Harsh Environments Guide

Texas Instruments

- Amplifiers
- Data Converters
- Digital Signal Processors
- Interface
- Microcontrollers
- Power Management

www.ti.com/he

4Q 2009

Overview

Design considerations

The Texas Instruments High Reliability (HiRel) group offers a wide range of semiconductors for use in harsh environments. Many applications need electronics that operate outside the typical industrial operating temperature range and even beyond the standard military temperature range of -55°C to +125°C. These applications have special requirements for qualification and packaging. TI has developed semiconductors to satisfy the needs for quality and reliability in areas that need detailed characterization, operating life tests and special packaging.

Harsh environment applications

- Oil and gas exploration and production
- Undersea cabling
- Industrial
- Medical
- Aerospace

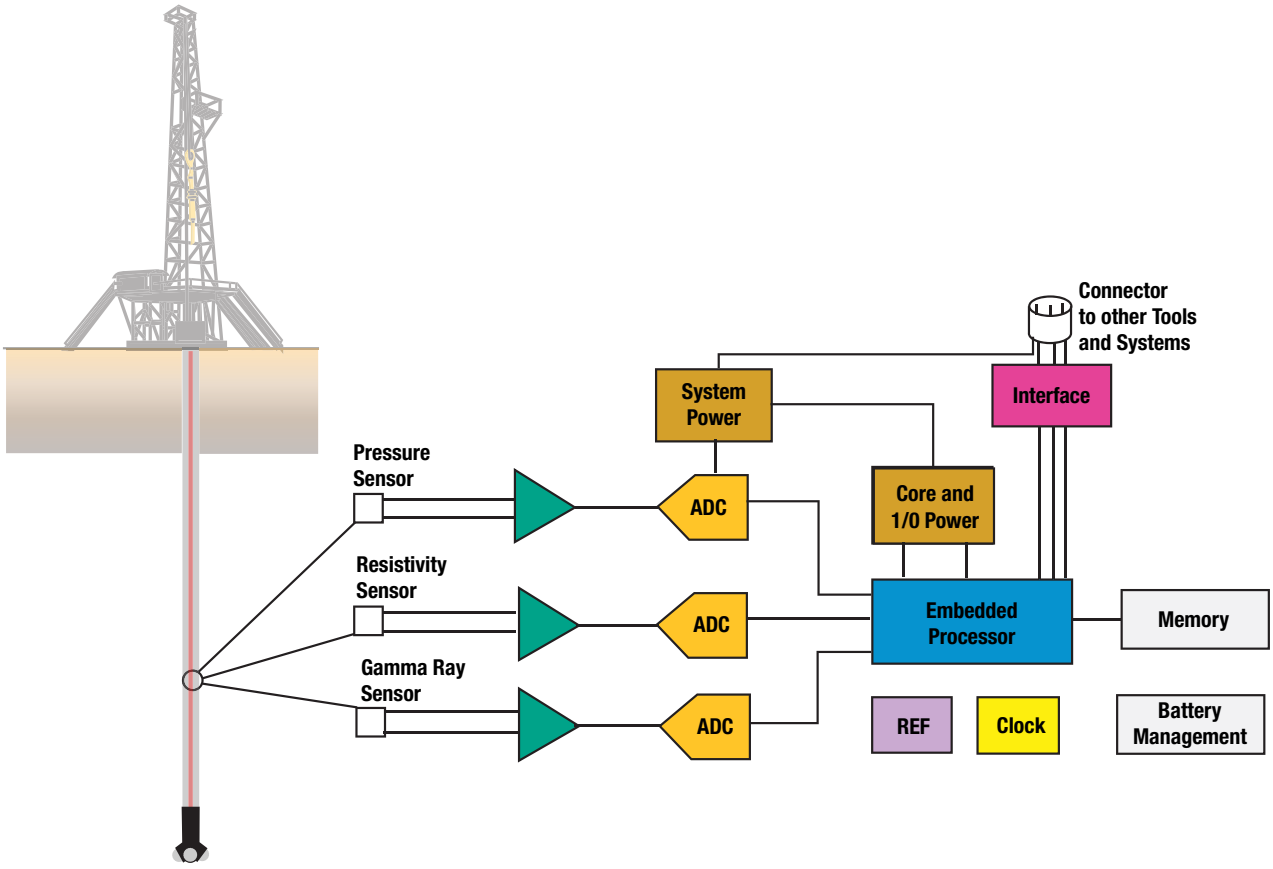
High temperature

Texas Instruments introduced a new line of devices that can withstand operating temperatures from -55°C to +210°C. These High Temperature (HT) offerings provide a solution to the needs of customers requiring extreme temperature operation for a variety of applications. TI HiRel continues to expand these offerings with new parts to provide a complete signal chain solution for customers.

For more information about TI's HiRel and HT products, see www.ti.com/ht.

High temperature offerings

- Standard off-the-shelf parts offering -55°C to +210°C operation
- High temperature characterization +200°C
- +200°C operation for 1,000 hours
- Packaging
  - Ceramic packages
  - Known good die
- Support for long product lifecycles
- Standard HT datasheet
  - High temp data
  - Operating life curve
- Small size and low-power offerings



Product Portfolio

High Temperature Product Portfolio

Part	Description	Package
Amplifiers		
OPA2333-HT	1.8-V Micropower CMOS Operational Amplifier Zero-Drift Series	KGD, 8CFP
OPA211-HT	Low Noise Precision Operational Amplifier	KGD, 8CFP
Analog-to-Digital Converters		
ADS1278-HT	Octal, Simultaneous Sampling, 24-Bit Analog-to-Digital Converters	KGD, 84CQFP
Interface		
SN65HVD233-HT	3.3-V CAN Transceiver	KGD, 8CFP, 8CDIP
SN65HVD11-HT	3.3-V RS-485 Transciever	KGD, 8CFP, 8CDIP
Processors		
SM320F2812-HT	32-Bit Digital Signal Controller with Flash	KGD, 172CQFP
SM470R1B1M-HT	ARM7TDMI Flash Microcontroller	KGD, 84CQFP
Power Management		
TPS62000-HT	High-Efficiency, Step-Down, Low-Power DC-DC Converter	KGD, 10CFP
TPS76901-HT	Single-Output LDO, 100-mA, Adjustable	KGD, 8CFP
REF5025-HT	Low-Noise, Very Low Drift Voltage Reference	KGD, 8CFP
TPS40200-HT	Wide-Input Non-Synchronous Buck DC/DC Controller	KGD, 8CFP

Standard Ceramic HiRel Parts Used in Harsh Environments

Part	Description	Package
Amplifiers		
LM124J	Quad Op Amp	14CDIP
LT1014AMJ	Quad Precision Operational Amplifier	14CDIP
TL074MJB	High-Speed, Low-Noise, JFET-Input Quad Operational Amplifier	14CDIP
TLC2272MJG	Low-Noise Advanced LinCMOS Dual Operational Amplifier	8CDIP
TLE2022MJGB	High-Speed, Low-Power Precision Dual Operational Amplifier	8CDIP
TLV2262MJGB	Low-Voltage, Low-Power Advanced LinCMOS technology based (TM) Dual Op Amp	8CDIP
OPA2335AMJG	0.05-uV/C max, Single-Supply CMOS Operational Amplifier	8CDIP
Analog-to-Digital Converters		
TLV5638MJGB	Low-Power 12-bit Dual DAC	8CDIP
TLC2543MJ	12-Bit, 66 kSPS ADC Serial Out	20CDIP
Power Management		
TLC7705MFKB	Single Power SVS (5V) with Programmable Time Delay	20LCCC
UC1845J	Current-Mode PWM Controller	8CDIP
UC1903J	Quad Supply and Line Monitor	18CDIP
UCC1801J	Low-Power BiCMOS Current-Mode PWM	8CDIP
UCC1806J	Low-Power, Dual-Output, Current-Mode PWM Controller	16CDIP
Processors		
SMJ320C30	Third Generation Digital Signal Processor	KGD, 181CPGA, 196CFP
SMJ320C40	Fourth Generation Digital Signal Processor	KGD, 325CPGA,352CFP
SM320F240HFPM40	16-bit, 5-V Fixed Point DSP with Flash	132 CQFP

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	Internet/Email	support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone

European Free Call	00800-ASK-TEXAS (00800 275 83927)
International	+49 (0) 8161 80 2121
Russian Support	+7 (4) 95 98 10 701

Note: The European Free Call (Toll Free) number is not active in all countries. If you have technical difficulty calling the free call number, please use the international number above.

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Internet	support.ti.com/sc/pic/euro.htm

Printed in U.S.A. by (Texoma Print Services, Durant, OK)
Printed on recycled paper

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