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STA3005

Dual-IF AM/FM digital radio receiver

Data Brief

Feature summary

- DIGITAL DIVERSITY SYSTEM
- DIGITAL DIRECTIONAL ANTENNA SYSTEM
- TWO 5-BIT $\Sigma\Delta$ INTERMEDIATE FREQUENCY ADCs
- INTERMEDIATE FREQUENCY PROCESSOR
- AUDIO FILTER PROCESSOR
- TWO 16-BIT STEREO AUDIO ADCs WITH INPUT AUDIO MULTIPLEXER
- TWO 24-BIT STEREO AUDIO DACs WITH 5-BIT ANALOG VOLUME CONTROL
- RADIO DATA SYSTEM (RDS) PROCESSOR
- DSP-EMERALD SUBSYSTEM

    24-bit, fixed point, 116MIPS DSP-EMERALD core

    16k x 32bit (64kByte) program ROM (PROM)

    6k x 32bit (64kByte) program RAM (PRAM)

    6k x 24bit (18kByte) data XRAM

    6k x 24bit (18kByte) data YRAM
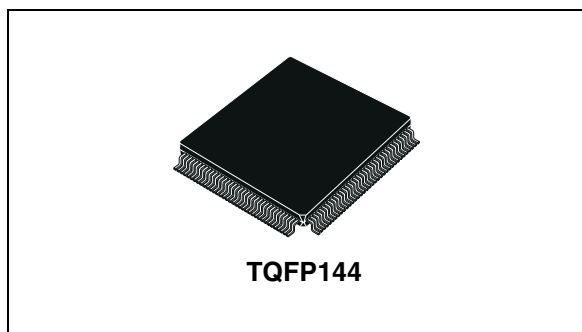
- ARM7 SUBSYSTEM

    32-bit, fixed point, 58MIPS ARM7TDMI core

    14kByte data RAM

    38kByte program RAM (PRAM)

    26kByte program ROM

    JTAG/ETM7 real-time debugging

TQFP144

Internal Peripheries:

- Direct Memory Access (DMA)
- Asynchronous Serial Interface UART (SCI)
- Synchronous Serial Interfaces BSPI (SPI2)
- 32 multifunctional bidirectional I/O lines (GPIO)
- I^2C interface
- Watch Dog (WDOG)
- Wake-up Interrupt Management Unit (WUIMU)
- Timer (EFT)

- DIGITAL INPUT INTERFACES (SAI1-4, SPDIF)
- DIGITAL OUTPUT INTERFACES (IBOC, DRM, SAI1-4)
- ON-BOARD XTAL OSCILLATOR AND PLL
- CLOCK REFERENCE GENERATION FOR FRONT_END IC
- EXTERNAL CONTROL INTERFACES (JTAG/ETM7, I^2C, SPI1, SPI2, SCI, GPIO)

Order codes

Part number	Op. Temp. range, °C	Package	Packing
STA3005	-40 to +85	TQFP144	Tube

www.st.com

Description

STA3005 is a high-performance, fully programmable advanced radio receiver, designed to target AM/FM/HD radio, speech and audio applications.

It is a dual-IF radio processor, with dynamically variable channel filtering; it also features both digital diversity (for dual-tuner systems) and digital directional antenna (single-tuner multiple antennas) for outstanding reception capability.

STA3005 is more than a radio-receiver; it features advanced audio processing, running on an EMERALD DSP for maximum flexibility and efficiency; sample rate converters, high-performance audio ADCs, DACs and multiple industry-standard digital I/O-interfaces make STA3005 the right answer to high-performance audio-processing platforms.
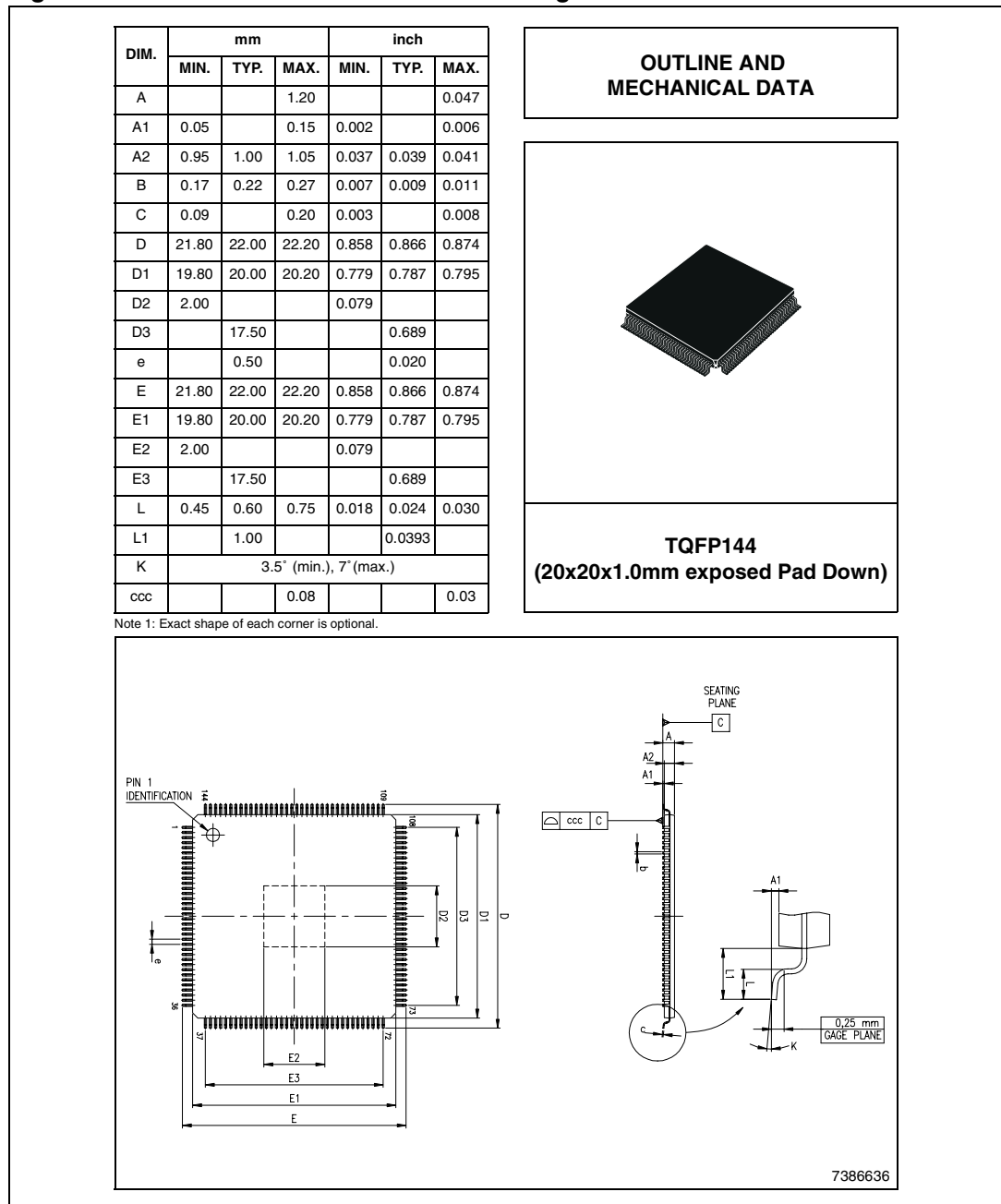
Robust and customizable applications can be easily achieved thanks to the integrated ARM7 microcontroller, which allows controlling and monitoring all the internal peripherals.

Package informations

In order to meet environmental requirements, ST offers this device in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark.

ECOPACK specifications are available at: www.st.com.

Figure 1.   TQFP144 Mechanical Data & Package Dimensions

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.20			0.047
A1	0.05		0.15	0.002		0.006
A2	0.95	1.00	1.05	0.037	0.039	0.041
B	0.17	0.22	0.27	0.007	0.009	0.011
C	0.09		0.20	0.003		0.008
D	21.80	22.00	22.20	0.858	0.866	0.874
D1	19.80	20.00	20.20	0.779	0.787	0.795
D2	2.00			0.079		
D3		17.50			0.689	
e		0.50			0.020	
E	21.80	22.00	22.20	0.858	0.866	0.874
E1	19.80	20.00	20.20	0.779	0.787	0.795
E2	2.00			0.079		
E3		17.50			0.689	
L	0.45	0.60	0.75	0.018	0.024	0.030
L1		1.00			0.0393	
K	3.5˚ (min.), 7˚ (max.)					
ccc			0.08			0.03

OUTLINE AND MECHANICAL DATA

**TQFP144
(20x20x1.0mm exposed Pad Down)**

Note 1: Exact shape of each corner is optional.

7386636

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
28-Jun-2006	1	Initial release.

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