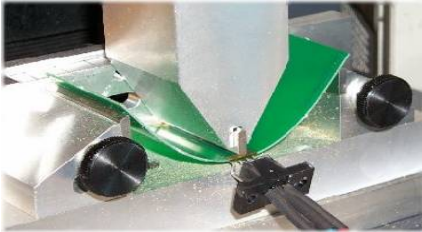


Mechanical Engineer

Substrate bend testing



- Curve tracer was used to monitor the gate, looking for gate leakage, open or short circuit
- For the capacitors a capacitance meter was used to look for ±20% shift in capacitance

<http://www.irf.com/product-info/hexfet/dfmechtest.html>

Statement of Construction Material

DirectFet™ (Medium) Typical				
No.	Mass (g)	Element	CAS Number	Weight %
1	7.50E-02	Cu	7440-50-8	83.93%
2	4.98E-04	Ni	7440-02-0	0.56%
3	2.74E-03	Ag	7440-22-4	3.06%
4	1.02E-02	Si	7440-21-3	11.38%
5	3.08E-05	Ti	7440-32-6	0.03%
8	1.48E-04	Al	7429-90-5	0.17%
9	5.70E-05	TiN	25583-20-4	0.06%
10	9.81E-06	Cr	7440-47-3	0.01%
12	4.66E-04	Epoxy	-	0.52%
13	2.43E-04	Epoxy	-	0.27%

Total weight: 84.9mg

Tests & Reliability

Completed and Qualified to Spec

- ✓ Solder standoff trials
- ✓ Screen aperture design
- ✓ Placement force
- ✓ Solder vendors
- ✓ Substrate bend strength measurements
- ✓ Package parasitics
- ✓ Shock/drop testing
- ✓ Vibration testing
- ✓ Temperature/power cycling on IMS
- ✓ Temperature/power cycling on ceramic
- ✓ Temperature/power cycling on Pb-free solder
- ✓ High frequency parasitic evaluation
- ✓ HTRB, HTGB, THB
- ✓ Moisture absorption

<http://www.irf.com/product-info/hexfet/dfreliability.html>

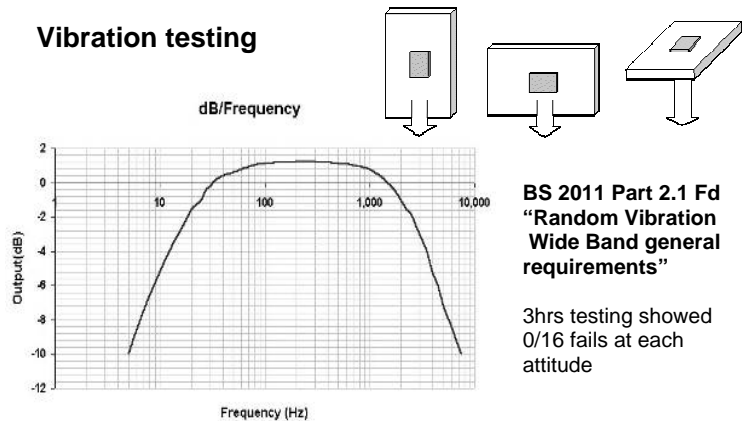
TIM's and Heatsinking

Board attachment: in the majority of cases the method of attachment is a compression fit of the heatsink onto the top of the device. This is achieved either by the screw mounting of the heatsink (shown) or through the use of a clip to affix the heatsink to the board. In both cases the DirectFET and the interface material is sandwiched between the heatsink and the board.

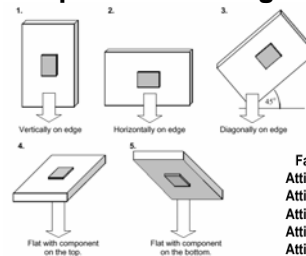
Interface material: interface material should be used and provides two functions:

- Improves the intimacy on thermal contact between the top of the

Vibration testing

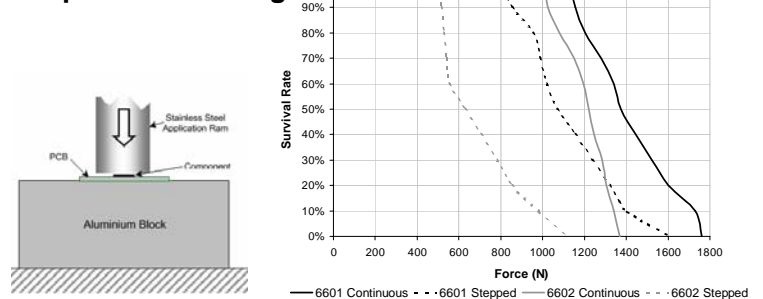


Drop/Shock Testing



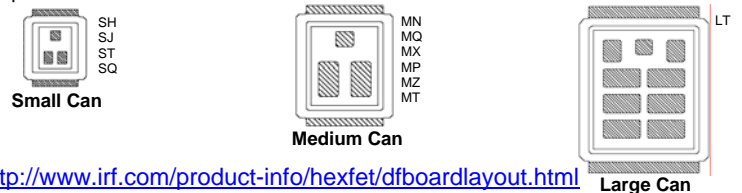
Failures	6601		6602	
	1000mm	1500mm	1000mm	1500mm
Attitude 1	0/10	0/10	0/10	0/10
Attitude 2	0/10	0/10	0/10	0/10
Attitude 3	0/10	0/10	0/10	0/10
Attitude 4	0/10	0/10	0/10	0/10
Attitude 5	0/10	0/10	0/10	0/10

Compression Testing



DirectFET outlines

The new method of outline identification breaks all of the low voltage devices into up to 3 die sizes within each can.



<http://www.irf.com/product-info/hexfet/dfboardlayout.html>

