

Voltage Multipliers, Inc.

Screening Guides

The following screening procedures are suggested guides for assemblies and their components:

- HRP 101: Screening Guide for Discrete Diodes
- HRP 102: Screening Guide for Finished Bridge Rectifier Assemblies
- HRP 103: Screening Guide for Capacitors Used in Multiplier Assemblies
- HRP 104: Screening Guide for Resistors Used in Multiplier Assemblies
- HRP 105: Screening Guide for Multiplier Assemblies

HRP 101: Discrete Diodes

The following screening for discrete diodes is a guide for a suggested procedure. It can be modified or adjusted to suit requirements. This is taken from MIL-PRF-19500 Table IV, JANTX screening.

1)	High Temperature Life (non-operating life/ stabilization bake MIL-STD-750)	Method 1032	48 hrs @ +175°C
2)	Temperature Cycling MIL-STD-750	Method 1051 Condition C	20 Cycles -65°C to +175°C 15 min. extremes No dwell @25°C
3)	Interim Electrical		Forward Voltage Drop Leakage Current
4)	High Temperature Reverse Bias (HTRB) MIL-STD-750	Method 1038 Condition A	96 hrs min. @ TA=150°C and min. applied voltage at 80% of rated VR (TC or TL is optional)
5)	Final Electrical MIL-STD-750	Method 4011 Method 4016 Method 4031 Method 4021	Forward Voltage Drop Leakage Current Reverse Recovery Time Peak Inverse Voltage

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HRP 102: Finished Bridge Rectifier Assemblies

The following screening for bridge assemblies is a guide for a suggested procedure. It can be modified or adjusted to suit requirements. This is taken from MIL-PRF-19500 Table IV, JANTX screening.

1)	High Temperature Life (non-operating life/ stabilization bake MIL-STD-750)	Method 1032	24 hrs @ 125°C
2)	Temperature Cycling MIL-STD-202	Method 107 Condition C	10 Cycles -55°C to +125°C 15 min. extremes
3)	Interim Electrical		Forward Voltage Drop Leakage Current
4)	High Temperature Reverse Bias (HTRB) MIL-STD-750	Method 1038 Condition A	24 hrs @ +125°C at 80% of VRWM
5)	Final Electrical MIL-STD-750	Method 4011 Method 4016 Method 4021	Forward Voltage Drop Leakage Current Breakdown Voltage
6)	Visual Mechanical Inspection	Per Specification	Per Specification

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HRP 103: Capacitors Used in Multiplier Assemblies

The following screening for capacitors is a guide for a suggested procedure. It can be modified or adjusted to suit requirements. Capacitors would be screened prior to assembly into a hi-rel multiplier application.

1) Visual Inspection	Method 1032	Per Specification
2) High Temp Storage MIL-STD-750		48 hours @ TA = 150°C
3) Pre Electrical	Method 107	Capacitance Dissipation
4) Corona Test		≤ 100 Picocoulombs at rated voltage
5) Temp Cycle MIL-STD-202		5 Cycles, -55°C to +150°C 15 minutes at each extreme No dwell @ 25°C
6) Post Electrical		Capacitance Dissipation

HRP 104: Resistors Used in Multiplier Assemblies

The following screening for resistors is a guide for a suggested procedure. It can be modified or adjusted to suit requirements. Resistors would be screened prior to assembly into a hi-rel multiplier application.

1) Pre Electrical	Method 107	Voltage = rated @25°C Measurement current, resistance
2) Temperature Cycle MIL-STD-202		5 Cycles, -55°C to +150°C 15 minutes at each extreme No dwell @ 25°C
3) Post Electrical		Voltage = rated @25°C Measurement current, resistance
4) Visual Inspection		Surface under microscope for cracks, chips, etc.

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HRP 105: Finished Multiplier Assemblies

The following screening for multiplier assemblies is a guide for a suggested procedure. It can be modified or adjusted to suit requirements for a hi-rel multiplier application.

1) Pre-pot Visual MIL-STD-750	Method 2071	
2) High Temp Life MIL-STD-750	Method 1032	48 hours @ TA =125°C
3) Temperature Cycling MIL-STD-750	Method 107	10 Cycles -55°C to +105°C 15 minutes at extremes
4) Pre-Electrical		Voltage - in per spec Voltage - out per spec Current - out per spec Voltage ripple per spec
5) Burn-in		48 hours @ TA =85°C Voltage - out Current - out
6) Post Electrical		Voltage - in per spec Voltage - out per spec Current - out per spec Voltage ripple per spec