

## Spacelite<sup>TM</sup> Certification <sup>1</sup>

Test	Sample Size	Standard	Spacelite	Spacelite Plus	Spacelite Ultra
Serialization	100%		Read and Record	Read and Record	Read and Record
Number 1: Electrical Test (DC1, DC2, DC3) 25°C, -55°C, 125°C	100%		Per Device Datasheet	Per Device Datasheet	Per Device Datasheet
Number 2: X-Ray	-		Not Applicable	Not Applicable	Sample (25% of Lot)
Number 3: Temperature Cycling	100%	MIL-STD 883: TM1010 Condition B	20 Cycles	20 Cycles	20 Cycles
			(-55°C to +125°C)	(-55°C to +125°C)	(-55°C to +125°C)
Number 4: Electrical Test (DC4) 25°C	100%		Per Device Datasheet	Per Device Datasheet	Per Device Datasheet
Number 5: PIND Hermetic Devices Only	100%	MIL-STD 750: TM2052 Condition A	Not Applicable	Not Applicable	Applicable
Number 6: HTRB	100%	MIL-STD 750: TM1038-A, TM1039-A, TM1040-A, TM1042-B	Not Applicable	48 Hours for Diodes. 48 hours for NPN Transistor. 24 Hours for PNP Transistor. 48 Hours for MOSFET.	48 Hours for Diodes. 48 hours for NPN Transistor. 24 Hours for PNP Transistor. 48 Hours for MOSFET.
Number 7A: Electrical Test (DC5) 25°C	100%		Per Device Datasheet	Per Device Datasheet	Per Device Datasheet
Number 7B: Delta Shift Calculations	100%		±100% Allowable Shift	±50% Allowable Shift	±25% Allowable Shift

Test	Sample Size	Standard	Spacelite	Spacelite Plus	Spacelite Ultra
Number 7C: PDA Evaluation	100%		20% Allowable per Min/Max Limits of Device Datasheet	10% Allowable per Min/Max Limits of Device Datasheet	10% Allowable per Min/Max Limits of Device Datasheet
Number 8: Burn-in	100%	MIL-STD 750: TM1038-B, TM1039-B, TM1040-A, TM1042-C	168 Hours	168 Hours	240 Hours
Number 9A: Electrical Test (DC6) 25°C	100%		Per Device Datasheet	Per Device Datasheet	Per Device Datasheet
Number 9B: Delta Shift Calculations	100%		±100% Allowable Shift	±50% Allowable Shift	±25% Allowable Shift
Number 9C: PDA Evaluation	100%		20% Allowable per Min/Max Limits of Device Datasheet	10% Allowable per Min/Max Limits of Device Datasheet	5% Allowable per Min/Max Limits of Device Datasheet
Number 10A: Fine Leak	100%	MIL-STD 883: TM1014	Yes	Yes	Yes
Hermetic Devices Only					
Number 10B: Gross Leak	100%	MIL-STD 750: TM1071	Yes	Yes	Yes
Hermetic Devices Only					
Number 11: Final Electrical Test (DC7, DC8, DC9) 25°C, -55°C, 125°C	100%		Per Device Datasheet	Per Device Datasheet	Per Device Datasheet

## Spacelite™ Qualification <sup>2</sup>

Process	Test Methods & Conditions	Sample Size / Failures Allowed		
		Spacelite	Spacelite Plus	Spacelite Ultra
Group 1*: Radiation Analysis	MIL-STD 750: TM1019	3) 10 Krad	3) 30 Krad	3) 60 Krad
Group 2: Serialization & External Visual Inspection	JESD22-B101	17/0	32/0	32/0
Group 3: Preconditioning of Non-Hermetic SMDS (Performed before Groups 4-7)	Sequence: Elec test, visual insp., temp cycle, bake, moisture soak, reflow, flux soak, clean & dry per JESD22-A113	17/0	32/0	32/0
Group 4: Electrical Test (Tri Temp)	Per product datasheet 25C, -55C & 125C	17/0	32/0	32/0
Group 5A: High Temperature Reverse Bias (HTRB)	MIL STD 883; TM1005 Condition A @ 125C	10 devices 200 hours	22 devices 500 hours	22 devices 1000 hrs.
Group 5B: Post Electrical Test (Tri Temp)	Per product datasheet 25C, -55C & 125C	10/0	22/0	22/0
Group 6A: Temperature Cycling	MIL-STD 883: TM1010 Condition B Temperature: -55°C to +125°C Dwell Time: 15mins	10 devices 100 cycles	22 devices 200 cycles	22 devices 500 cycles
Group 6B: Post Electrical Test (Tri Temp)	Per product datasheet 25C, -55C & 125C	10/0	22/0	22/0
Group 7A-1: Highly Accelerated Temperature and Biased Humidity Stress Test (HAST)	JESD22-A110 w/continuous bias  96 Hrs. @ 130C Or 264 Hrs. @ 110C Relative Humidity: 85%	NA	NA	10
Group 7A-2: Unbiased HAST	JESD22-A118 Condition A 96 Hrs. @ 130C & 85%RH Or JESD22-A102 96 Hrs. @ 121C & 100%RH, 15psig	7	10	NA
Group 7B: Post Electrical Test (Tri Temp)	Per product datasheet 25C, -55C & 125C	7/0	10/0	10/0

\*Rad-Tolerant

- 1) Certification required on each lot (100%)
- 2) Qualification required on each lot (samples as noted above)
- 3) Radiation tolerance of parts required on each lot. Unscreened samples may be used for radiation testing – those are in addition to quantities noted above.
- 4) Testing based on PEM-INST-001