for digital handset terminals.

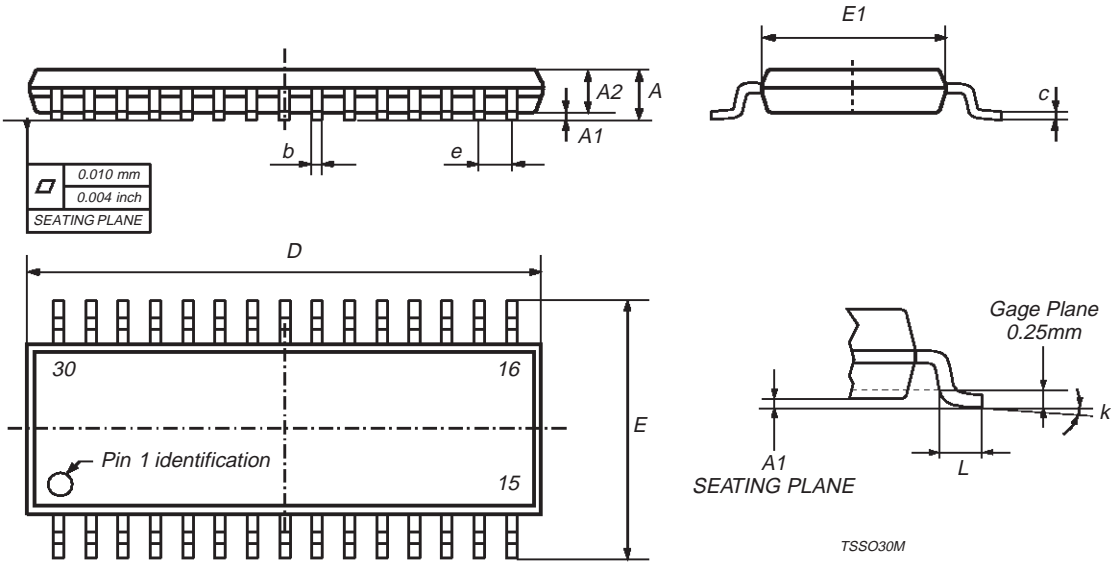
Main applications include digital mobile phones, as cellular and cordless phones, or any battery powered equipment that requires audio codecs operating at low single supply voltages.

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.10			0.043
A1	0.05		0.15	0.002		0.006
A2	0.85	0.90	0.95	0.033	0.035	0.037
b	0.17		0.27	0.007		0.011
c	0.09		0.20	0.004		0.008
D	7.70	7.80	7.90	0.303	0.307	0.311
E		6.40			0.252	
e		0.50			0.0197	
E1	4.30	4.40	4.50	0.169	0.173	0.177
L	0.50	0.60	0.70	0.020	0.024	0.028
K	0° (min.) 8° (max.)					

OUTLINE AND  
MECHANICAL DATA



TSSOP30 (Thin Shrink)



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