International
IOR Rectifier

AUTOMOTIVE LEVEL QUALIFICATION REQUIREMENTS FOR IC PRODUCTS (PER AEC-Q100)[1,2,3]

Stress Test	Conditions	Duration	Sample Size
Temperature Cycle (TC)	-55°C/150°C or *-65°C/150°C* 30 minute cycles	1000 cycles *500 cycles*	3 lots x 77 devices
Temperature and Humidity Bias (THB) *High Accelerated Temperature and Humidity Stress Test (HAST)*	85°C/85%RH or *130°C/85%RH/18.6Psig* Biased up to 100% Vmax (Not to exceed 100V for THB and 42V for HAST)	1000 hours *96 hours*	3 lots x 77 devices
High Temperature Operating Life (HTOL)	Tj=125°C or *Tj=150°C* Biased up to 100% Vmax (static or dynamic)	1000 hours *500 hours*	3 lots x 77 devices
Early Life Failure Rate (ELFR)[4]	Ta=125°C Biased up to 100% Vmax	48 hours	3 lots x 800 devices
Power Temperature Cycle (PTC)[4]	-40°C to 125°C Biased up to 100% Vmax	1000 cycles	1 lot x 77 devices
Unbiased Autoclave (AC)	121°C/15Psig/100%RH	96 hours	3 lots x 77 devices
High Temperature Storage Life (HTSL)	Ta=150°C, no bias or *Ta=175°C*, no bias	1000 hours *500 hours*	1 lot x 45 devices

1 – Tri-temp testing required at -40°C, Rm Temp, and 125°C before and after reliability testing as required per AEC-Q100.
2 – Family data may be used to qualify one or more products.
3 – Exceptions to AEC-Q100 requirements are noted in the qualification report.
4 – Performed only as required per AEC-A100.

PRECONDITIONING REQUIREMENTS

Minimum MSL3 preconditioning per JESD22-A113 is required for surface mount capable devices that are put on TC, THB/HAST, AC, or PTC.

FAILURE CRITERIA

All devices parameters must pass the data sheet specification requirements.