

INTERSIL SPACE PRODUCTS

Highly Reliable, Efficient, Accurate Radiation Hardened and Radiation Tolerant ICs



WHEN FAILURE IS NOT AN OPTION™

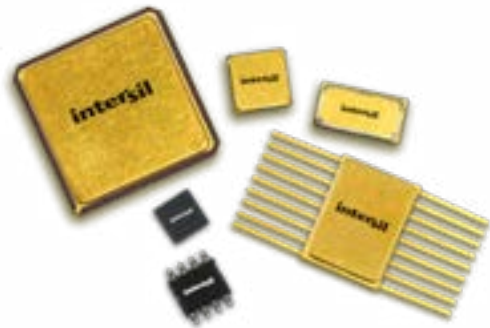
INTERSIL SPACE ICs

Highly reliable, efficient and accurate radiation-hardened ICs for space applications and other radiation environments.



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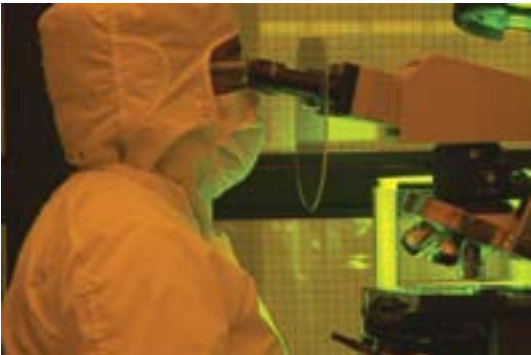
Seven Decades of Flight Experience

Renesas’ (formerly Intersil) history and experience in the space and defense industries spans almost seven decades beginning with the founding of Radiation, Inc. in 1950. Today, we continue to support and release new space-qualified radiation-hardened (rad-hard) and radiation-tolerant (rad-tolerant) hermetic and plastic products for the Hi-Reliability and Space marketplaces.

The total ionizing dose response of semiconductors is a key issue in space applications. Renesas addresses this by performing radiation lot acceptance testing (RLAT) on all space-grade products. For radiation hardened products, low dose rate and/or high dose rate RLAT is performed on a wafer-by-wafer basis. For radiation tolerant products, low dose rate RLAT is performed on a per wafer lot basis.

By leveraging the latest technology, the Intersil space products group is releasing QML Class V and equivalent, QML Class P and equivalent, QML Class Q, and radiation-tolerant space plastic products that are revolutionizing the Hi-Reliability and Space marketplaces.

Intersil Space IC Benefits



Reliable, Proven Supply Chain

Proven proprietary processes and package technologies.

- Strong technology development with proprietary processes and package technologies
- Source multiple leading-edge semiconductor foundries & assembly/test partners to ensure steady product supply and reduced risk
- Decades of experience handling military/space applications products and delivering world-class quality and reliability metrics

Highest Standards

As a major supplier to the military and aerospace industries, our Intersil product development methodologies reflect experience designing products to meet the highest standards for reliability and performance in challenging environments.

- Products are offered on rad-hard MIL-PRF-38535/QML and rad-tolerant production flows
- All rad-hard products are 100% burned-in
- Consistent design and manufacturing in our MIL-PRF-38535-qualified facility in Palm Bay, Florida
- We are one of only a few RHA Defense Logistics Agency (Land and Maritime) QML suppliers
- All rad-hard products follow a QML Class V or P (space level) production flow

Assured Product Supply

Long life cycles ensure steady flow of product. We still support customer programs with products in production for over 40 years. Design, layout, certain process technologies, and manufacturing steps like burn-in and total dose testing of ICs ensures predictable performance and prevents system failure while in flight and on long duration robotic and crewed missions to other planets.



PRODUCTION FLOWS

Renesas leverages decades of experience to deliver efficient, thermally optimized, and reliable products for the defense, high-reliability, and rad-hard space markets. We offer products on multiple production flows to support a wide variety of mission profiles.

Radiation Hardened Hermetic ICs



Class Ve production flow

Rigorous Test and Screening Process to Ensure the Highest Reliability

Renesas’ Intersil hermetic-packaged radiation-hardened devices are hermetically sealed in ceramic packages and undergo a rigorous test and screening process to ensure the highest reliability. These devices are manufactured, tested and screened on a Space QML Class V or QML Class V Equivalent (Class Ve) production flow.

See [Renesas Radiation Hardened QML-V Equivalent Screening and QCI Flow](#) for detailed information about the Renesas’ Class Ve production flow.

Radiation Hardened Plastic ICs



Class Pe production flow



PEMs production flow

Cost and Space-Savings while Maintaining Reliability and Radiation Assurance for Higher Orbit Missions

Renesas’ Intersil plastic-packaged radiation-hardened devices combine high rad-hard assurance levels with the board area savings and cost advantages of plastic packaging. This new portfolio brings space grade solutions to MEO/GEO missions with longer lifetime requirements, as well as small satellites (smallsats) and higher density electronics, while reducing size, weight, power and cost (SWaP-C) concerns. These devices are manufactured, tested and screened on a Space Plastic QML Class P, QML Class P Equivalent (Class Pe), or Plastic Encapsulated Microcircuit (PEMs) production flow.

See [Renesas Radiation Hardened QML-P Equivalent Screening](#) and QCI Flow for detailed information about the Renesas’ Class Pe production flow.

Units screened on Renesas’ PEMs production flow are produced, screened, and tested to industry accepted standards including SAE AS6294/1 and NASA PEMS-INST-001. See [Radiation Hardened Plastic Production and QCI Flow](#) for more detailed information about Renesas’ PEMs production flow.

Radiation Tolerant Plastic ICs



RT Plastic production flow

Cost Effective Solutions for Short Duration Low Earth Orbit (LEO) Mission Profiles

Renesas’ Intersil plastic-packaged radiation-tolerant devices leverage radiation-qualified designs with significant cost savings from limited screening. Thorough initial characterization gives customers the upmost confidence in the ICs’ performance, making Renesas’ radiation-tolerant plastic parts a reliable, cost-effective solution for small satellites and high altitude avionic systems. All of Renesas’ RT plastic parts meet NASA’s outgassing specifications and feature matte tin plating.

See [Renesas Radiation Tolerant Plastic Production and QCI Flow](#) for more detailed information about Renesas’ RT Plastic production flow.

Production Flow Overview

Rad-Hard Hermetic Class V, Class Ve	Rad-Hard Plastic Class P, Class Pe, PEMs	Rad-Tolerant Plastic RT Plastic
Highest Reliability Most Robust Package Most Rigorous Test & Screen	Very High Reliability Package Cost, Size & Weight Savings Most Rigorous Test & Screen	High Reliability Package Cost, Size & Weight Savings Significant Test & Screen Savings
Radiation Lot Acceptance Testing High Dose Rate (HDR): Up to 300krad(Si) Low Dose Rate (LDR): 75-100krad(Si)	Radiation Lot Acceptance Testing Low Dose Rate (LDR): 75krad(Si)	Radiation Lot Acceptance Testing Low Dose Rate (LDR): 30 or 50krad(Si)
SEE Characterization: 86 MeV-cm²/mg	SEE Characterization: 86 MeV-cm²/mg	SEE Characterization: 46 MeV-cm²/mg
100% Burn-In & Reverse Bias Burn-In Includes Pre-Mid-Post Burn-In Electrical Test	100% Burn-In & Reverse Bias Burn-In Includes Pre-Mid-Post Burn-In Electrical Test	Burn-In Not Performed
100% Tri-Temp Test: -55°C, +25°C, +125°C	100% Tri-Temp Test: -55°C, +25°C, +125°C	100% Room Temp Test: +25°C
Serialized Units & Data Packet	Serialized Units & Data Packet	Wafer Lot Traceability & RLAT Data Packet

Standard Screening Flow

	Rad-Hard Hermetic Class V, Class Ve	Rad-Hard Plastic Class P, Class Pe, PEMs	Rad-Tolerant Plastic RT Plastic
Wafer Lot Acceptance	✓	✓	✓
Non-destructive Bond Pull	✓	Unnecessary for plastic package	
Internal Visual Inspection	✓	✓*	
Temperature Cycling	✓	✓	
Constant Acceleration	✓	Unnecessary for plastic package	
Visual Inspection	✓	✓*	
Particle Impact Noise Detection (PIND) Test	✓	Unnecessary for plastic package	
Fine & Gross Leak	✓	Unnecessary for plastic package	
Serialization	✓	✓	
X-Ray	✓	✓	
Pre/Post Burn-In Electrical Test	✓	✓	
Burn-In Test	✓	✓	
Reverse Bias (Static) Burn-In Test	✓	✓	
Percent Defective Allowable (PDA) Calculation	✓	✓	
Final Electrical Test +25°C, Minimum and Maximum Operating Temperature	✓	✓	✓ +25°C only
Acoustic Microscopy	Unnecessary for hermetic package	✓	
External Visual Inspection	✓	✓	✓
Quality Conformance Inspection (QCI) Group A: Electrical Tests Performed per wafer lot	✓	✓	
QCI Group B: Mechanical and Environmental Tests Performed per wafer lot	✓	✓	
QCI Group C: High Temperature Operational Life (HTOL) Performed per wafer lot	✓	✓	
QCI Group D: Package Tests Performed per package type every 6 months	✓	✓	
QCI Group E: Radiation Lot Acceptance Testing (RLAT) Performed on a per wafer basis for Rad-Hard parts and on a per wafer lot basis for Rad-Tolerant parts See individual datasheets and the associated radiation report(s) for more information	LDR: 50 - 100 krad(Si) and/or HDR: 100 – 300 krad(Si)	LDR: 75 krad(Si)	LDR: 30 or 50 krad(Si)

*Not performed on PEMs

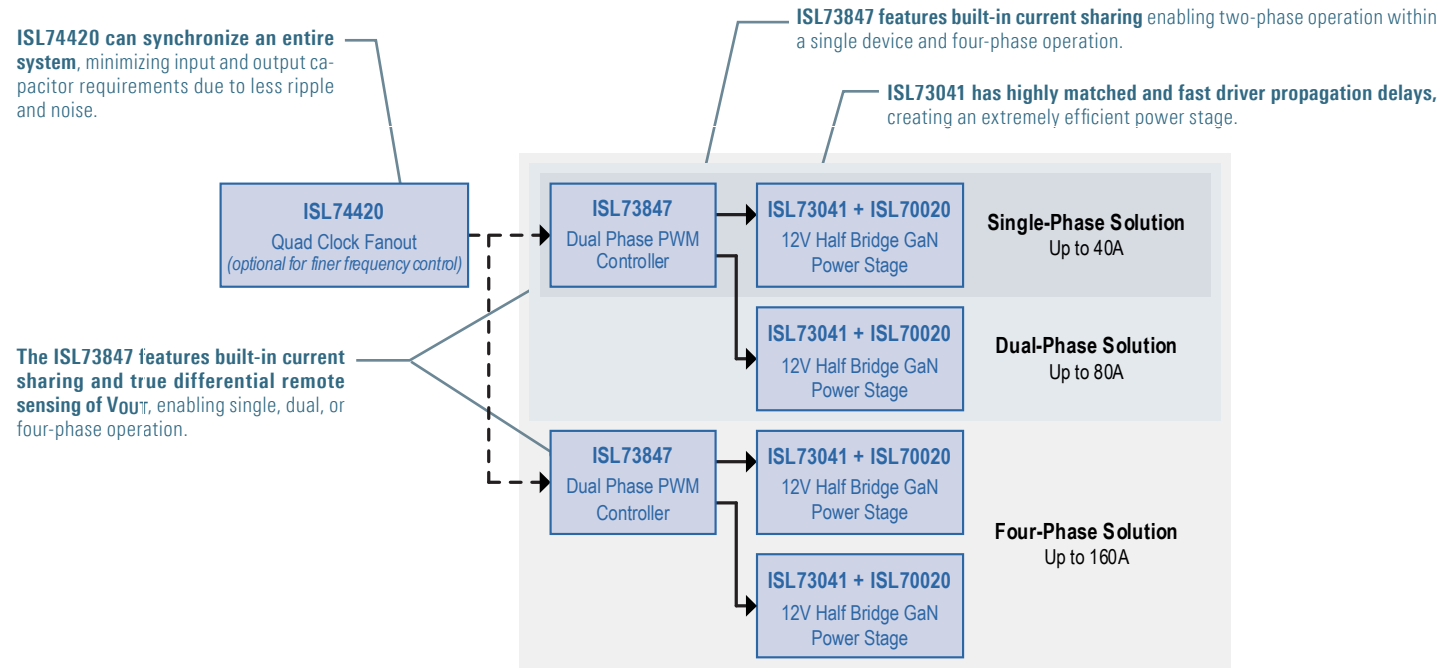
See "Standard Data Packet" on page 39

HI-REL POWER MANAGEMENT

Multiphase Power ISL73847, ISL73041/ISL71441, ISL70020, and ISL74420

Robust, Scalable Multiphase Power for High Performance FPGAs and ASICs

The ISL73847, ISL73041/ISL71441, ISL70020, and ISL74420 work together to provide a reliable, efficient, multiphase power solution for core power rails that have tight tolerances while minimizing the overall solution size. This solution can be scaled to support a wide range of power requirements, from 12A up to 160A or more.



	Part Number	Screening	Package Type
ISL74420 Quad Clock Fanout 3V to 13.2V supply voltage - Sync to external clock or use internal 48MHz oscillator - Phase delay in 15° increments - Pin programmable or I²C/SMBus Interface	ISL74420M	RT Plastic	48 Ld TQFP-EP
	ISL74420SLH	Class Pe	48 Ld TQFP-EP
ISL73847 Dual Phase PWM Controller 4.5V to 19V supply voltage ±0.67% regulation accuracy (worst case) - True differential remote sensing of V_{OUT} - Single or multiphase operation	ISL73847M	RT Plastic	24 Ld SOICW
	ISL73847SLH	Class Pe	24 Ld SOICW
	ISL73847SEH	Class Ve	24 Ld CFP
ISL73041 Half Bridge GaN FET Driver 4.5V to 5.5V programmable gate drive - Highly matched & fast driver propagation delays 4.75V to 13.2V supply voltage - Bi-directional fault communication with ISL73847	ISL71441M	RT Plastic	20 Ld QFN
	ISL71441SLH	PEMS	20 Ld QFN
	ISL73041SEH	Class Ve	16 Ld CLCC
ISL70020 40V GaN FET - Ultra-low R_{DS(on)}: 3.5mΩ (typ) - Ultra-low total gate charge: 19nC (typ) - Small footprint 4Ld SMD package	ISL70020SEH	RH Hermetic GaN FET	4 Ld CLCC

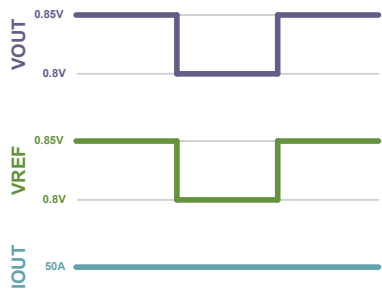
PWM Controller ISL73849

Single/Dual Phase PWM Controller with PMBus & Telemetry

The ISL73849 is an industry-leading PWM controller with a digital wrapper. Integrated PMBus, VREF-DAC, and on-board ADC enabling end-to-end digital control and telemetry make the ISL73849 perfect for next-gen, software-defined satellite architectures.

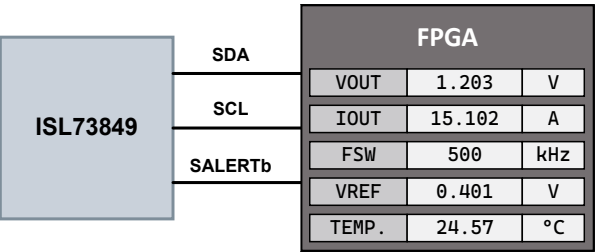
1 In-Orbit Voltage Margining

The programmable VREF-DAC lets customers tweak V_{OUT} on the fly to maintain tight regulation budgets over mission life, even as component aging or environmental shifts occur.



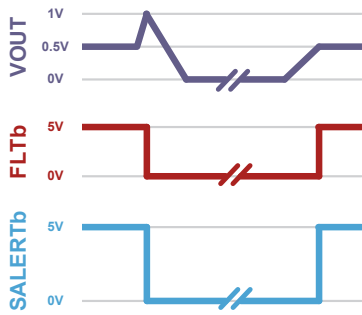
2 Built-In Telemetry & Logging

Real-time monitoring of V_{OUT}, I_{OUT}, F_{SW}, V_{REF}, temperature, etc., over PMBus provides a turnkey health-and-usage record for system-level diagnostics and predictive maintenance.



3 Reconfigurable Fault & Protection Logic

PMBus-driven behavioral blocks and protected-write registers allow in-field adjustment of fault responses (or masking) without firmware reloads - ideal for adaptive mission profiles.



FAULT	FAULT STATUS	RESPONSE		MASK
FLTb	NO FAULT	HICCUP	LATCH OFF	MASK
ON_FAULT	NO FAULT	HICCUP	LATCH OFF	MASK
NOC_PH1	NO FAULT	HICCUP	LATCH OFF	MASK
NOC_PH2	NO FAULT	HICCUP	LATCH OFF	MASK
OC1_PH1	NO FAULT	HICCUP	LATCH OFF	MASK
OC1_PH2	NO FAULT	HICCUP	LATCH OFF	MASK
VOUT_UV	NO FAULT	HICCUP	LATCH OFF	MASK
VOUT_OV	FAULT	HICCUP	LATCH OFF	MASK
VOUT_UV_SEVERE	NO FAULT	HICCUP	LATCH OFF	MASK
VOUT_OV_SEVERE	NO FAULT	HICCUP	LATCH OFF	MASK
CML	NO FAULT	HICCUP	LATCH OFF	MASK
VOUT_OOR	NO FAULT	HICCUP	LATCH OFF	MASK
VOUT_TRANSITION	NO FAULT	HICCUP	LATCH OFF	MASK
FUSE_PARITY	NO FAULT	HICCUP	LATCH OFF	MASK

Features

- Wide VDD Range
 - 4.5V to 18V
- F_{sw} Range
 - 250kHz to 1.5MHz
- Optional Droop Regulation
- Hardware and digital enable control
- Programmable:
 - VREF
 - Soft-Start
 - Voltage Transition Slew Rate
 - UV, OV, and OC Fault Levels
 - Fault Response
- Package Type
 - 24 Ld CDFP
 - 80 Ld TQFP

For more detail specifications, refer to "Switching Controllers" on page 33

Quad Adjustable Clock Fanout ISL74420

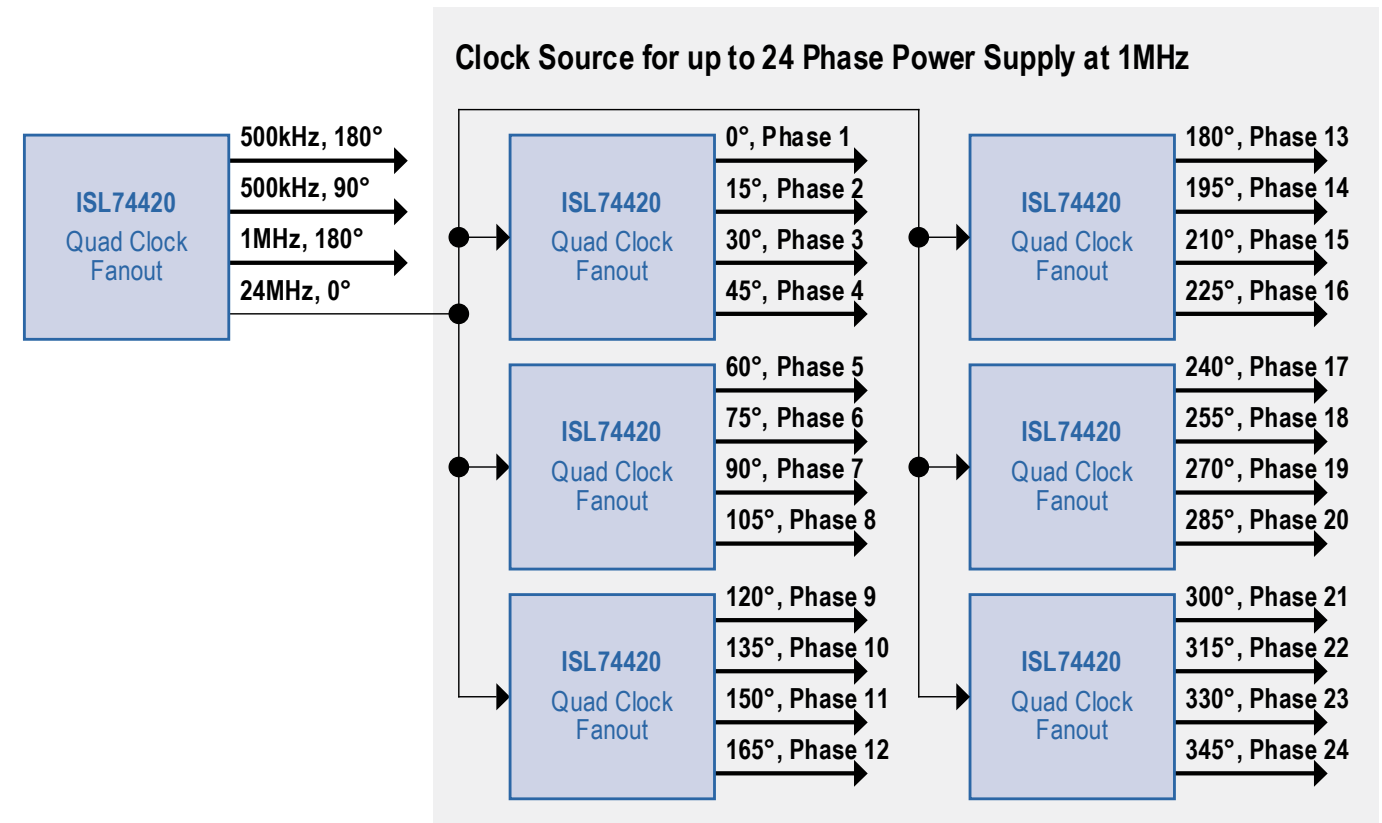
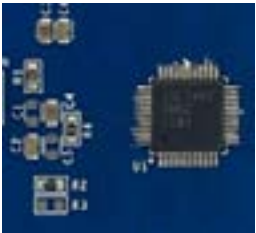
Adjustable Clock Fanout Designed for Power Management ICs

Precise Frequency Division and Phase Delay

The ISL74420 can output four synchronization clocks. Each clock can be set to a different frequency division and phase delay, and multiple ISL74420s can be connected together to provide up to 24 separate clocks.

I²C/SMBus Digital Interface or Pin Configurable

Frequency division and delay options can be set through an I²C/SMBus digital interface, allowing for the device to be reconfigured.



Features

- Power supply range: 3V to 18V
- Independent clock output supply: 3V to 5.5V
- Programmable output frequencies: 25kHz to 24MHz
- Programmable phase delay as low as 15° increments at 1MHz

Package Type



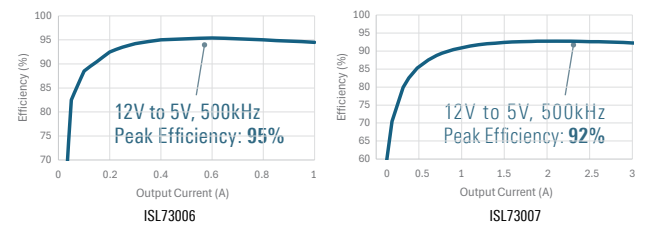
For more detail specifications, refer to "Power Timing" on page 35

Switching Regulators ISL73006, ISL73007

1A and 3A Ultra-Small Switching Regulators

Highly Efficient Power Conversion

These devices feature extremely high efficiency, achieving ≥90% from 1A to 3A (ISL73007) and ~95% from 0.4A to 1A (ISL73006) for 12V to 5V conversions at 500kHz.



Small Form Factor

The total solution size including the output inductor, capacitors and other passives is 23 x 21.5mm for the ISL73006 and 25.4 x 25.5 mm for the ISL73007.



Features

- Input voltage range: 3V to 18V
- Output current
 - ISL73006: 1A
 - ISL73007: 3A
- Supply rail undervoltage Lockout
- External SYNC capability on ISL73007 in plastic package
- ±1% Regulation accuracy (across temp, rad, and life)
- Switching frequency:
 - ISL73006: 500kHz (Fixed)
 - ISL73007: 300kHz to 1MHz

Package Type



For more detail specifications, refer to "Switching Regulators" on page 35

Linear Regulator ISL75054

Low Noise Ultra-Small Low Dropout Linear Regulator

Small Form Factor (19x19mm)

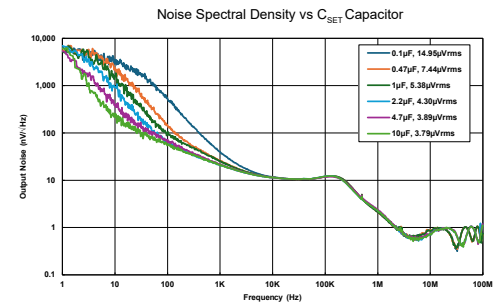
The output voltage is set using a single resistor and the ISL75054 requires only 30μF of input and output capacitance, resulting in a total solution size of 19 x 19mm.



30V to 3.3V, 1A Mini Demonstration Board ISL75054SLHDEM01Z

Ultra Low-Noise (1A)

The ISL75054 can regulate a voltage down to 0.5V with excellent noise and PSRR performance. Built-in protection includes foldback, internal and externally programmable current limit and over-temperature protection.



Features

- Input voltage range: 2.7V to 30V
- Output current: 1A
- RMS noise: 3.9μVRMS from 10Hz-100kHz
- Dropout voltage: 387mV with I_{OUT}=1A

Package Type



For more detail specifications, refer to "Linear Regulators (LDO)" on page 33

Linear Regulator ISL75055

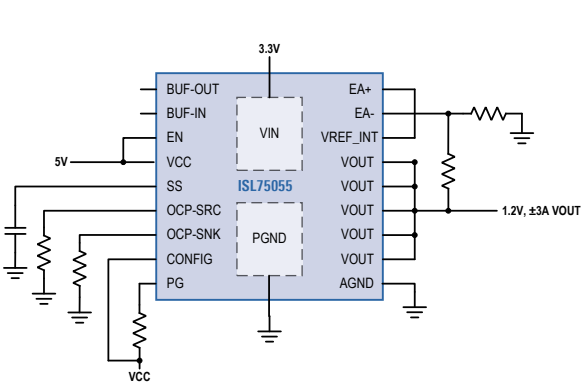
Multi-Purpose DDR Terminator and High-Performance LDO

The ISL75055 is a $\pm 3A$ Low Dropout Linear Regulator designed for powering the VTT termination rail and VREF reference supply of DDR memory modules or as a general purpose low dropout linear regulator.

1 Multi-Purpose

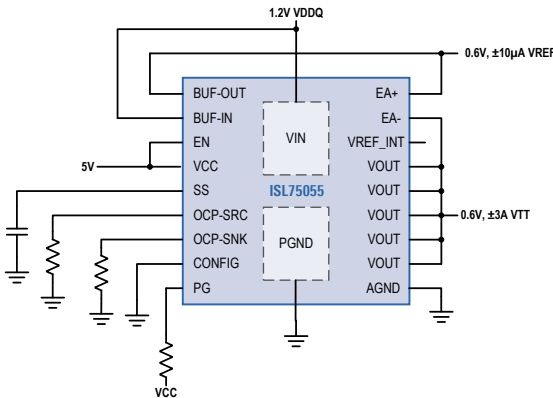
General Purpose LDO

Connect the internal 0.5V reference and a resistor divider from VOUT to the error amplifier to use as a traditional LDO.



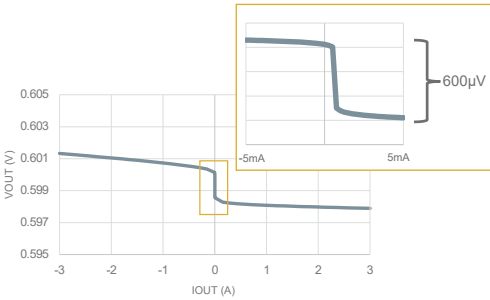
DDR Terminator

Utilize the internal $\frac{1}{2} \cdot VDDQ$ buffer for DDR Terminator applications by connecting BUF-OUT and VOUT directly the error amplifier.



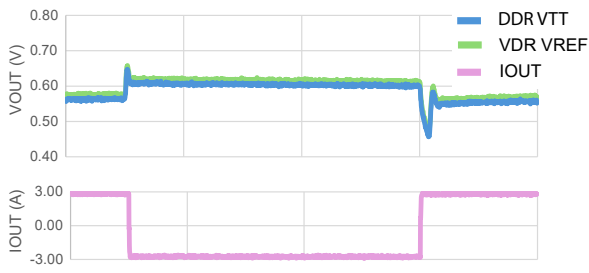
2 Industry-Leading 600µV Deadband

Minimal change in output voltage when switching from sourcing to sinking



3 High Loop Bandwidth

React quickly to load transients while keeping DDR VTT (VOUT) and DDR VREF (BUF-OUT) in tight regulation



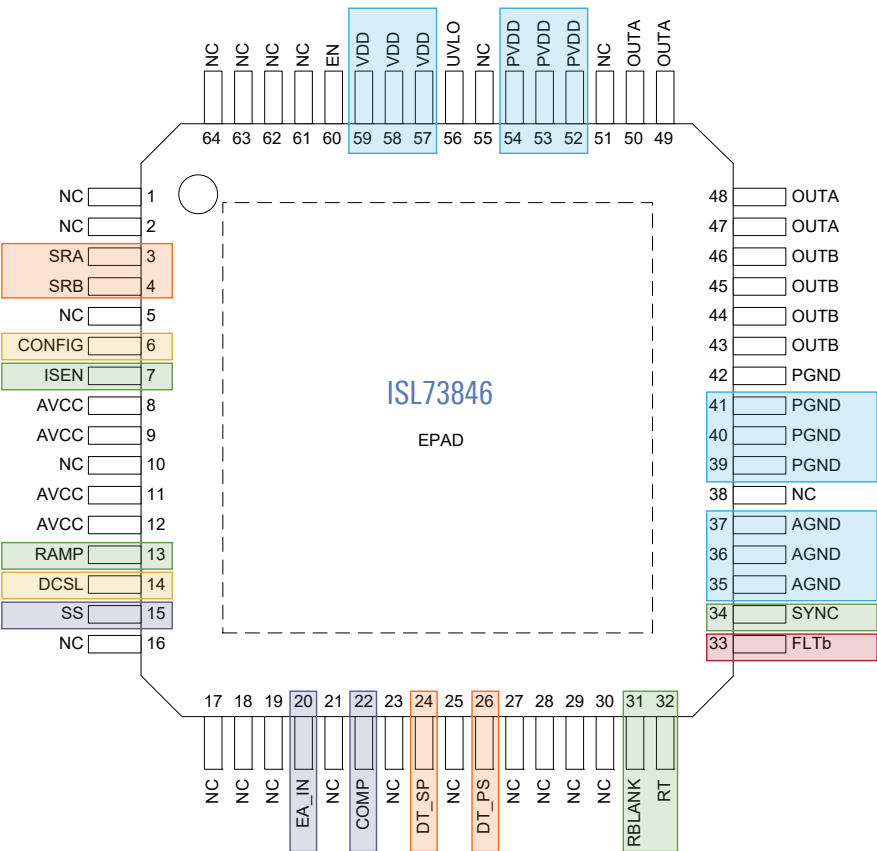
Features

- VIN Range: 0.75V to 5.5V
 - VBIAS Range: 2.7V to 5.5V
 - Internal buffered reference
 - Internal 0.5V VREF
 - Typical 130mV dropout at 3A
 - Externally adjustable soft-start
 - Optional LDO and buffer output discharge function
 - Separate, adjustable over-current protection for both source and sink
 - Package Type
 - 48 Ld TQFP
 - 18 Ld CQFP
- For more detail specifications, refer to "Linear Regulators (LDO)" on page 33

Power Conditioning & Distribution

High Performance Double Ended PWM Controller

The ISL73846 is a high performance, highly configurable switching controller capable of supporting a wide range of power supply topologies.



- Wide 4.5V to 20V Supply Range**
Includes an independent 4.5V to 20V driver supply supporting both GaN FETs and MOSFETs
- Internal 8MHz GBWP Error Amplifier**
Contains an option to use bypass configuration to utilize an external error amplifier
- Synchronous Rectification for Improved Efficiency**
Features split Primary-Secondary and Secondary-Primary deadtime control
- Highly Configurable Architecture**
Program the switching frequency from 20kHz to 2MHz or synchronize to external clock
Use in voltage or current mode control and configure slope compensation through RAMP and ISEN pins
- Bidirectional Fault Communication**
Synchronize fault handling in multiphase architectures and startup across the power management plane
- Tailored Performance Based on Application Requirements**
Select the maximum duty cycle: 50% out-of-phase, 100% in-phase, 100% out-of-phase
Choose between three options for overcurrent response: Cycle-by-Cycle Current Limit, Hiccup, Ignore

Evaluation Kits



ISL73846MEV1Z
28V to 12V, 144W Push Pull Evaluation Kit



ISL73846MEV2ZC
28V to 5V, 50W Forward Evaluation Kit



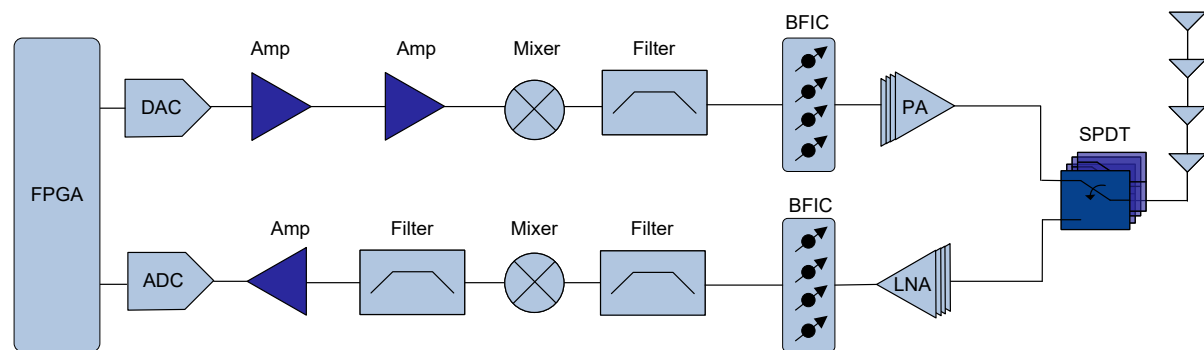
ISL73846MEV3ZA
12V to 28V, 112W Boost Leader/Follower Evaluation Kit

Features

- Additional supported topologies:
 - Active-Clamp Forward
 - Flyback
 - Half-Bridge
 - Full-Bridge
 - Package Type
 - 24 Ld CFP
 - 64Ld TQFP
- For more detail specifications, refer to "Switching Controllers" on page 33

HI-REL RF COMMUNICATIONS

Renesas offers high-reliability RF building blocks optimized for satellite front-end applications. These components ensure low-loss signal routing and consistent amplification performance in demanding space environments.



Renesas Hi-Rel RF Products Benefits

1 Higher Bandwidth

Band	Frequency (GHz)
L-Band	1 - 2
S-Band	2 - 4
C-Band	4 - 8
X-Band	8 - 12
Ku-Band	12 - 18
K/Ka-Band	18 - 27 27 - 40
Q/V-Band	40 - 75
V/W-Band	75 - 110

Renesas frequency band coverage

2 Evolving Architecture

Devices optimized for phased-array & bent-pipe architectures



3 Small Size

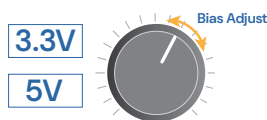
Rad-qualified plastic solutions



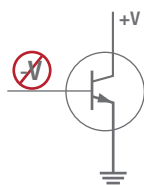
3x3mm 16-TQFN package

4 Lower Power

3.3V & 5V Support Bias Adjustable



5 Single Positive Supply



RF Switch ISL71934M

The ISL71934M is a high reliability, low insertion loss, single positive supply SPDT absorptive RF switch that supports both 3.3V and 5V common rails. This device covers a broad frequency range from 50MHz to 10GHz.

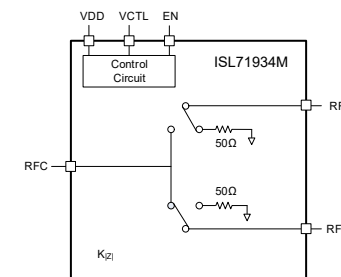
Features

- Wideband operation: 50MHz to 10GHz
- 2.75V to 5.25V single supply operation
- High isolation – 71dB at 1GHz
- High linearity – 64dBm at 1GHz
- Cold sparing capable
- Package Type: 16 Ld QFN



For more detail specifications, refer to "RF Switches" on page 38

Absorptive Architecture with 50Ω Terminations



RF Switches

Part Number	Supply Voltage (V)	Input Frequency (MHz)	Insertion Loss (dB)	Switching Speed (ns)	IIP2 (dBm)	IIP3 (dBm)	IP1dB (dBm)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL71934M	2.7 to 5.5	50 to 6000	0.79	255	111	64	36	-55 to +125	-	30, 50	43	RT Plastic	16 Ld TQFN

Gain Block Amplifier ISL74324

The ISL74324 is a wideband, high-gain amplifier that operates from 500MHz to 6.5GHz. It offers a combination of low noise figure (NF) and high linearity performance allowing it to be used in both receiver and transmitter applications.

Features

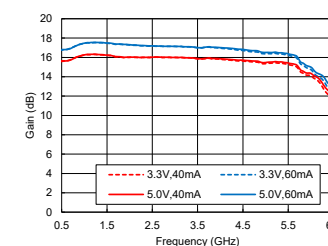
- L, S, & C band optimized from 500MHz to 6.5GHz
- Single supply from 3.15V to 5.25V
- High OP1dB ±21.5dBm at 4.2GHz
- High OIP3 ±38.4dBm at 4.2GHz
- Cold Sparing Capable
- Package Type: 16 Ld QFN



For more detail specifications, refer to "RF Amplifiers" on page 38

High, Flat Gain Across L, S, & C Band

Achieving 16.6dB gain with ±0.1dB flatness over 100MHz spans, the ISL74324M provides exceptionally flat gain over frequency and temperature



RF Amplifiers

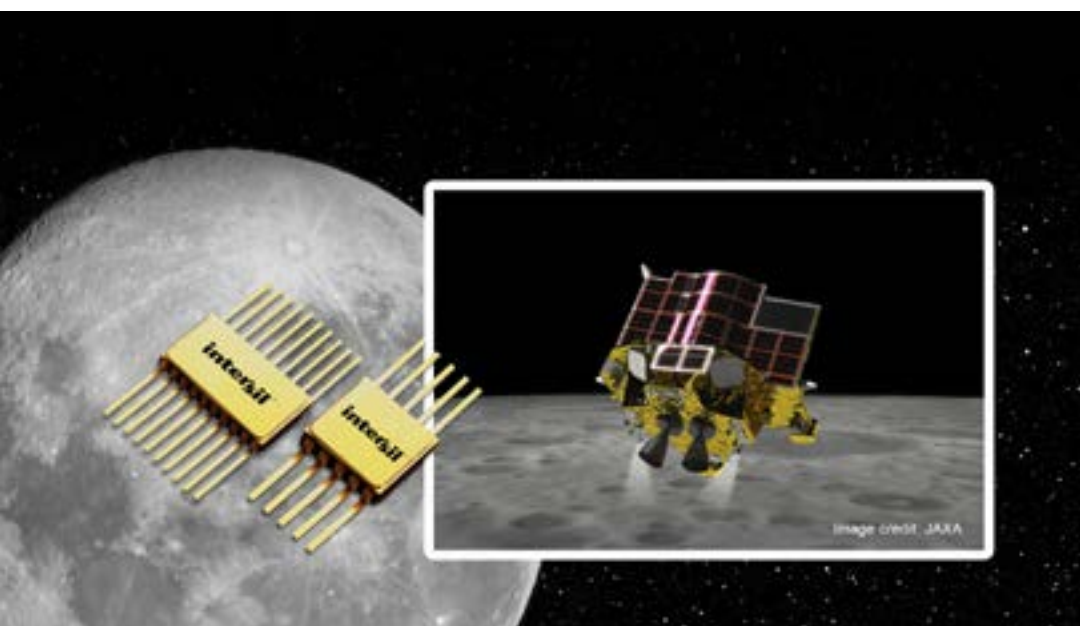
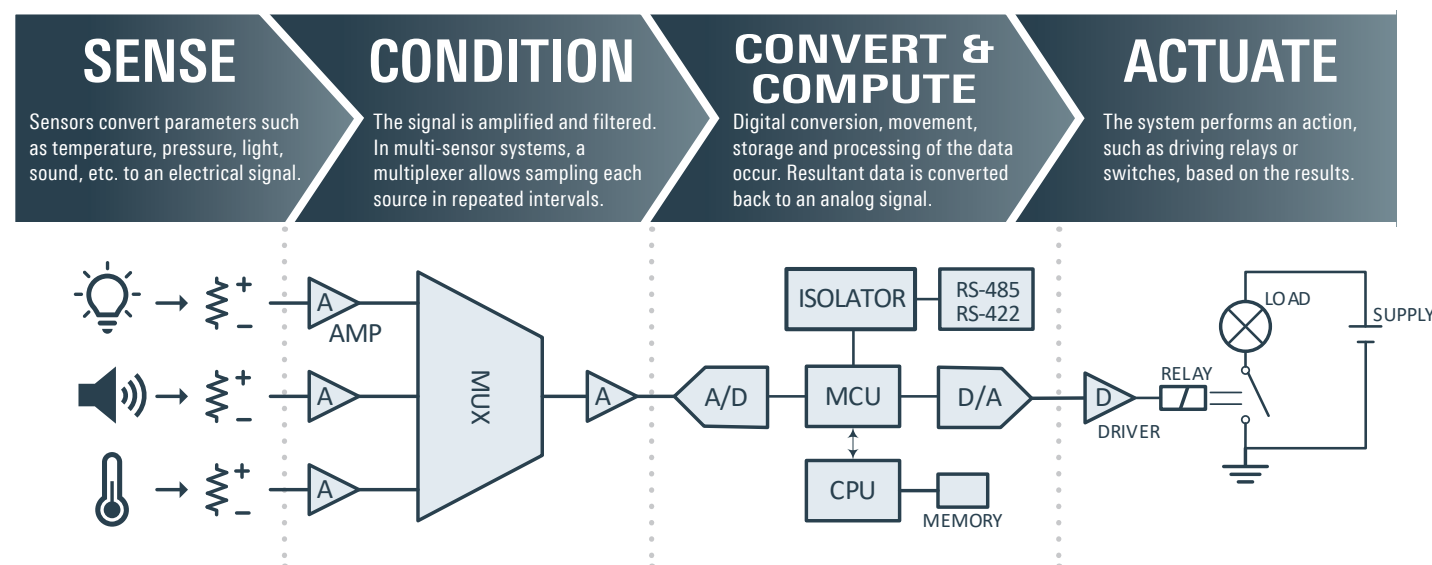
Part Number	Frequency Range (MHz)	Gain (dB)	Noise Figure (dB)	OP1dB (dBm)	Input Supply Range (V)	Temperature	HDR	LDR	DSEE	Screening	Package
ISL74324M	500-6500	16.6	2.2	21.5	3.15-5.25	-55 to +125	-	30,50	46	RT Plastic	16 Ld QFN
ISL74324SLH						-55 to +125	-	75	86	Class Pe	16 Ld QFN

HI-REL SIGNAL PROCESSING

Leaders in Analog Signal Processing

For over 70 years, Renesas has been an industry leader offering the most comprehensive selection of leading-edge space-qualified products for signal processing applications. These fundamental building blocks provide the reliability, accuracy and precision required in Command & Telemetry; Thermal Control; Altitude Control; Imaging and many other satellite subsystems.

All subsystems employing analog signal processing can be reduced to four fundamental functions:



Japan's First Moon Lander Touches Down with Renesas' Rad-Hard ICs on Board (January 2024)

SENSE

Current Sense Amplifiers ISL70100, ISL73100

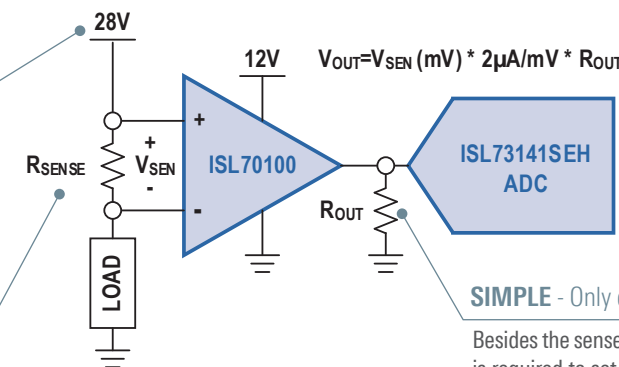
Amplifier Designed Specifically for Current Sensing Application

RELIABLE - Can monitor currents from a 28V bus voltage

$V_{IN} = -0.3V$ to $40V$ independent of the power supply used to bias the CSA. This allows the user to power the CSA from 3.3V, but monitor currents from a 28V bus voltage.

ACCURATE - Ultra-low input offset voltage of $10\mu V$ (typical) at $25^\circ C$

Achieve required accuracy without increasing the sense resistor value and wasting unnecessary power.



SIMPLE - Only one additional resistor is required

Besides the sense resistor, only one additional resistor on the output is required to set the overall gain of CSA. This eliminates the need for external output-to-input gain resistors.

Features

- Power supply range: 2.7V to 40V
- Input common-mode range: $-0.3V$ to $40V$
- Voltage offset: $10\mu V$ (typ), $V_{+} = 12V$
- Adjustable gain with a single resistor
- Transconductance: $2\mu A/mV$ (typ)
 - $\pm 1\%$ Accuracy ($25^\circ C$)
 - $\pm 1.5\%$ Accuracy ($-55^\circ C$, $125^\circ C$)

Package Type

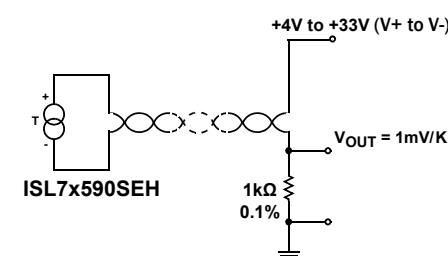


For more detail specifications, refer to "Current Sense Amplifiers" on page 28

Temperature Sensors ISL71590, ISL73590

Radiation Hardened Temperature Sensor

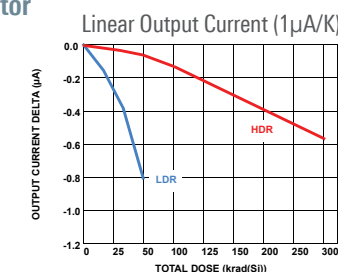
The ISL71590 and ISL73590 are temperature-to-current transducers possessing two terminals.



Typical Application

Act as Constant Current Regulator

When provided a differential voltage between 4V and 33V, the devices act as constant current regulators that generate a current equal to $1\mu A/K$.



High Impedance Current Output (>10MΩ)

Provides excellent rejection to variations in the supply line.

Features

- Wide operating supply range: 4V to 31V
- Linear output current: $1\mu A/K$
- High ESD level: 3kV HBM
- $\pm 1.7^\circ C$ absolute error from $-55^\circ C$ to $+125^\circ C$
- $< -1^\circ C$ error over radiation
- SOI process to eliminate single event latch-up
- Best-in-class radiation performance

Package Type



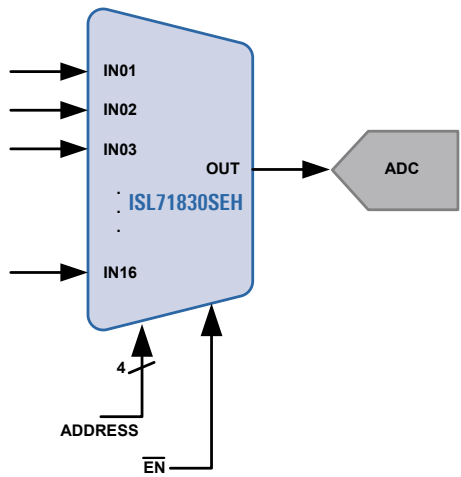
For more detail specifications, refer to "Temperature Sensors" on page 31

CONDITION

Multiplexers ISL71030, ISL71830, and ISL71831

5V Multiplexers with Industry’s Best ESD Protection

The ISL71830 (16-ch), ISL71030 (16-ch), and ISL71831 (32-ch) are radiation tolerant, single supply 5V multiplexers. The 5V multiplexers address the growing trend toward reduced system voltage rails.



Features

- 3V to 5.5V single supply operation with adjustable logic threshold control
- Rail-to-rail switch input provides wide dynamic range for extra design flexibility

- Over-voltage shutoff protects upstream/downstream devices when a switch goes 1V-2V past the rails
- Cold sparing and analog overvoltage range from -0.4V to 7V

Package Type

48 Ld CQFP

28 Ld CFP

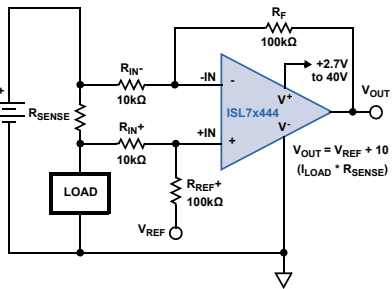
32 Ld TQFP

For more detail specifications, refer to "Multiplexers" on page 29

Op Amps ISL70444, ISL71444, ISL70244

Radiation Tolerant & Hardened Low-Power 40V Amplifiers

The ISL70444, ISL71444, and ISL70244 are optimized to provide maximum dynamic range. These devices provide low-power, low-offset voltage, and low temperature drift, making them ideal for applications requiring both high DC accuracy and AC performance.



Features

- ISL70244SEH - Dual
- ISL70444SEH, ISL71444M - Quad
- Wide supply range: $\pm 2.25V$ to $\pm 18V$
- Very low supply current 490 μA /amplifier

- 1.5MHz Gain bandwidth product
- Ultra low V_{OS} : 110 μV (max.)
- Low I_{BIAS} : 5nA (max.)

Package Type

14 Ld CFP

10 Ld CFP

14 Ld TSSOP

For more detail specifications, refer to "Operational Amplifiers" on page 30

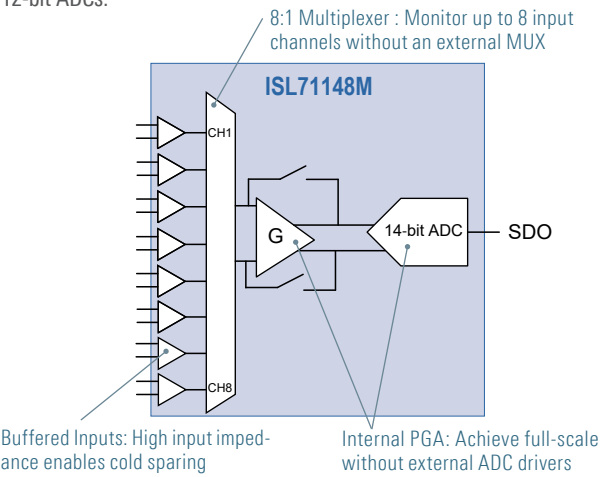
CONVERT & COMPUTE

Data Converters ISL71148 and ISL73148

8-Channel High Precision 14-bit 900/480ksps SAR ADCs

4 Times Better Measurement Accuracy

The ISL71148 and ISL73148 excel in analog-to-digital conversion with 14-bit resolution, providing 4 times better measurement accuracy than competing 12-bit ADCs.



Features

- Analog input impedance: $>1G\Omega$, $<5pF$
- Wide 50MHz -3dB Input Bandwidth
- Low power mode operation at lower sample rates for up to 20% power savings

- 5V V_{CC} analog supply
- High-speed SPI-compatible serial I/O

Package Type

28 Ld CFP

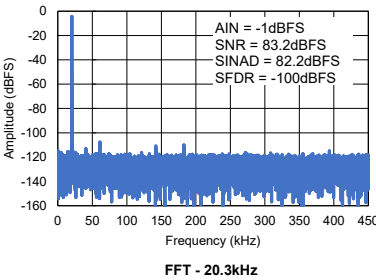
48 Ld LQFP

For more detail specifications, refer to "Data Converters" on page 32

Low Noise

SNR of 83.2dBFS (PGA bypassed) and 77dBFS (PGA gain = 2)

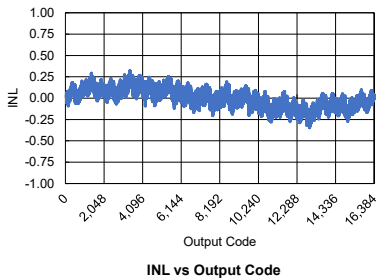
Allowing for acquisition of incredibly small voltages that enable the system processor to have precise control capabilities.



Excellent Linearity

± 0.2 LSB DNL, ± 0.4 LSB INL (ISL71148)

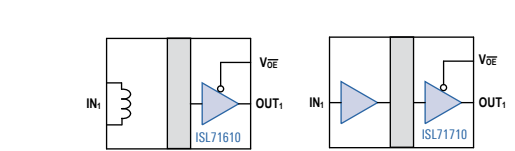
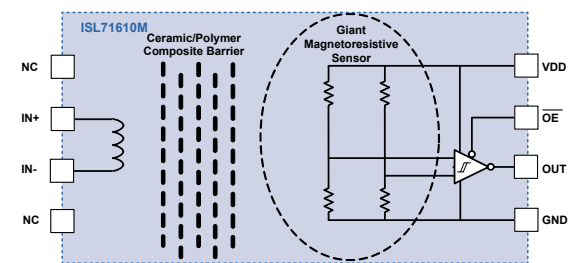
± 0.5 LSB DNL, ± 1.5 LSB INL (ISL73148)



Digital Isolators ISL71710 and ISL71610

Radiation Tolerant & Hardened Plastic Digital Isolators

The ISL71610 and ISL71710 are digital isolator family that leverage Giant Magnetoresistive (GMR) technology for small size, high speed, and low power.



Features

- 2.5kVRMS isolation
- Supply voltage range 3.0V to 5.5V
- 10ns propagation delay
- Low power $<1.75mA$ quiescent current

Package Type

8 Ld SOICN

For more detail specifications, refer to "Digital" on page 37

Faster Speeds Enabled

Achieving speeds up to 100Mbps for ISL71610 and 150Mbps for the ISL71710, these isolators enable faster data rates than the competition.

Radiation Performance over Optocouplers

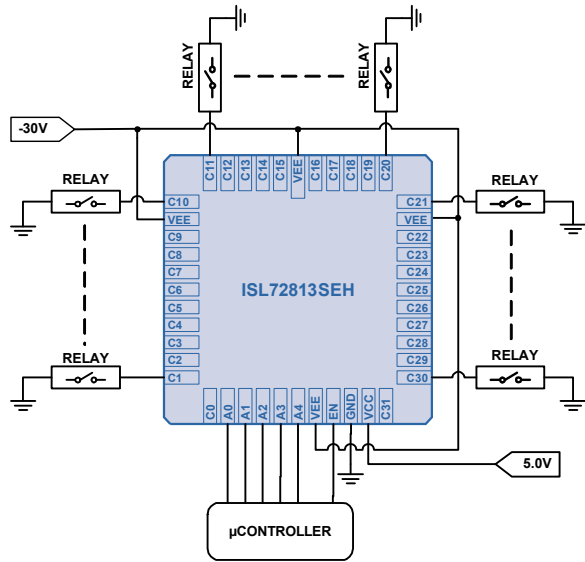
The GMR technology leveraged in these devices provide superior radiation tolerance with mitigation against both total ionizing dose and single-event effects.

ACTUATE

Source Drivers ISL72813

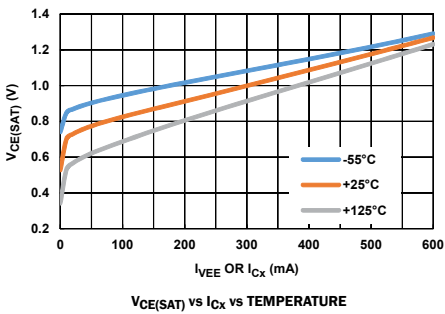
Single-Chip Rad Hard 32-Channel Driver with Integrated Decoder

The ISL72813 is the industry's first high current driver to integrate the decoder, level shifter and driver array in a single monolithic IC.



Best-in-Class Power Dissipation

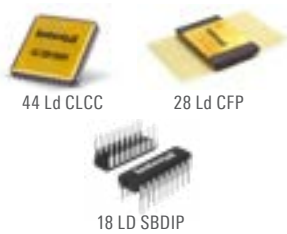
Low VCE saturation of 1.5V with IC of 530mA



Features

- Acceptance tested to 50krad(Si) LDR, wafer-by-wafer
- Integrated 5-bit to 32-channel decoder and level shifting circuit
- High collector current outputs to 600mA
- High voltage outputs up to -40V
- VCC supply range of 3V to 5.5V
- Extended operating temperature range of -55°C to +125°C
- HDR radiation tolerance of 100krad(Si) and LDR of 50krad(Si)
- DSEE LETTH (VCE = 33V) immune up to 86.4MeV•cm²/mg

Package Type



For more detail specifications, refer to "Source Drivers" on page 36

REFERENCE DESIGNS

Renesas offers reference designs to help solve our customers' system level application challenges in space-grade systems. For more information, visit www.renesas.com/space or contact your local sales office.

Analog and Mixed Signal Reference Designs

Temperature Sensor with ADC Interface

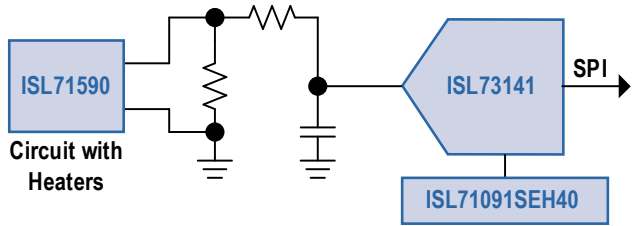
ISL73141TSREFEVKIT1Z

The ISL73141TSREFEVKIT1Z evaluation board and iRADNavigator software GUI are used to demonstrate the ISL73141 radiation hardened 14-bit 1000ksps SAR ADC in a temperature monitoring application.

Renesas Radiation Hardened parts featured on ISL73141TSREFEVKIT1Z

- ISL713141SEH 14-bit 1MSPS SAR ADC
- ISL71590SEH 2-Terminal Temperature Sensor
- ISL71091SEH40 4.096V Ultra Low Noise, Precision Voltage Reference

Renesas.com/ISL73141TSREFEVKIT1Z



Battery Monitor with ADC Interface

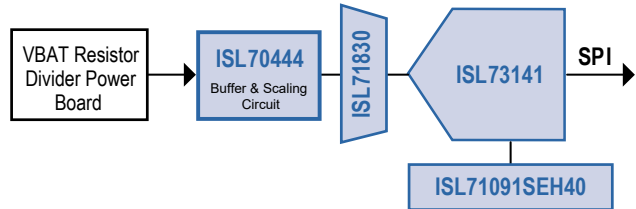
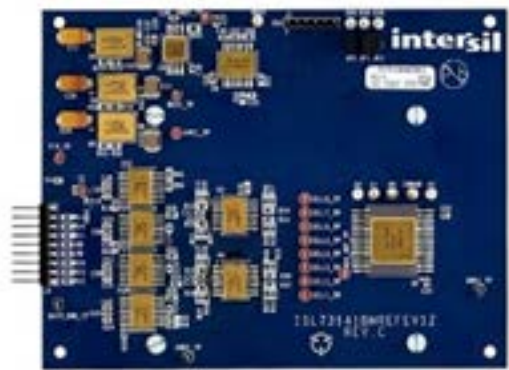
ISL73141BMREFEVKIT1Z, ISL73141BMREFEVKIT2Z

The ISL73141BMREFEVKIT1Z evaluation kit demonstrates the ISL73141 14-bit SAR ADC in an 8-cell battery voltage monitoring application. Monitoring of the lithium battery cell voltages is critical to protect the battery against undervoltage and overvoltage conditions.

Renesas Radiation Hardened parts featured on ISL73141BMREFEVKITxZ

- ISL713141SEH 14-bit 1MSPS SAR ADC
- ISL70444SEH 40V Quad Rail-to-Rail, Input-Output, Low-Power Operational Amplifier
- ISL71830SEH 5V, 16-Channel Analog Multiplexer
- ISL71091SEH40 4.096V Ultra Low Noise, Precision Voltage Reference

Renesas.com/ISL73141BMREFEVKITxZ



Radiation Hardened Voltage Monitor Evaluation Kit

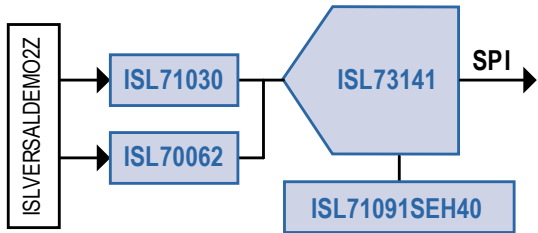
ISL73141VMREFEVKIT1Z

The ISL73141VMREFEVKIT1Z evaluation kit and iRADNavigator software GUI are used to demonstrate the ISL73141SEH 14-bit SAR ADC in a voltage monitoring application. The primary use of this evaluation kit is to pair with the ISLVERSALDEMO2Z demo board, and it is capable of monitoring up to 17 voltages.

Renesas Radiation Hardened parts featured on ISL73141VMREFEVKIT1Z

- ISL713141SEH 14-bit 1MSPS SAR ADC
- ISL71030M 5V, 16-Channel Analog Multiplexer
- ISL700062SEH 10A NMOS Load Switch
- ISL71091SEH40 4.096V Ultra Low Noise, Precision Voltage Reference

Renesas.com/ISL73141VMREFEVKIT1Z



Radiation Tolerant Voltage Monitor Evaluation Kit

ISL71148VMREFEV1Z, ISL71148VMREFEV2Z

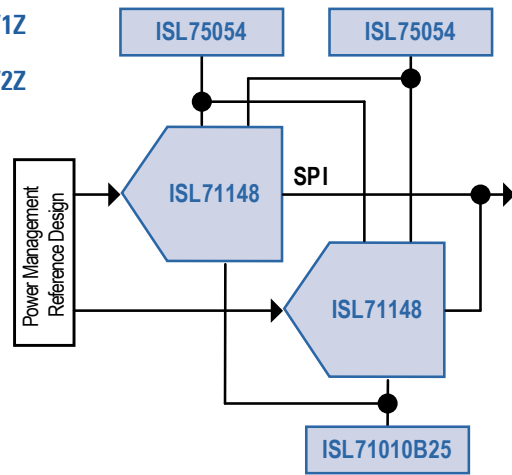
The ISL71148VMREFEV1Z and ISL71148VMREFEV2Z are high-resolution voltage monitor reference designs optimized to support the ISLVERSALDEMO3Z and ISLRTPFDEMO1Z respectively.

Renesas Radiation Tolerant parts featured on ISL71148VMREFEV1Z and ISL71148VMREFEV2Z

- ISL71148M 8-Channel, 14-bit 900/480ksps SAR ADC
- ISL75054M 30V Ultra Low Noise LDO
- ISL71010B25 2.5V Ultra Low Noise, Precision Voltage Reference

Renesas.com/ISL71148VMREFEV1Z

Renesas.com/ISL71148VMREFEV2Z



Power Management FPGA Reference Designs

Due to their flexibility in design and cost effectiveness compared to ASICs, FPGA-based systems have become increasingly common in space applications as the requirement to do more on-board processing is increasing. Equally important is the power solution of these multi-rail digital loads.

Renesas is at the forefront developing at the forefront developing leading edge Pulse Width Modulation (PWM) controllers, half-bridge GaN FET drivers, point-of-load (POL) regulators, and clock fanouts that meet the demands to power these high performance FPGAs.

RTG4 FPGA Development Kit

ISLRTG4DEM01Z

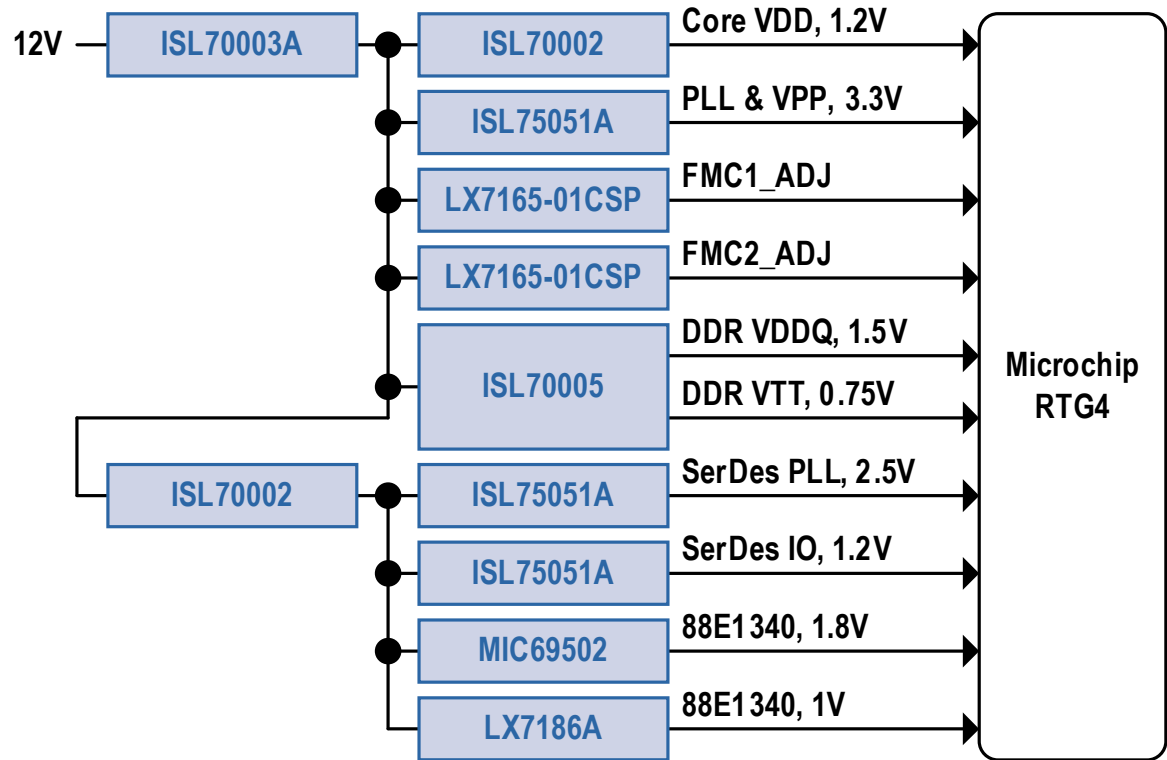
The ISLRTG4DEM01Z evaluation board provides the power management for Microsemi's RTG4 FPGA using Renesas' Radiation Hardened Power Management Devices.

Renesas Radiation Hardened parts featured on ISLRTG4DEM01Z

- ISL70003SEH 12V, 9A Integrated FET Synchronous Buck
- ISL70002SEH 22A Synchronous Buck with Current Sharing
- ISL75051ASEH 3A Ultra-Low Dropout Regulator
- ISL70005SEH 5V, 3A Synchronous Buck 1A Source and Sink LDO



[Renesas.com/ISLRTG4DEM01Z](https://www.renesas.com/ISLRTG4DEM01Z)



KU60 Reference Design

ISLKU060DEM01Z

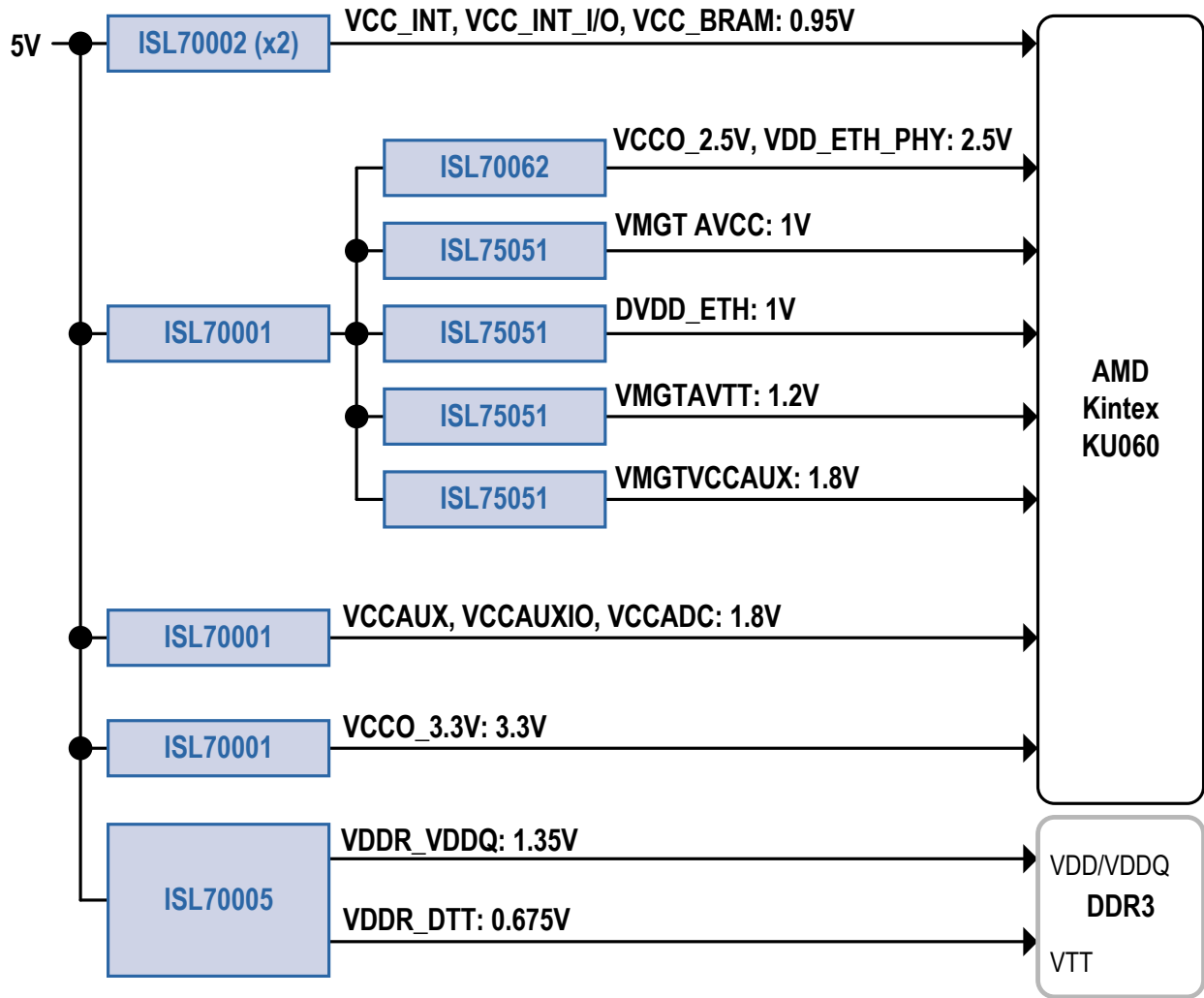
The ISLKU060DEM01Z evaluation board provides the power management for AMD'S Kintex XQRKU060 FPGA using Renesas' Radiation Hardened Power Management Devices.

Renesas Radiation Hardened parts featured on ISLKU060DEM01Z

- ISL70002SEH 22A Synchronous Buck w/ Current Sharing
- ISL70001ASEH 5V, 6A Integrated FET Synchronous Buck
- ISL75051ASEH 3A Ultra-Low Dropout Regulator
- ISL70005SEH 5V, 3A Synchronous Buck 1A Source and Sink LDO
- ISL700062SEH 10A NMOS Load Switch



[Renesas.com/ISLKU060DEM01Z](https://www.renesas.com/ISLKU060DEM01Z)



Power Management for the AMD Xilinx Space Grade VERSAL ACAP AI Core VC 1902

ISLVERSALDEM02Z

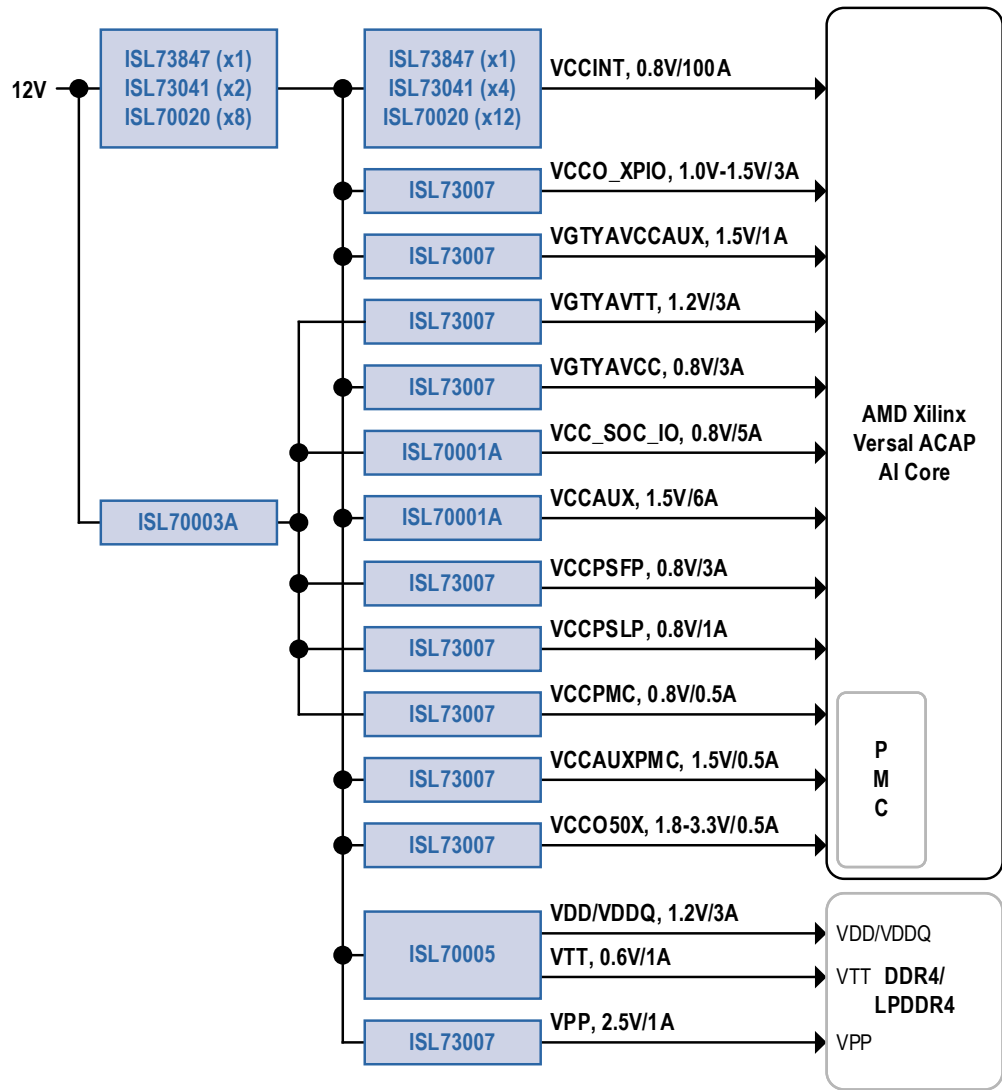
The ISLVERSALDEM02Z evaluation board provides the power management for the AMD Xilinx Space Grade Versal ACAP AI Core VC1902 using Renesas’ Radiation Hardened Power Management Devices.

Renesas Radiation Hardened parts featured on ISLVERSALDEM02Z

- ISL73847SEH 19V Dual Phase PWM Controller
- ISL73041SEH 12V GaN Half Bridge Driver
- ISL70020SEH 40V, 65A 3.5mΩ GaN FET
- ISL70001ASEH 5V, 6A Integrated FET Synchronous Buck
- ISL70003ASEH 12V, 9A Integrated FET Synchronous Buck
- ISL73007SEH 18V, 3A Integrated FET Synchronous Buck
- ISL70005SEH 5V, 3A Synchronous Buck 1A Source and Sink LDO
- ISL70321SEH Quad Channel Supply Sequencer
- ISL70218SEH Dual 36V Precision Rail to Rail Output Operational Amplifier



[Renesas.com/ISLVERSALDEM02Z](https://www.renesas.com/ISLVERSALDEM02Z)



Power Management for the AMD Xilinx Space Grade Versal ACAP AI Edge VC 2302

ISLVERSALDEM03Z

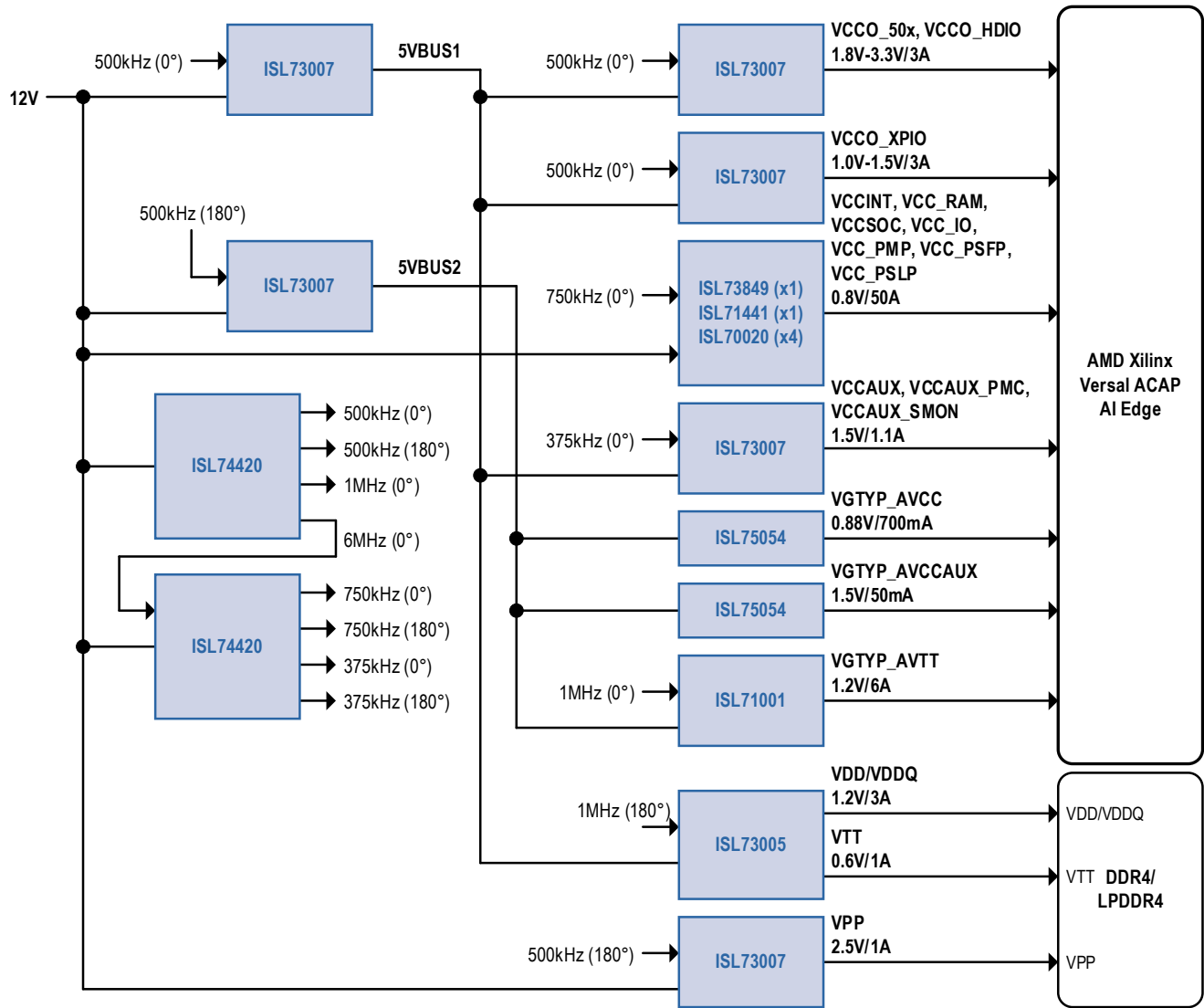
The ISLVERSALDEM03Z evaluation board provides the power management for the AMD Xilinx Space Grade Versal ACAP AI Edge VC2302 using Renesas’ Radiation Tolerant Power Management Devices.

Renesas Radiation Tolerant parts featured on ISLVERSALDEM03Z

- ISL74420M Quad Clock Fanout
- ISL73849M 19V Single/Dual Phase PWM Controller with PMBus
- ISL71441M 12V GaN Half Bridge Driver
- ISL70020SEH 40V, 65A 3.5mΩ GaN FET
- ISL75054M 30V Ultra Low Noise LDO
- ISL71001M 5V, 6A Integrated FET Synchronous Buck
- ISL73007M 18V, 3A Integrated FET Synchronous Buck
- ISL70005SEH 5V, 3A Synchronous Buck + 1A Source and Sink LDO



[Renesas.com/ISLVERSALDEM03Z](https://www.renesas.com/ISLVERSALDEM03Z)



Power Management for the Microchip RT PolarFire® FPGA

ISLRTPFDEM01Z

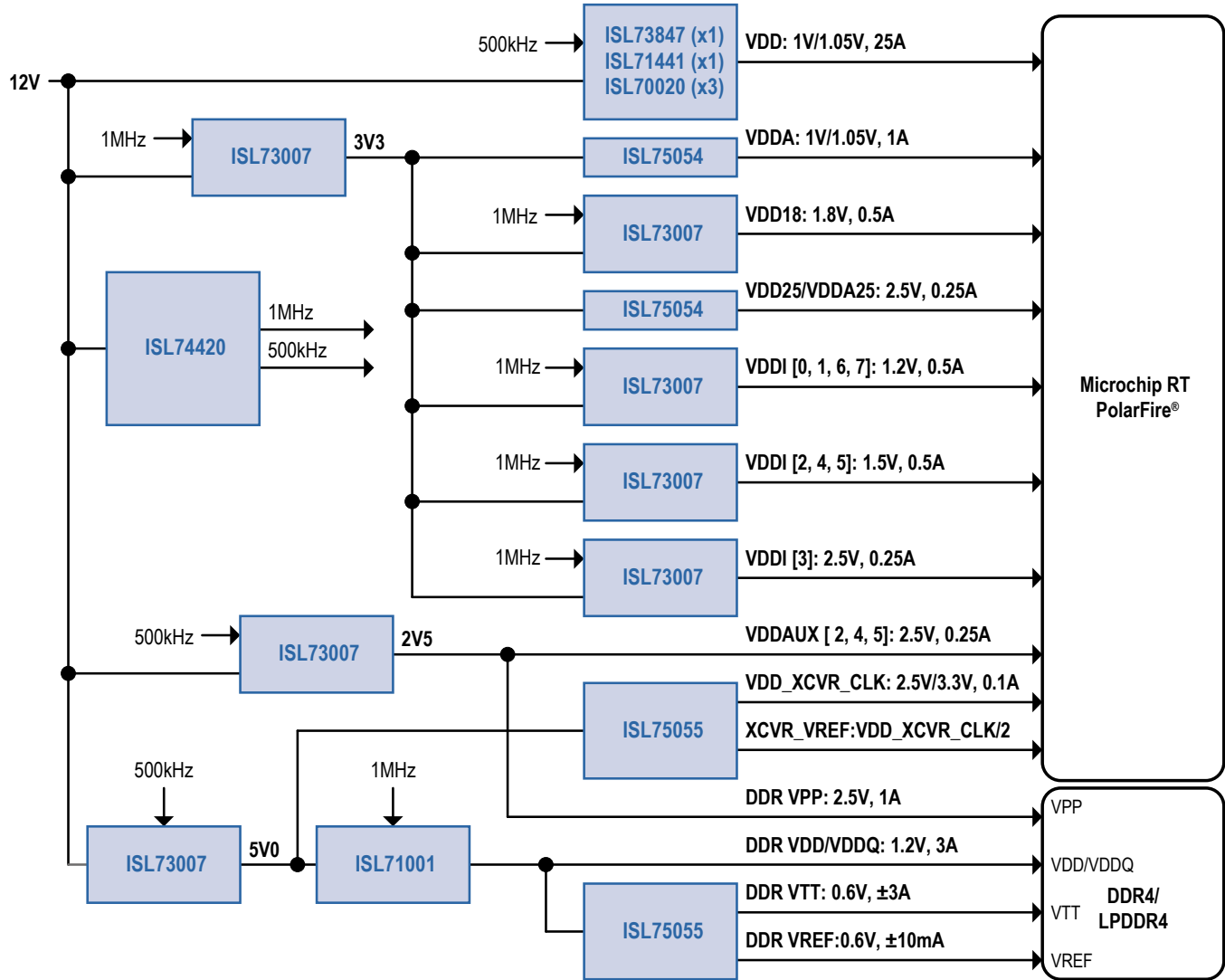
The ISLRTPFDEM01Z evaluation board provides the power management for the Microchip RT PolarFire® FPGA using Renesas' Radiation Tolerant Power Management Products.

Renesas Radiation Tolerant parts featured on ISLRTPFDEM01Z

- ISL74420M Quad Clock Fanout
- ISL73847M 19V PWM Dual Phase PWM Controller
- ISL71441M 12V GaN Half Bridge Driver
- ISL70020SEH 40V, 65A 3.5mΩ GaN FET
- ISL75054M 30V Ultra Low Noise LDO
- ISL71001M 5V, 6A Integrated FET Synchronous Buck
- ISL73007M 18V, 3A Integrated FET Synchronous Buck
- ISL75055M ±3A DDR Terminator/LDO



[Renesas.com/ISLRTPFDEM01Z](https://www.renesas.com/ISLRTPFDEM01Z)



Power Management For DDR4 Memories

ISLDDR4DEM01Z

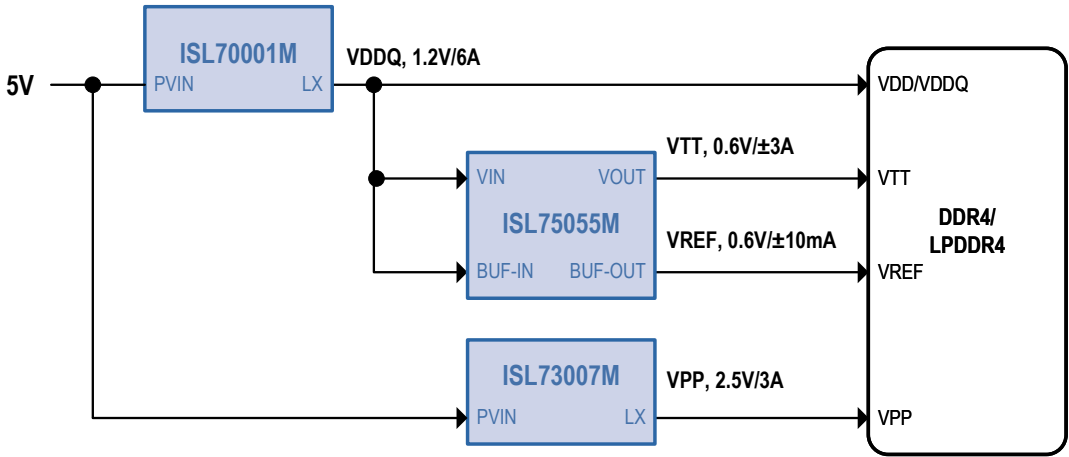
The ISLDDR4DEM01Z reference design is designed to demonstrate a radiation tolerant power management solution for DDR4 memories. The board uses Renesas radiation tolerant (RT) plastic power management devices to supply the required DDR4 VDDQ, VPP, VTT, VTTREF power rails.

This fully qualified radiation tolerant power solution includes regulations for all DDR4 compliant power rails in a minimal total solution area of just 3178mm².

Renesas Radiation Tolerant parts featured on ISLDDR4DEM01Z

- ISL75055M 5V, 3A Source and Sink DDR Terminator/LDO
- ISL73007M 18V, 3A Integrated FET Synchronous Buck
- ISL71001M 5V, 6A Integrated FET Synchronous Buck

[Renesas.com/ISLDDR4DEM01Z](https://www.renesas.com/ISLDDR4DEM01Z)



SPACE-GRADE PRODUCTS LIST

Analog

Screening	Production Flow
Class V	QML Class V
Class P	QML Class P
Class Q	QML Class Q
RT Plastic	Renesas Radiation Tolerant Plastic

Analog Switches												
Part Number	Switch Type	Number of SW (#)	Supply Voltage (V)	R _{ON} (Ω)	Turn-On Time (max) (ns)	Turn-Off Time (max) (ns)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
HS-303CEH	SPDT	2	±15	60	500	450	-55 to +125	300	50	DSEE Free (DI)	Class V	14 Ld CFP
HS-303BEH	SPDT	2	±12	70	500	450	-55 to +125	300	50	DSEE Free (DI)	Class V	14 Ld SBDIP, 14 Ld CFP
HS-303BRH								300	-	DSEE Free (DI)	Class V, Class Q	14 Ld SBDIP, 14 Ld CFP
HS-303AEH	SPDT	2	±15	70	500	450	-55 to +125	300	50	DSEE Free (DI)	Class V	14 Ld SBDIP, 14 Ld CFP
HS-303ARH								300	-	DSEE Free (DI)	Class V, Class Q	14 Ld SBDIP, 14 Ld CFP
HS-302AEH	DPST	2	±15	60	500	500	-55 to +125	100	50	DSEE Free (DI)	Class V	14 Ld CFP
HS-201HSEH	SPST	4	±15	50	110	80	-55 to +125	300	50	DSEE Free (DI)	Class V	14 Ld SBDIP, 14 Ld CFP
HS-201HSRH								300	-	DSEE Free (DI)	Class V, Class Q	14 Ld SBDIP, 14 Ld CFP
Buffers												
Part Number	3dB Band-width (MHz)	Voltage Gain	Gain Flatness (dB)	Gain Accuracy (V/V)	Supply Current (mA)		Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
HS-1115RH	225	+2, +1, -1	±0.1	0.99	6.9		-55 to +125	300	-	DSEE Free (DI)	Class V	8 Ld SBDIP
Comparators												
Part Number	Com-parator Type	Supply Voltage (V)	Input Offset Voltage V _{IO} (max) (mV (±))	Response Time (max) (ns)		Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package	
ISL7119EH	Single or Dual	5 to 15	8	185		-55 to +125	300	-	86.4	Class V	10 Ld CFP	
ISL7119RH							300	50	86.4	Class V, Class Q	10 Ld CFP	
IS-139ASEH	Single or Dual	9 to 30	5	7000		-55 to +125	300	-	84	Class V	20 Ld CFP	
IS-139ASRH							300	50	84	Class V, Class Q	20 Ld CFP	
HS-139EH	Dual	5 to 30	2	7000		-55 to +125	300	-	20	Class V	14 Ld SBDIP, 14 Ld CFP	
HS-139RH							300	50	20	Class V, Class	14 Ld SBDIP, 14 Ld CFP	
Current Sense Amplifiers												
Part Number	Supply Voltage (V)	Common Mode Voltage (V)	Transconductance (typ) (μA/mV)		Voltage Offset (typ) (μV)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package	
ISL70100M	2.7 to 40	-0.3 to 40	2		10	-55 to +125	-	30, 50	43	RT Plastic	14 Ld TSSOP	
ISL70100SLH							-	75	86.4	Class P	14 Ld TSSOP	
ISL73100SEH							-	75	86.4	Class V	10 Ld CFP	
ISL70100SEH							100	75	86.4	Class V	10 Ld CFP	

Current Sources											
Part Number	Supply Voltage (V)	Output Current (mA)	Accuracy (%)	Output Impedance (MΩ)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package	
ISL73592SEH	3 to 40	1	±30	14	-55 to +125	-	75	86	Class V	4 Ld CFP	
ISL70592SEH						100	75	86	Class V	4 Ld CFP	
ISL73591SEH	3 to 40	0.1	±34	189	-55 to +125	-	75	86	Class V	4 Ld CFP	
ISL70591SEH						100	75	86	Class V	4 Ld CFP	
Multiplexers											
Part Number	Configuration	Supply Voltage Range (V)	Positive Supply Current (max) (mA)	Negative Supply Current (max) (mA)	Transition Time (max)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL73841SEH	Single 32:1	±10.8 to ±16.5	0.4	-0.4	800ns	-55 to +125	-	50	86.4	Class V	44 Ld CQFP
ISL71841SEH							100	50	86.4	Class V	44 Ld CQFP, 44 Ld CLCC
ISL73840SEH	Single 16:1	±10.8 to ±16.5	0.35	-0.35	800ns	-55 to +125	-	50	86.4	Class V	28 Ld CFP
ISL71840SEH							100	50	86.4	Class V	28 Ld CFP
ISL71831SEH	Single 32:1	+3 to +5.5	0.3	-0.3	70ns	-55 to +125	-	75	60	Class V	48 Ld CQFP
ISL71030M	Single 16:1	+3 to +5.5	0.3	-0.3	70ns	-55 to +125	-	30, 50	43	RT Plastic	32 Ld TQFP
ISL71830SEH							-	75	60	Class V	28 Ld CFP
HS-508BEH	Single 8:1	±15	2	-1	1.5μs	-55 to +125	300	50	DSEE Free (DI)	Class V	16 Ld SBDIP, 16 Ld CFP
HS-508BRH							300	-	DSEE Free (DI)	Class V, Class Q	16 Ld SBDIP, 16 Ld CFP
HS-1840BEH	Single 16:1	±12	0.5	-0.5	1.5μs	-55 to +125	300	-	DSEE Free (DI)	Class V, Class Q	28 Ld SBDIP, 28 Ld CFP
HS-1840BRH							300	50	DSEE Free (DI)	Class V	28 Ld SBDIP, 28 Ld CFP
HS-1840AEH	Single 16:1	±15	0.5	-0.5	1.5μs	-55 to +125	300	-	DSEE Free (DI)	Class V, Class Q	28 Ld SBDIP, 28 Ld CFP
HS-1840ARH							300	50	DSEE Free (DI)	Class V	28 Ld SBDIP, 28 Ld CFP
HS-0548RH	Single 8:1	±15	2	-1	1μs	-55 to +125	10	-	DSEE Free (DI)	Class V	28 Ld CERDIP, 28 Ld SBDIP
HS-0547RH	Single 16:1	±15	2	-1	1μs	-55 to +125	10	-	DSEE Free (DI)	Class V	28 Ld CERDIP, 28 Ld SBDIP
HS-0546RH	Differential 8:1	±15	2	-1	1μs	-55 to +125	10	-	DSEE Free (DI)	Class V	28 Ld CERDIP, 28 Ld SBDIP

Operational Amplifiers																		
Part Number	Channels (#)	Supply Voltage (V)	Bandwidth (MHz)	Slew Rate (V/μs)	I _S per Amp (mA)	Noise V _n (nV/√Hz)	Offset Voltage (max)	I _{OUT} (mA)	Rail-toRail Input/Output	PSRR (dB)	CMRR (dB)	AVOL (dB)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL71444M	4	2.7 to 40	19	60	2.4	11.3	400μV	10	Yes	123	92	118	-55 to +125	-	30, 50	43	RT Plastic	14 Ld TSSOP
ISL73444SEH														-	50	86.4	Class V	14 Ld CFP
ISL70444SEH														100	50	86.4	Class V	14 Ld CFP
ISL73419SEH	4	4.5 to 36	1.5	0.5	0.44	8	110μV	43	No	120	120	129	-55 to +125	-	50	86.4	Class V	14 Ld CFP
ISL70419SEH														300	50	86.4	Class V	14 Ld CFP
ISL73244SEH	2	2.7 to 40	19	60	1.2	12.3	500μV	8	Yes	123	92	118	-55 to +125	-	50	86.4	Class V	10 Ld CFP
ISL70244SEH														300	50	86.4	Class V	10 Ld CFP
ISL7124SEH	4	5 to 30	1.2	0.4	3	-	10mV	10	No	70	70	86	-55 to +125	300	50	36	Class V	14 Ld CFP
ISL7124SRH														300	-	36	Class V, Class Q	14 Ld CFP
ISL70417SEH	4	4.5 to 40	1.5	0.5	0.44	8	110μV	43	No	120	120	129	-55 to +125	300	50	73.9	Class V	14 Ld CFP
ISL70227SEH	2	10 to 4.5	36	3.6	2.8	2.5	100μV	45	No	110	115	120	-55 to +125	100	50	86.4	Class V	10 Ld CFP
ISL70227SRH														100	-	86.4	Class V	10 Ld CFP
ISL70219ASEH	2	4.5 to 36	1.5	0.5	0.48	8	110μV	41	No	145	145	143	-55 to +125	300	50	86.4	Class V	10 Ld CFP
ISL71218M	2	3 to 30	4	1.2	1.4	5.6	290μV	10	No	100	97	115	-55 to +125	-	30, 50	43	RT Plastic	8 Ld SOICN
ISL70218SEH														100	50	86.4	Class V	10 Ld CFP
ISL70218SRH														100	-	86.4	Class V	10 Ld CFP
HS-OP470AEH	4	10 to 30	8	3	1.375	6	2.6mV	10	No	80	80	92	-55 to +125	100	50	86	Class V	14 Ld SBDIP, 14 Ld CFP
HS-5104AEH	4	10 to 30	8	3	1.875	6	5mV	10	No	80	80	92	-55 to +125	100	50	DSEE Free (DI)	Class V	14 Ld SBDIP, 14 Ld CFP
HS-3530AEH	1	6 to 30	0.75	0.25	0.16	-	5mV	2.5	No	80	80	300	-55 to +125	300	50	DSEE Free (DI)	Class V	8 Ld CAN, 10 Ld CFP
HS-3530ARH														300	-	DSEE Free (DI)	Class V, Class Q	8 Ld CAN, 10 Ld CFP
HS-1145RH	1	±5	300	1000	6.5	3.5	10mV	28	No	46	44	92	-55 to +125	300	-	DSEE Free (DI)	Class V	8 Ld SPDIP
HS-1135RH	1	±5	300	10	6.9	3.5	10mV	28	No	46	44	92	-55 to +125	300	-	DSEE Free (DI)	Class V	8 LD SBDIP, 8 LD CFP
ISL70617SEH	-	8 to 40	5.5	4	4.3	8.6	300μV	45	-	-	-	-	-55 to +125	-	75	60	Class V	24 Ld CFP
ISL70517SEH	-	8 to 40	5.5	4	4.3	8.6	300μV	45	-	-	-	-	-55 to +125	-	75	60	Class V	24 Ld CFP

Temperature Sensors										
Part Number	Supply Voltage (V)	Power Consumption (mW)	Ambient Error Accuracy (°C)		Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL73590SEH	3 to 33	1.5	-0.05		-55 to +125	-	50	86.4	Class V	2 Ld CFP
ISL71590SEH						300	50	86.4	Class V	2 Ld CFP
Transistor Arrays										
Part Number	NPN Transistors (#)		PNP Transistors (#)		Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL73128EH	-		5		-55 to +125	100	50	-	Class V	16 Ld CFP
ISL73128RH						100	-	-	Class V	16 Ld CFP
ISL73127EH	5		-		-55 to +125	100	50	-	Class V	16 Ld CFP
ISL73127RH						100	-	-	Class V	16 Ld CFP
ISL73096EH	3		2		-55 to +125	100	50	-	Class V	16 Ld CFP
ISL73096RH						100	-	-	Class V	16 Ld CFP
Voltage References										
Part Number	Reference Voltage (V)	Accuracy (±%)	Supply Voltage (V)	Line Regulation (ppm/V)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL71091SEH40	4.096	0.15	6 to 30	5	-55 to +125	100	50	86	Class V	8 Ld CFP
ISL71091SEH33	3.3	0.15	4.6 to 30	5	-55 to +125	100	50	86	Class V	8 Ld CFP
ISL71091SEH20	2.048	0.15	4.2 to 30	5	-55 to +125	100	50	86	Class V	8 Ld CFP
ISL71091SEH10	10	0.15	12 to 30	5	-55 to +125	100	50	86	Class V	8 Ld CFP
ISL71090SEH75	7.5	0.15	9.2 to 30	8	-55 to +125	100	50	86	Class V	8 Ld CFP
ISL71010B50	5	0.15	7 to 30	8	-55 to +125	-	30, 50	43	RT Plastic	8 Ld SOICN
ISL71090SEH50						100	50	86	Class V	8 Ld CFP
ISL71010B25	2.5	0.15	4 to 30	8	-55 to +125	-	30, 50	43	RT Plastic	8 Ld SOICN
ISL71090SEH25						100	50	86	Class V	8 Ld CFP
IS-1009EH	2.5	0.4	-	-	-55 to +125	300	50	80	Class V	3 Ld CAN, 3 Ld CLCC

Data Converters

Analog-to-Digital Converters (ADC)																	
Part Number	Type	Channels (#)	Resolution (bits)	Conversion Rate (Max) (kSPS)	Power Consumption (mW)	Analog Supply Voltage (V)	Integral NonLinearity LSB	Differential NonLinearity LSB	SFDR (dBs)	SINAD (dbFS)	Tempera- ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screen- ing	Package	
ISL71148M	SAR	8	14	900	90	5	0.4	0.2	100	82	-55 to +125	-	30, 50	43	RT Plastic	48 Ld LQFP	
ISL71148SLH												-	75	86	Class Pe	48 Ld LQFP	
ISL73148SEH	SAR	8	14	960	90	5	1	0.5	95	82	-55 to +125	-	75	86	Class Ve	28 Ld CFP	
ISL73141SEH	SAR	1	14	1000	28	3-5.5	0.5	0.2	90	79	-55 to +125	-	75	86	Class Ve	14 Ld CFP	
Digital-to-Analog Converters (DAC)																	
Part Number	Speed	LSB Max Nonlinearity Over Temperature (%)		LSB Accuracy at 25°C (±%)		LSB Accuracy Over Temperature (±%)		Max Gain Drift (ppm/°C)		Tempera- ture (°C)		TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screen- ing	Package	
HS-565BEH	0.5LSB in 500ns (Max)	0.5		0.125		0.75		50		-55 to +125		100	50	DSEE Free (DI)	Class V	24 Ld SBDIP, 24 Ld CFP	
HS-565BRH												100	-	DSEE Free (DI)	Class V	24 Ld SBDIP, 24 Ld CFP	
Sample and Hold Amplifiers																	
Part Number	Max Acquisition Time (10V Step to 0.1%) (µs)						Max Acquisi- tion Time (10V Step to 0.01%) (µs)		Maximum Drift Current Over Temperature (nA)		Tempera- ture (°C)		TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screen- ing	Package
HS-2420EH	4						6		10		-55 to +125		-	50	DSEE Free (DI)	Class V	14 Ld SBDIP

Screening	Production Flow
Class V	QML Class V
Class Ve	QML Class V Equivalent
Class Pe	QML Class P Equivalent
RT Plastic	Renesas Radiation Tolerant Plastic

Power Management

Screening	Production Flow
Class V	QML Class V
Class Ve	QML Class V Equivalent
Class Pe	QML Class P Equivalent
PEMs	NASA PEMS-INST-001, SAE AS6294/1
Class Q	QML Class Q
RT Plastic	Renesas Radiation Tolerant Plastic

Linear Regulators (LDO)													
Part Number	Supply Voltage (V)	Input Voltage (V)	V _{OUT} (V)	I _{OUT} (max) (A)	V _{DO} @ max I _{OUT} (mV)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package		
ISL75055M	2.7 to 5.5	0.75 to 5.5	0.5 to 4.1	±3	122	-55 to +125	-	30,50	46	RT Plastic	48 Ld TQFP		
ISL75055SLH								75	86	Class Pe	48 Ld TQFP		
							-	75	86	Class Ve	18 Ld CFP		
ISL75054M	2.7 to 30	-	0.5 to 29.5	1	387	-55 to +125	-	30,50	46	RT Plastic	16 Ld HTSSOP		
ISL75054SLH								75	86	Class Pe	16 Ld HTSSOP		
							-	75	86	Class Ve	10 Ld CFP		
ISL73052SEH	4 to 13.2	-	0.6 to 12.7	1.5	225	-55 to +125	-	50	86	Class V	16 Ld CFP		
ISL75052SEH							100	50	86	Class V	16 Ld CFP		
ISL73051ASEH							-	50	85.6	Class V	18 Ld CFP		
ISL75051ASEH	2.2 to 6	-	0.8 to 5	3	225	-55 to +125	100	50	85.6	Class V	18 Ld CFP		
ISL75051SEH							100	50	86	Class V	18 Ld CFP		
ISL72991RH	-30 to -3	-	-26 to -2.25	1	1000	-55 to +125	300	-	86.4	Class V, Class Q	28 Ld CFP		
HS-117EH	4.25 to 40	-	1.25 to 37	1.25	4000	-55 to +125	300	50	87.4	Class V	3 Ld CLCC, 3 Ld CAN		
HS-117RH							300	-	87.4	Class V, Class Q	3 Ld CLCC, 3 Ld CAN		
Switching Controllers													
Part Number	Supply Voltage (V)	Switching Frequency (kHz)	V _{REF} (V)	Topology	Control Mode	Number of Phases	Digital Interface	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL73849M	2.5 to 19	250 to 1500	0.2 to 1.2	Sync. Buck	Current Mode	2	PMBus	-55 to +125	-	30,50	46	RT Plastic	80 Ld TQFP
ISL73849SLH										75	86	Class Pe	80 Ld TQFP
									-	75	86	Class Ve	24 Ld CFP
ISL73846M	4.5 to 19	20 to 2000	0.6	Boost, Flyback, Forward, Full Bridge, Half Bridge, Push Pull	Voltage, Current Mode	2	-	-55 to +125	-	30,50	46	RT Plastic	64 Ld TQFP
ISL73846SLH										75	86	Class Ve	24 Ld CFP
									-				
ISL73847M	4.5 to 19	250 to 1500	0.6	Sync. Buck	Current Mode	2	-	-55 to +125	-	30, 50	46	RT Plastic	24 Ld SOICW
ISL73847SLH										75	86	Class Pe	24 Ld SOICW
ISL73847SEH									-	75	86	Class Ve	24 Ld CFP
ISL738845ASEH	9 to 13.2	2 to 1000	5	Buck, Boost, Flyback, Forward	Current Mode	1	-	-55 to +125	-	50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78845ASEH									100	50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78845ASRH									100	-	86	Class V, Class Q	8 Ld SBDIP, 8 Ld CFP
ISL71043M	9 to 13.2	2 to 1000	5	Buck, Boost, Flyback, Forward	Current Mode	1	-	-55 to +125	-	30, 50	43	RT Plastic	8 Ld SOICN
ISL738843ASEH										50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78843ASEH									100	100	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78843ASRH	9 to 13.2	2 to 1000	5	Buck, Boost, Flyback, Forward	Current Mode	1	-	-55 to +125	100	-	86	Class V, Class Q	8 Ld SBDIP, 8 Ld CFP
									-	30, 50	43	RT Plastic	8 Ld SOICN
ISL71041M	9 to 13.2	2 to 1000	5	Buck, Boost, Flyback, Forward	Current Mode	1	-	-55 to +125	-	50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL738841ASEH										50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78841ASEH									100	50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78841ASRH	9 to 13.2	2 to 1000	5	Buck, Boost, Flyback, Forward	Current Mode	1	-	-55 to +125	100	-	86	Class V, Class Q	8 Ld SBDIP, 8 Ld CFP
									-	30, 50	43	RT Plastic	8 Ld SOICN
ISL738840ASEH	9 to 13.2	2 to 1000	5	Buck, Boost, Flyback, Forward	Current Mode	1	-	-55 to +125	-	50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78840ASEH									100	50	86	Class V	8 Ld SBDIP, 8 Ld CFP
ISL78840ASRH									100	-	86	Class V, Class Q	8 Ld SBDIP, 8 Ld CFP
ISL71823ASRH	12 to 30	10 to 3000	5.1	Boost, Flyback, Forward, Full Bridge, Half Bridge, Push-Pull	Voltage, Current Mode	2	-	-55 to +125	300	-	86.3	Class V, Class Q	16 Ld SBDIP, 20 Ld CFP
ISL71823BSRH									300	-	86.3	Class V, Class Q	16 Ld SBDIP, 20 Ld CFP
IS-1825ASRH	12 to 30	10 to 3000	5.1	Boost, Flyback, Forward, Full Bridge, Half Bridge, Push-Pull	Voltage, Current Mode	2	-	-55 to +125	300	-	86.3	Class V, Class Q	16 Ld SBDIP, 20 Ld CFP
IS-1825BSEH									300	50	86.3	Class V, Class Q	16 Ld SBDIP, 20 Ld CFP
IS-1825BSRH									300	-	86.3	Class V, Class Q	16 Ld SBDIP, 20 Ld CFP

Switching Controllers

Part Number	Supply Voltage (V)	Switching Frequency (kHz)	VREF (V)	Topology	Control Mode	Num-ber of Phases	Digital Inter-face	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
IS-1845ASEH	12 to 30	4 to 2000	5	Buck, Boost, Flyback, Forward	Current Mode	1		-55 to +125	300	50	89.1	Class V	8 Ld SBDIP, 18 Ld CFP
IS-1845ASRH									300	50	89.1	Class V, Class Q	8 Ld SBDIP, 18 Ld CFP
HS-1825AEH	12 to 30	10 to 3000	5.1	Boost, Flyback, Forward, Full Bridge, Half Bridge, Push-Pull	Voltage, Current Mode	2		-55 to +125	300	50	86.3	Class V	16 Ld SBDIP, 16 Ld CFP
HS-1825ARH									300	-	86.3	Class V, Class Q	16 Ld SBDIP, 16 Ld CFP

GaN FET Drivers

Part Number	Driver Type	Bus Voltage (max) (V)	Number of Drivers (#)	Output Type	Regulated Gate Drive (V)	Peak Output Source/Sink Current (A)	Input VCC (V)	Low Side Rise/Fall Time (ns)	High Side Rise/Fall Time (ns)	Tem-perature (°C)	HDR RLAT (krad(Si))	LDR RLAT (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL71441M	Half Bridge	12	2	Sync.	4.5 to 5.5	2, 4 (HS) 4, 8 (LS)	4.75 to 13.2	34, 30	25, 25	-55 to +125	-	30, 50	43	RT Plastic	20 Ld QFN
ISL71441SLH												75	86	PEMS	20 Ld QFN
ISL73041SEH												75	86	Class Ve	16 Ld CLCC
ISL71040M	Low Side	-	1	Inverting/ Non-inverting	4.5	1.5, 2.8	4.5 to 13.2	90, 60	-	-55 to +125	-	30, 50	43	RT Plastic	8 Ld TDFN
ISL73040SEH											-	75	86	Class V	8 Ld CLCC
ISL70040SEH											100	75	86	Class V	8 Ld CLCC

MOSFET Drivers

Part Number	Driver Type	Bus Voltage (Max) (V)	Number of Drivers (#)	Output Type	Peak Output Source/ Sink Current (A)	Input Vcc (V)	Low Side Rise/Fall Time (ns)	High Side Rise/Fall Time (ns)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL7457SRH	Low Side	-	4	Non-Inv.	±2	4.5 to 16.5	20, 20	-	-55 to +125	10	-	40	Class V, Class	16 Ld CFP
ISL74422ARH	Low Side	-	1	Non-Inv.	±9	7 to 18	105, 90	-	-55 to +125	300	-	DSEE Free (DI)	Class V, Class	16 Ld CFP
ISL74422BRH						8 to 18	135, 135			300	-	DSEE Free (DI)	Class V, Class Q	16 Ld CFP
IS-2100AEH	Half Bridge	130	1	Sync.	±1.5	12 to 20	40, 40	40, 40	-55 to +125	300	50	90	Class V	16 Ld CFP
IS-2100ARH										300	-	90	Class V	16 Ld CFP
IS-1715AEH	Low Side	-	2	Comp.	±3	10 to 18	50, 50	-	-55 to +125	300	50	90	Class V, Class Q	16 Ld CFP
IS-1715ARH										300	-	90	Class V, Class Q	16 Ld CFP
HS-4424EH	Low Side	-	2	Non-Inv.	±2	12 to 18	75, 75	-	-55 to +125	300	50	60	Class V	16 Ld CFP
HS-4424RH										300	-	60	Class V, Class Q	16 Ld CFP
HS-4424DEH	Low Side	-	2	Non-Inv.	±2	8 to 18	75, 75	-	-55 to +125	300	50	60	Class V	16 Ld CFP
HS-4424DRH										300	-	60	Class V	16 Ld CFP
HS-4424BEH	Low Side	-	2	Non-Inv.	±2	12 to 18	75, 75	-	-55 to +125	300	50	60	Class V	16 Ld CFP
HS-4424BRH										300	-	60	Class V, Class Q	16 Ld CFP
HS-4423BEH	Low Side	-	2	Inv.	±2	12 to 18	95, 95	-	-55 to +125	300	50	60	Class V	16 Ld CFP
HS-4423EH	Low Side	-	2	Inv.	±2	12 to 18	95, 95	-	-55 to +125	300	50	60	Class V	16 Ld CFP
HS-4423BRH										300	-	60	Class V, Class Q	16 Ld CFP
HS-4423RH										300	-	60	Class V, Class Q	16 Ld CFP
HS-4080AEH	Full Bridge	80	1	Sync.	±2.5	12 to 15	65, 80	65, 80	-55 to +125	300	50	90.9	Class V	20 Ld CFP

Switching Regulators

Part Number	# of Outputs	Topology	Supply Voltage (V)	Output Voltage (V)	I _{OUT} (Max) (A)	Switching Freq (kHz)	Control Type	Temperature (°C)	HDR RLAT (krad(Si))	LDR RLAT (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package								
ISL73007M	1	Buck	3 to 18	0.6 to 16	3	300 to 1000	Current Mode	-55 to +125	-	30, 50	46	RT Plastic	28 Ld TSSOP								
ISL73007SEH									-	75	86	Class Ve	14 Ld CFP								
ISL73006SLH	1	Buck	3 to 18	0.6 to 16	1	500	Current Mode	-55 to +125	-	75	86	Class Ve	10 Ld CFP								
ISL73005SEH	2	Buck, LDO	3 to 5.5,	0.6 to 4.675,	3, ±1	100 to 1000	Voltage Mode	-55 to +125	-	75	86	Class V	28 Ld CFP								
ISL70005SEH									100	75	86	Class V	28 Ld CFP								
ISL70003ASEH	1	Buck	3 to 13.2	0.6 to 11.9	9	300, 500	Voltage Mode	-55 to +125	100	100	86	Class V	64 Ld CQFP								
ISL73002SEH	1	Buck	3 to 6.2	0.6 to 4.675	22	500, 1000	Current Mode	-55 to +125	-	100	86	Class V	64 Ld CQFP								
ISL70002SEH									100	100	86	Class V	64 Ld CQFP								
ISL71001M	1	Buck	3 to 5.5	0.6 to 4.675	6	1000	Current Mode	-55 to +125	-	30, 50	43	RT Plastic	64 Ld TQFP								
ISL71001SLHM									-	75	86	PEMS	64 Ld TQFP								
ISL70001ASEH									100	50	86	Class V	48 Ld CQFP								
ISL70001SEH									100	100	86	Class V	48 Ld CQFP								
ISL70001SRH									100	-	86	Class V, Class Q	48 Ld CQFP								

Supervisors

Part Number	Supply Voltage (min) (V)	Supply Voltage (max) (V)	Threshold Detector Voltage (V)	Reset Output Type	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Flow	Package
ISL736AEH	1.2	3.6	0.6	Active Low Push-Pull	-55 to +125	-	50	86	Class V	8 Ld CFP
ISL706AEH						100	50	86	Class V	8 Ld CFP
ISL706ARH						100	-	86	Class V, Class Q	8 Ld CFP
ISL736BEH	1.2	3.6	0.6	Active High Push-Pull	-55 to +125	-	50	86	Class V	8 Ld CFP
ISL706BEH						100	50	86	Class V	8 Ld CFP
ISL706BRH						100	-	86	Class V, Class Q	8 Ld CFP
ISL736CEH	1.2	3.6	0.6	Active Low Open-Drain	-55 to +125	-	50	86	Class V	8 Ld CFP
ISL706CEH						100	50	86	Class V	8 Ld CFP
ISL706CRH						100	-	86	Class V, Class Q	8 Ld CFP
ISL735AEH	1.2	5.5	1.2	Active Low Push-Pull	-55 to +125	-	50	86	Class V	8 Ld CFP
ISL705AEH						100	50	86	Class V	8 Ld CFP
ISL705ARH						100	-	86	Class V, Class Q	8 Ld CFP
ISL735BEH	1.2	5.5	1.2	Active High Push-Pull	-55 to +125	-	50	86	Class V	8 Ld CFP
ISL705BEH						100	50	86	Class V	8 Ld CFP
ISL705BRH						100	-	86	Class V, Class Q	8 Ld CFP
ISL735CEH	1.2	5.5	1.2	Active Low Open-Drain	-55 to +125	-	50	86	Class V	8 Ld CFP
ISL705CEH						100	50	86	Class V	8 Ld CFP
ISL705CRH						100	-	86	Class V, Class Q	8 Ld CFP

Power Timing

Part Number	Supply Voltage (V)	Output Clock Supply Voltage (V)	Number of Clock Outputs (#)	Clock Frequency	Digital Interface	Cascad-able?	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL74420M	3 to 18	3 to 5.5	4	25kHz to 48MHz	I²C	Yes	-55 to +125	-	30, 50	46	RT Plastic	48 Ld TQFP-EP
ISL74420SLH								-	75	86	Class Pe	48 Ld TQFP-EP
								-	75	86	Class Ve	48 Ld CFP

Power Sequencing

Part Number	Supply Voltage (V)	Number of Controlled Supplies (#)	Output Type	PGOOD Timer	Program-mable Delay	Cascad-able?	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Flow	Package
ISL73321SEH	3 to 13.2	4	Enable Open Drain	Yes	Yes	Yes	-55 to +125	-	75	86	Class V	18 Ld CFP
ISL70321SEH								100	75	86	Class V	18 Ld CFP

Source Drivers

Part Number	Supply Voltage (V)	Input Voltage (V)	Integrated Decoder?	Num-ber of Outputs (#)	Output Source Current (max) (mA)	Saturation Voltage (max) (V)	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL73814SEH	0 to 14.7	0 to 42	Yes	16	700	1.5	-55 to +125	-	75	86	Class V	28 Ld CFP
ISL72814SEH								100	75	86	Class V	28 Ld CFP
ISL72813SEH	0 to 6.5	0 to -42	Yes	32	600	1.45	-55 to +125	100	50	86	Class V	44 Ld CLCC
IS-2981EH	5 to 80	0 to 20	No	8	200	1.5	-55 to +125	100	50	DSEE Free (DI)	Class V	18 LD SBDIP
IS-2981RH								100	-	DSEE Free (DI)	Class V, Class	18 LD SBDIP

Protection Switches

Part Number	FET Pass Device Type	Supply Voltage (V)	SWI Input Voltage (V)	Continuous Switch Current (max) (A)	RON (Typ) (mΩ)	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL73062SLH	NMOS	3 to 5.5	0 to 3.5	10	25	-55 to +125	-	75	86	Class V	14 Ld CFP
ISL70062SEH							100	75	86	Class V	14 Ld CFP
ISL73061SEH	PMOS	-	3 to 5.5	10	14	-55 to +125	-	75	86	Class V	14 Ld CFP
ISL70061SEH							100	75	86	Class V	14 Ld CFP

Power Discretes

Screening	Production Flow
PEMs	NASA PEMS-INST-001, SAE AS6294/1
RH GaN FET	RH Hermetic GaN FET (Class Ve)

GaN FET Power Stages

Part Number	RDSON (typ) (mΩ)	Input Voltage (V)	Regulated Gate Drive (V)	VIH (V)	VIL (V)	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL73033SLHM	7.5	4.5 to 13.2	4.5	1.7	1.4	-55 to +125	-	75	86	PEMS	81 Ball FBGA

GaN FETs

Part Number	VDS (V)	IDS (A)	VGS(TH) (max) (V)	VGS (max) (V)	RDSON (typ) (mΩ)	Qg typ (nC)	Thermal Resis-tance θJC (°C/W)	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL73024SEH	200	7.5	2.5	6	45	14	18.7	-55 to +125	-	75	86	RH GaN FET	4 Ld CLCC
ISL70024SEH									100	75	86	RH GaN FET	4 Ld CLCC
ISL73023SEH	100	60	2.5	6	5	2.5	3.1	-55 to +125	-	75	86	RH GaN FET	4 Ld CLCC
ISL70023SEH									100	75	86	RH GaN FET	4 Ld CLCC
ISL73020SEH	40	65	2.5	6	3.5	19	3.1	-55 to +125	-	75	86	RH GaN FET	4 Ld CLCC
ISL70020SEH									100	75	86	RH GaN FET	4 Ld CLCC

Digital

Screening	Production Flow
PEMs	NASA PEMS-INST-001, SAE AS6294/1
RT Plastic	Renesas Radiation Tolerant Plastic

Digital Isolators

Part Number	Input Type	Supply Voltage (V)	Isolation Voltage (min) (kVRMS)	Data Rate (Mbps)	Output Format	Propaga-tion Delay	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL717110M	High Impedance	3.3 to 5	2.5	150	CMOS	10	-55 to +125	-	30, 50	43	RT Plastic	8 Ld SOICN
ISL717110SLHM								-	75	86	PEMS	8 Ld SOICN
ISL71610M	Passive	3.3 to 5	2.5	100	CMOS	8	-55 to +125	-	30, 50	43	RT Plastic	8 Ld SOICN
ISL71610SLHM								-	75	86	PEMS	8 Ld SOICN

Interface

Screening	Production Flow
Class V	QML Class V
Class Q	QML Class Q
Class T	QML Class T
RT Plastic	Renesas Radiation Tolerant Plastic

CAN Transceivers

Part Number	Supply Voltage (V)	Common Mode In-put Range (V)	Loopback Feature	VREF Output	Listen Mode	Shutdown Mode	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/ mg)	Screening	Package
ISL72028SEH	3 to 3.6	-7 to 12	No	Yes	No	Yes	-55 to +125	-	75	60	Class V	8 Ld CFP
ISL72028ASEH								-	75	86.4	Class V	8 Ld CFP
ISL72028BSEH								100	75	86.4	Class V	8 Ld CFP
ISL72028CSEH								100	75	86.4	Class V	8 Ld CFP
ISL72027SEH	3 to 3.6	-7 to 12	No	Yes	Yes	No	-55 to +125	-	75	60	Class V	8 Ld CFP
ISL72027ASEH								-	75	86.4	Class V	8 Ld CFP
ISL72027BSEH								100	75	86.4	Class V	8 Ld CFP
ISL72027CSEH								100	75	86.4	Class V	8 Ld CFP
ISL71026M	3 to 3.6	-7 to 12	Yes	No	Yes	No	-55 to +125	-	30, 50	43	RT Plastic	14 Ld TSSOP
ISL72026SEH								-	75	60	Class V	8 Ld CFP
ISL72026ASEH								-	75	86.4	Class V	8 Ld CFP
ISL72026BSEH								100	75	86.4	Class V	8 Ld CFP
ISL72026CSEH								100	75	86.4	Class V	8 Ld CFP

RS-485/RS-422

Part Number	Type	Supply Voltage (V)	Output Low Volt-age (V)	Output High Volt-age (V)	Input Low Voltage	Input High Voltage (V)	Tempera-ture (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	SEE (MeV·cm²/ mg)	Screening	Package
HS-26CT32EH	Line Receiver	4.5 to 5.5	0.8	VDD/2	-	-	-55 to +125	300	50	100	Class V	16 Ld SBDIP, 16 Ld CFP
HS-26CT32RH								300	-	100	QML-V, QML-Q	
HS-26CT31EH	Line Driver	4.5 to 5.5	-	-	0.8	VDD/2	-55 to +125	300	50	100	Class V	16 Ld SBDIP, 16 Ld CFP
HS-26CT31RH								300	-	100	QML-V, QML-Q	
HS-26CLV32EH	Line Receiver	3 to 3.6	0.4	2.55	-	-	-55 to +125	300	50	100	Class V	16 Ld SBDIP, 16 Ld CFP
HS-26CLV32RH								300	-	100	QML-V, QML-Q	
HS-26CLV31EH	Line Driver	3 to 3.6	-	-	0.3 VDD	0.7 VDD	-55 to +125	300	50	100	Class V	16 Ld SBDIP, 16 Ld CFP
HS-26CLV31RH								300	-	100	QML-V, QML-Q	
HS-26C32EH	Line Receiver	4.5 to 5.5	0.4	4.1	-	-	-55 to +125	300	50	100	Class V	16 Ld SBDIP, 16 Ld CFP
HS-26C32RH								300	-	100	Class V, Class Q	
HS-26C32RH-T								100	-	100	Class T	
HS-26C31EH	Line Driver	4.5 to 5.5	-	-	0.3 VDD	0.7 VDD	-55 to +125	300	50	100	Class V	16 Ld SBDIP, 16 Ld CFP
HS-26C31RH								300	-	100	Class V, Class	
HS-26C31RH-T								100	-	100	Class T	

RF

												Screening	Production Flow
												RT Plastic	Renesas Radiation Tolerant Plastic
RF Switches													
Part Number	Supply Voltage (V)	Input Frequency (MHz)	Insertion Loss (dB)	Switching Speed (ns)	IIP2 (dBm)	IIP3 (dBm)	IP1dB (dBm)	Temperature (°C)	TID HDR (krad(Si))	TID LDR (krad(Si))	DSEE (MeV·cm²/mg)	Screening	Package
ISL71934M	2.7 to 5.5	50 to 6000	0.79	255	111	64	36	-55 to +125	-	30, 50	43	RT Plastic	16 Ld TQFN
RF Amplifiers													
Part Number	Frequency Range (MHz)	Gain (dB)	Noise Figure (dB)	OP1dB (dBm)	Input Supply Range (V)	Temperature	HDR	LDR	DSEE	Screening	Package		
ISL74324M	500-6500	16.6	2.2	21.5	3.15-5.25	-55 to +125	-	30,50	46	RT Plastic	16 Ld QFN		
ISL74324SLH						-55 to + 125	-	75	86	Class Pe	16 Ld QFN		

APPENDIX

Standard Data Packet

Qualification Level	Rad Hard Hermetic			Rad Hard Plastic	Rad Tolerant Plastic
	Class Q Packaged Part	Class V, Class Ve Packaged Part	Class V, Class Ve Die	Class P, Class Pe, PEMS Packaged Part	RT Plastic Packaged Part
Shipper/Pack Slip	✓	✓	✓	✓	✓
P.O. Number	✓	✓	✓	✓	✓
Customer Part Number, Rev As applicable on the P.O.	✓	✓	✓	✓	✓
Renesas (Intersil) Part Number	✓	✓	✓	✓	✓
Lot Date Code/Trace Code	✓	✓	✓	✓	✓
Lot Number	✓	✓	✓	✓	✓
Quantity	✓	✓	✓	✓	✓
Certificate of Conformance	✓	✓	✓	✓	✓
Screening Attributes Data		✓	✓	✓	
Post seal through end of 100% screening operations		✓		✓	
Test Operations		✓		✓	
Quantity of units in/out by operation		✓		✓	
Date of each test		✓		✓	
PDA as applicable		✓		✓	
Visual Inspection		✓	✓	✓	
Document Review		✓	✓	✓	
Screening Variables & Delta Data Variables data for all read/record and/or delta operations pre/post burn-in at 25°C provided on electronic media		✓		✓	
Group A Attributes Located in Screening Attributes Data if performed		✓		✓	
Group B Attributes Summary		✓		✓	
Group C Attributes Summary		✓		✓	
Group C Variables & Delta Data Variables data for all read/record and/or delta operations pre/post life test provided on electronic media		✓*		✓	
Group D Attributes Summary		✓		✓	
Group E Variables Data for LDR and/or HDR, as applicable Variables data for all read/record operations pre/post rad provided on electronic media		✓*	✓*	✓	✓
SEM C of C & Photos (if performed)		✓	✓	✓	
Radiation C of C Low Dose Rate (LDR) and/or High Dose Rate (HDR)		LDR &/or HDR	LDR &/or HDR	LDR	LDR
X-Ray Report Film kept on file and available on request. Request must be documented on P.O.		✓		✓	✓
Acoustic Microscopy Report				✓	

* Not included for parts with only HDR TID RLAT

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