

RAD-HARD ICs IN PLASTIC PACKAGES

Optimized solution for LEO constellation mission profile



New series of rad-hard analog and power management ICs in plastic packages offer a lightweight, cost-effective solution for LEO satellite constellations

Taking full advantage of its over 40-year Space heritage and its automotive AEC-Q100 qualified production lines, ST is introducing [new series of rad-hard components](#) in plastic packages to support the growing Low Earth Orbit satellites market.

Compliant with ST's LEO generic specification for ICs, these space-ready and automotive-based products offer a specific trade-off among footprint size savings, cost of ownership and quality assurance together with radiation hardness and large quantity capacity.

Available products for New-Space

V-reg



ADC



LVDS



Logic ICs



BENEFITS

- Low cost of ownership
- Radiation proven
- Dedicated qualification level, screening and traceability
- Large quantity capacity
- Small packages with NiPdAu finishing
- AEC-Q100 based
- Single plant source
- Radiation proven in TID and SEE

Specificities of new LEO ICs

Quality Assurance	Radiation Hardness
<ul style="list-style-type: none"> AEC-Q100 based framework Statistical process control Guaranteed single plant source “ST-LEO-Generic-Specification for ICs” 	<ul style="list-style-type: none"> TID up to 50krad(Si) <ul style="list-style-type: none"> High Dose Rate (HDR) 40krad(Si)/h Low dose rate (LDR) 10mrad(Si)/s TNID @ 3.10^{11} proton/cm² SEL-free guaranteed at 62.5MeV.cm²/mg SET characterized up to 62.5MeV.cm²/mg
Generic Characteristics	Product versions
<ul style="list-style-type: none"> Plastic package with gold wires and NiPdAu finishing (whisker free) Space compliant outgassing (RML recovery mass loss < 1%, CVM collected volatile condensable material < 0.1%) Tested at 3 temperatures: -40/+25/+125°C 	<ul style="list-style-type: none"> Dummy samples: worst case final packaging for mounting qualification Development samples: evaluation and development Flight Models: compliant with “ST-LEO-Generic-Specification for ICs”

New available LEO ICs, compliant with “ST-LEO-Generic-Specification for ICs”

V-Reg	Description	Radiation	Vcc (V)	Drop voltage	Temp (°C)
LE03910	2A positive low drop voltage regulator	TID (HDR, LDR) TNID SEL and SET	3 to 12	350 mV (at I _{out} =400mA)	-40 to +125
ADC	Description	Radiation	Vcc (V)	I _{cc} max.	Temp (°C)
LE0AD128	8-Channel 1Msps 12-bit ADC, with 8-input MUX	TID (HDR) SEL	2.7 to 3.6	2 mA (at 1Msps clock)	-40 to +125
LVDS	Description	Radiation	Vcc (V)	Prop. delay (ns)	Temp (°C)
LE0LVDSRD	LVDS Driver-Receiver, 400Mbps	TID (HDR) SEL	3 to 3.6	1.5/2.5 (D/R)	-40 to +125
Logics	Description	Radiation	Vcc (V)	Prop. delay (ns)	Temp (°C)
LE0AC00	Quad 2-input NAND gate	TID (HDR) SEL	2 to 6	8	-40 to +125
LE0AC08	Quad 2-input AND gate				
LE0AC14	Hex inverter				
LE0AC32	Quad 2-input OR gate				
LE0AC74	Dual D-type flip-flop				
LE0AC244	Octal bus buffer				

Ordering information

Order code	Package	Quality level	Order code	Package	Quality level
LE03910PDT-D	PowerSO-20	Development sample	LE03910PDT	PowerSO-20	Flight Model
LE0AD128PT-D	TSSOP-20		LE0AD128PT	TSSOP-20	
LE0LVDSRDPT-D			LE0LVDSRDPT		
LE0AC00PT-D			LE0AC00PT		
LE0AC08PT-D			LE0AC08PT		
LE0AC14PT-D			LE0AC14PT		
LE0AC32PT-D			LE0AC32PT		
LE0AC74PT-D			LE0AC74PT		
LE0AC244PT-D			LE0AC244PT		



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