MIL-STD-1553B

ASP55 Remote Terminal RT ASIC 1553B

The ASP55 is a cost e ective MIL-STD-1553B Remote Terminal ASIC sub-system developed in a radiation tolerant technology quali ed for Space applications.

The ASP55 is able to manage the MIL-STD-1553B dialogue in remote terminal mode only and has a dual bus capability.

This product shall be used in addition with the ASP54D MIL-STD-1553B Dual Transceiver or two MIL-STD-1553B Single Transceivers in order to manage dual redundant MIL-STD-1553B applications.

It can be connected, on one hand, to a dual redundant MIL-STD-1553B bus with an external isolation transformer for each bus and, on the other hand, to the user thanks to an interface composed of a 16-bit data bus, a 12-bit address bus and a control bus. Sub-system easy integration is achieved thanks to the opened user interface and optimised architecture. It is possible to connect the ASP55 to register or memory components without additional processing unit. Dedicated services are also provided in order to download the user application from protocol management tasks: words validity is automatically checked and only valid messages are transmitted to the application. The ASP55 low power consumption and radiationtolerance, better than 100 kRads (functionnal), are especially relevant for Space applications.

Key Features

- Dual MIL-STD-1553B bus capability
- Fully compliant to MIL-STD-1553B standard
- 0,5 µm CMOS Radiation Tolerant technology
- Remote Terminal designed for Space applications requiring radiation tolerant components
- Remote Terminal validated according to Validation Test Plan SAE AS 4111
- Pin-to-pin compatible with Airbus DS former Remote Terminal ASIC ASP20
- Flat-pack package

Main application fields

- Any equipment designed for severe environnement, requiring radiation tolerant components

Budgets

• Packaging	MQFP 84 pins
• Size	30 x 30 mm^2
• Mass	9 g
• Power	250 mW max

Interfaces

• Voltage in Full	5 V
• Sub-system	Bus Adress/Data
• Bus	1553 dual transceiver (eg ADT822)
• Clock	10 MHz
• 1553 Adress	6 pins (including 1 for parity)

Environments / Reliability

• Temperature	-55 ℃ to +125 ℃
• Radiation	100 krad total dose SEU < 10-4 per day (LET < 30 MeV) Latchup free (LET level > 80 MeV)
• Failure occurrence	< 50 fit @ 50 ℃

AIRBUS
DEFENSE & SPACE

Main functions
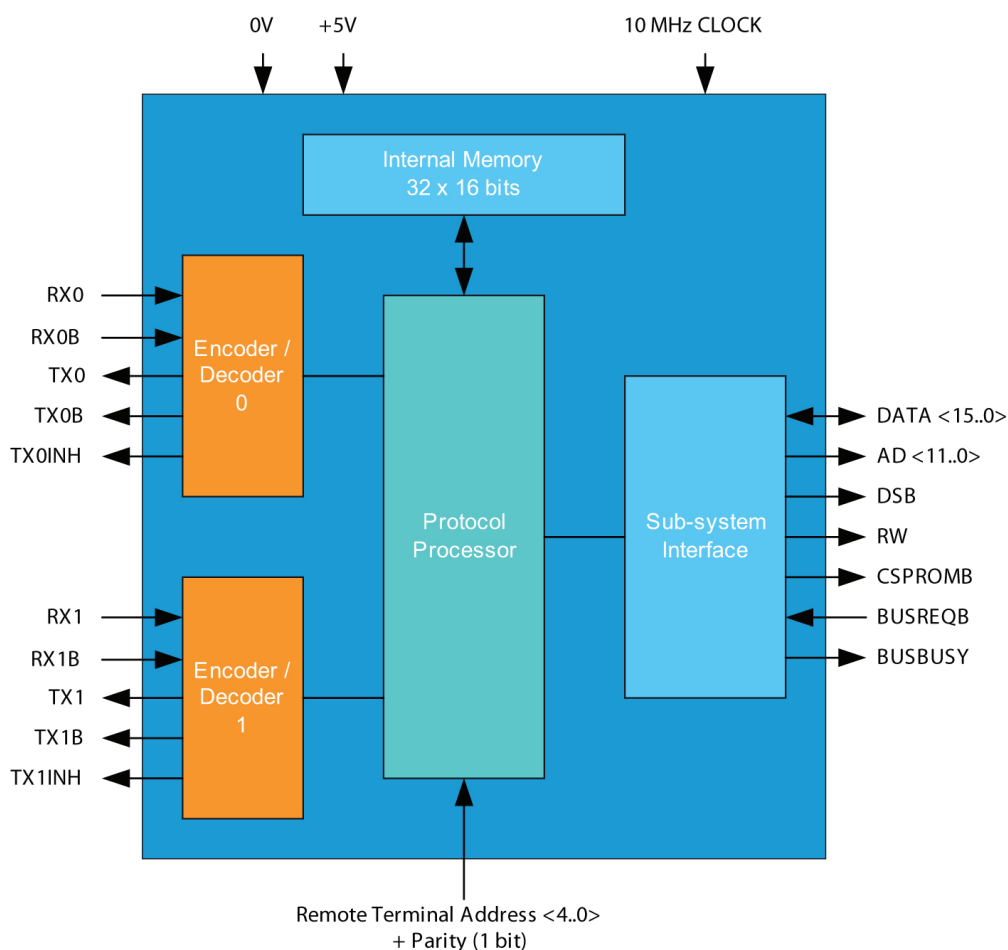
- Words validity check
- Transmission of only valid messages to the application
- Management of the status word and of the BIT word
- Programmable no response time out period
- Inhibition of driver externally provided
- Management of the user interface

- Management of a configuration PROM which characterises the terminal for each sub-adress:
  - Legality / illegalit
  - Word count associated
  - Selection of indirect addressing
  - Flip / flop buffering
  - User type (register, CAN, memory)

Technical features

Gate array technologie (12000 gates)	MG2RT 0.5 µm From ATMEL
Operating frequency	10 MHz
Supply voltage	5 V ± 10%
power consumption	250 mW max.
Temperature range	-55 ˚C to +125 ˚C
Radiation tolerance	• 30 kRads (parametric)
	• 100 kRads (functional)
	• latch-up immune
Packaging	• 84 pins Flat Pack
	• 30x30mn MQFP
Mass	9 g