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1 PRODUCT NAME
Space Qualified High Speed Reed Solomon Encoder t = 16

2 PART NUMBER
HF52

3 PRODUCT TYPE
Hardware

4 CCSDS RECOMMENDATION(S) OR CCSDS AGENCY STANDARD(S) TO WHICH PRODUCT CONFORMS
Telemetry Channel Coding
CCSDS 101.0-B-4

5 APPLICABLE DOMAIN:
On-Board Data Systems

6 FUNCTIONAL DESCRIPTION OF PRODUCT IN TERMS OF RELEVANT CCSDS RECOMMENDATION(S)
The CCSDS Reed Solomon encoder application specific integrated circuit (ASIC) accepts 8-bit telemetry channel data messages as input then outputs the same message(s) with RS error correcting code (ECC) parity symbols appended. Each input message can consist of from 1 to 223 message symbols. The encoder supports message interleave depths of I=1,2,...,8, and bypass operation.

7 PERFORMANCE CHARACTERISTICS
- General
  * Special performance characteristics
    - (N, N-32) Reed Solomon Encoder ASIC
    - 200 Mbit/sec maximum sustained output data rate (25 MHz clock)
    - Selectable interleave depth (I=1-8)
    - Encoding bypass mode
    - TTL level input compatible

8 PHYSICAL CHARACTERISTICS (HARDWARE)
Physical Characteristics
* Size
  - Package Size: 1.15 inches on a side, 0.13 inches thick
  - Lead Pitch: 0.050 inches typical.
*Weight
- <0.1 lbs

*Temperature Range
- Operating: -55° to +125°C
- Storage: -65° to +150°C

*Power Requirements
- +5.0 Vdc ± 10%
- PD ≤ 70mW/MHz with 50pf load on all outputs
- Maximum operating frequency is 25 MHz

*Radiation Hardened
- Single Event Upset (SEU) Linear Energy Transfer (LET) threshold:
  - SEU LET_{th}: 38 MeV-cm/mg
  - SEU LET_{0.1}: 58 MeV-cm/mg
- Single EventLatchup Threshold
  - SEU LET_{th}: ≥ 120 MeV-cm/mg
- Total dose up to 10^6 rads(Si)

Available in:
- QML-Q
- QML-V
- Engineering Units

Other Characteristics
- 84 pin CQFP package
- 1.2μ CMOS epitaxial technology

9 PROPRIETARY INTERFACES/SYSTEM ENVIRONMENTS
None

10 ILLUSTRATIONS
None

11 HERITAGE
- Previous uses
  - Rossi X-Ray Timing Explorer (RXTE)
  - Tropical Rainfall Measuring Mission (TRMM)
  - Cobra Brass
  - TERRA
  - EO-1
  - ROCSAT-1
  - Chandra X-Ray Observatory
- Context for previous uses
  - Using CCSDS protocols for telemetry channel coding

12 COMPANY NAME
- Center for Advanced Microelectronics and Biomedical Research

13 POINT OF CONTACT/WEB SITE
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