

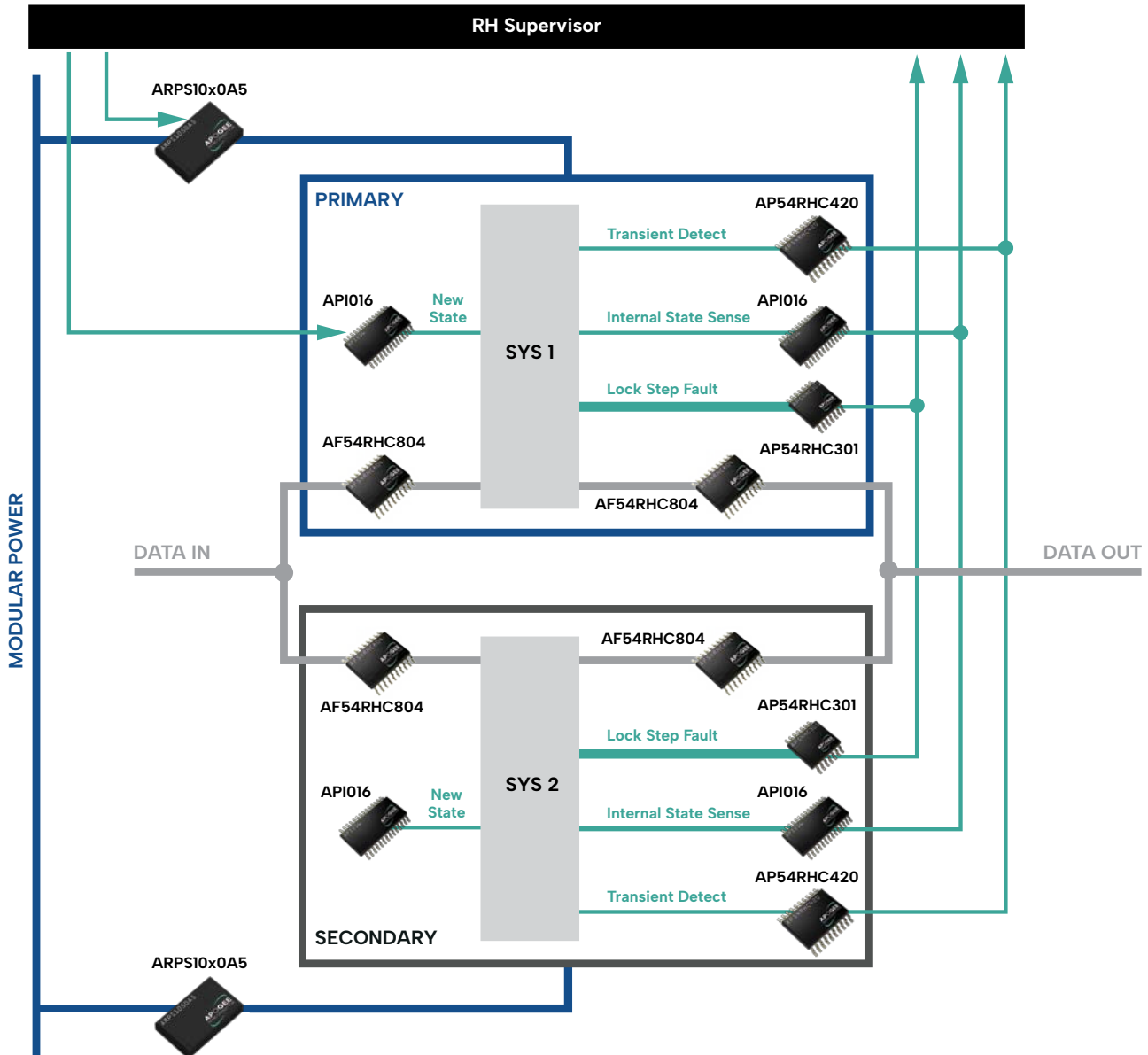


PRODUCT CATALOG | 2026-H2

Technology For The Edge



The Smarter Approach to MISSION CRITICAL RELIABILITY



At Apogee, we redefine the boundaries of innovation in the space and defense markets, delivering radiation-hardened solutions that combine commercial agility with mission-critical reliability

ARPS1020A5/ARPS1050A5

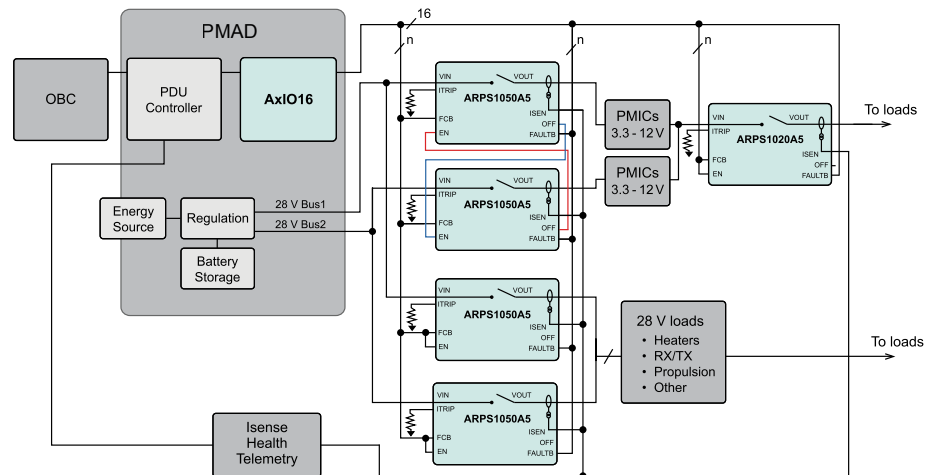
RADIATION-HARDENED SMART POWER SWITCH (EFUSE) FAMILY

NEW PRODUCT RELEASE



APPLICATIONS

- Protected power distribution for spacecraft PDU channels
- In-rush limiting and soft-start sequencing of PMIC rails and 28 V bus loads
- Channel-level fault containment with real-time current telemetry



KEY FEATURES

- 20 V, 8 A, 23 mΩ RDS(on)
- 50 V, 4 A, 57 mΩ RDS(on)
- Industry's smallest Smart Power Switch: 3 mm x 5 mm 24-pin QFN
- True current sharing in paralleled implementation
- Over-temperature protection, short protection, and programmable over-current protection
- Adjustable soft-start time
- Fault reporting and current sense outputs for external telemetry, fault management, and health monitoring
- Guaranteed break-before-make operation
- TID/SEE resilience to 100 krad (Si) /LET = 75 MeV*–cm²/mg

SYSTEM LEVEL BENEFITS

- ARPS1020A5 supports standard 3.3 V, 5 V, and 12 V power rails
- ARPS1050A5 supports 28 V unregulated spacecraft power bus
- Superior SWaP-C
- Extends current capacity for higher power applications
- Higher reliability for the most demanding missions and applications
- Limits in-rush current
- Detect and contain system level faults
- Avoids hot switching
- Radiation-Hardened against Single Event Effects (SEL, SET, and SEFI)



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RelBridge™ | LEO/GEO Family

PART NUMBER	PACKAGE TYPE	DESCRIPTION	TID	SEE
AP54RHC301	TSSOP14	Dual 3-Input Majority Voter	30 krad (Si)	75 MeV-cm ² /mg
AP54RHC288	TSSOP14	Dual Channel Arbiter with Dual Output Enable	30 krad (Si)	80 MeV-cm ² /mg
AF54RHC301	TSSOP14	Dual 3-Input Majority Voter	300 krad (Si)	80 MeV-cm ² /mg
ARPS1020A5	QFN24	Radiation-Hardened 20V, 8 A Smart Power Switch	100 krad (Si)	75 MeV-cm ² /mg
ARPS1050A5	QFN24	Radiation-Hardened 50V, 4 A Smart Power Switch	100 krad (Si)	75 MeV-cm ² /mg

Interface | LEO/GEO Family

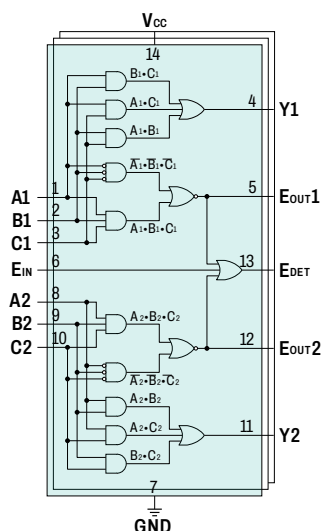
PART NUMBER	PACKAGE TYPE	DESCRIPTION	TID	SEE
APIO16	TSSOP28	16-Channel GPIO Expander	30 krad (Si)	75 MeV-cm ² /mg
AP54RHC504	TSSOP14	5-Channel Level Translator	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC505	TSSOP14	5-Channel Level Translator with Bus Hold	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC506	TSSOP14	5-Channel Transceiver	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC804	TSSOP20	8-Channel Level Translator	30 krad (Si)	75 MeV-cm ² /mg
AFIO16	TSSOP28	16-Channel GPIO Expander	300 krad (Si)	75 MeV-cm ² /mg
AF54RHC504	TSSOP14	5-Channel Level Translator	300 krad (Si)	80 MeV-cm ² /mg
AF54RHC804	TSSOP20	8-Channel Level Translator	300 krad (Si)	80 MeV-cm ² /mg
AF54RHC805	TSSOP20	8-Channel Level Translator with Bus Hold	300 krad (Si)	80 MeV-cm ² /mg

Logic | LEO/GEO Family

PART NUMBER	PACKAGE TYPE	DESCRIPTION	TID	SEE
AP54RHC00	TSSOP14	Quad 2-Input NAND	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC02	TSSOP14	Quad 2-Input NOR	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC04	TSSOP14	Hex Inverter	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC08	TSSOP14	Quad 2-Input AND	30 krad (Si)	75 MeV-cm ² /mg
AP54RHC32	TSSOP14	Quad 2-Input OR	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC164	TSSOP14	8-Bit Shift Register (Serial In Parallel Out)	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC5942	TSSOP14	Latched 8-Bit Serial-In Parallel-Out Shift Register	30 krad (Si)	75 MeV-cm ² /mg
AP54RHC705	TSSOP14	Dual D Flip-Flop with Async. Clear	30 krad (Si)	80 MeV-cm ² /mg
AP54RHC420	TSSOP20	Schmitt Input Dual Quad-SR Latch	30 krad (Si)	75 MeV-cm ² /mg
AF54RHC04	TSSOP14	Hex Inverter	300 krad (Si)	80 MeV-cm ² /mg
AF54RHC14	TSSOP14	Hex Schmitt Inverter	300 krad (Si)	80 MeV-cm ² /mg
AF54RHC132	TSSOP14	Quad Schmitt 2-Input NAND	300 krad (Si)	80 MeV-cm ² /mg
AF54RHC164	TSSOP14	8-Bit Shift Register (Serial In Parallel Out)	300 krad (Si)	80 MeV-cm ² /mg
AF54RHC244	TSSOP14	8-Channel Non-Inverting Buffer with Dual Output Enable	300 krad (Si)	80 MeV-cm ² /mg

AP54RHC301

TRIPLE MAJORITY VOTER



KEY FEATURES

- Triple Majority Analog Voting Architecture with error detection
- Built-in pin to pin triple redundancy
- Individual and Group Error Flags
- Cold-sparing capability with no static power penalty
- 1.65 V to 5.5 V operation
- Internal power-on reset (POR)
- TID resilience of 30 krad (Si) and 300 krad (Si)
- SEL/SEU/SEFI/SET immune up to LET of 80 MeV-cm²/mg

SYSTEM LEVEL BENEFITS

- Enables fault management of critical control/telemetry signals
- Fault detection and containment
- Simplifies cold sparing implementations
- Wide voltage range with down level translation capability
- Ensures reliable power up and power down responses during hot plug and cold sparing operations
- Suitable solutions for both LEO and GEO missions
- Radiation-Hardened against Single Event Effect (SEE)

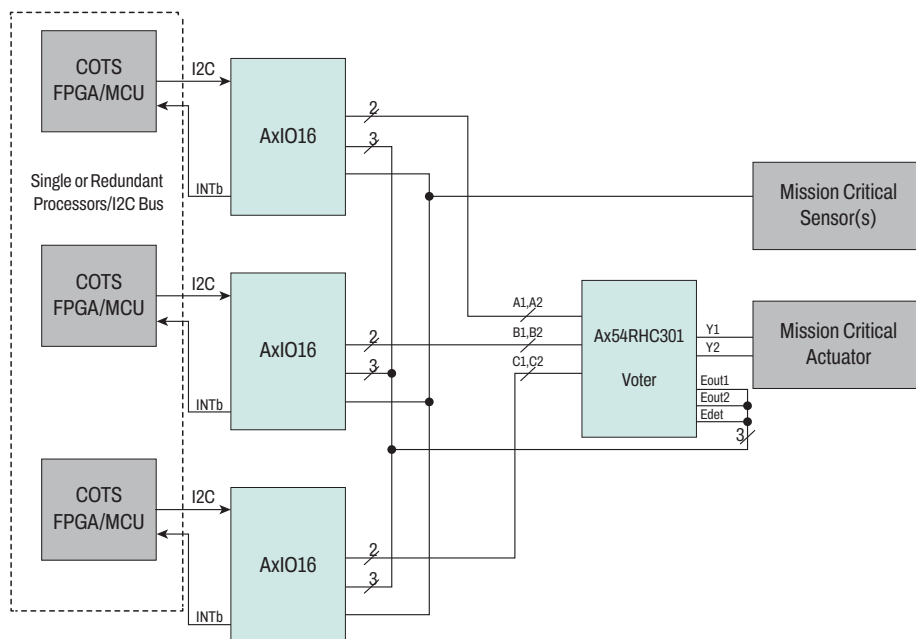
APIO16

RADIATION HARDENED LEVEL TRANSLATING I²C, SMBUS, SPI I/O EXPANDER



APPLICATIONS

- Remote command and control of telemetry systems
- Monitoring faults and alerting control system through interrupt
- Reduction of board and wiring loom mass through common serial bus



KEY FEATURES

- 16 Software Programmable Bi-Directional I/Os
- Supports SPI (25MHz) and I²C (1MHz) / SMBUS
- Interface rail (VCCI) and Port rail (VCCP) operating from 1.4 V to 5.5 V
- Level Translation
- Internal power-on reset (POR)
- Open drain INTB pin to alert controller when inputs change
- Cold sparable I/Os with zero power penalty
- Built-in triple redundancy
- TID resilience: 30 krad (Si) and 300 krad (Si) variants
- SEL/SEU/SEFI immune up to LET of 75 MeV-cm²/mg
- 4 address pins yielding 16 unique I²C addresses
- 6 SEU Immune 8-bit data registers

SYSTEM LEVEL BENEFITS

- Flexible high-speed comms interface
- Built in up/down level translation suitable for modern FPGAs (XPIO)
- Enables use of COTS FPGA/MCU/Processors in Hi-Reliability Systems
- Ensures reliable power up and power down responses during hot plug and cold sparing operations
- Fault detection and containment
- Simplifies cold sparing implementations
- Radiation-Hardened against Single Event Effect (SEE)
- Suitable solutions for both LEO and GEO missions
- Allows up to 256 control channels on one 2-wire I²C bus
- Enables up to 768 bits of critical system data storage on single I²C bus



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SEMICONDUCTOR

PRODUCT GRADES

	A-GRADE FLIGHT (9wk lead time)	B-GRADE FLIGHT (7wk lead time)	C-GRADE FLIGHT (6wk lead time)	E-GRADE EVALUATION* (4wk lead time)
Production Burn-in	YES	—	—	—
Tested Temperature Range	-55 °C to +125 °C	-55 °C to +125 °C	25 °C	25 °C
Operating Temperature Range	-55 °C to +125 °C	-55 °C to +125 °C	-55 °C to +125 °C	-55 °C to +125 °C
Radiation (SEE)	<80 MeV*cm ² /mg	<80 MeV*cm ² /mg	<80 MeV*cm ² /mg	—
Radiation (TID)	up to 300 krad (Si)	up to 300 krad (Si)	up to 300 krad (Si)	—
Outgassing Tested per ASTM E595	YES	YES	YES	—
Assembly Quality Conformance Inspection	YES	YES	YES	—
Life Test per Wafer Lot (HTOL)	YES	YES	YES	—
Multiple Wafer Lots per Reel Possible	—	—	—	YES
Packaging	Plastic	Plastic	Plastic	Plastic
Bond Wires	Au	Au	Au	Au
Is Pure Sn Used?	—	—	—	—

* E-Grade parts are intended for engineering evaluation only. These units are not suitable for qualification, production, radiation testing, or flight use. Parts are not warranted as to performance over temperature, radiation, or operating life.

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