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## Notes on Application of JEDEC 51-14 for Measurement of R<sub>jc</sub> Commonly Asked Questions and Operational Issues

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This Application Note covers some common operational issues and questions associated with the measurement of R<sub>jc</sub> using the JEDEC 51-14 method.

- 1) The heating power used should be as high as possible for each of the two tests used in the comparative R<sub>jc</sub> determination. The limitation on the heating power or heating current would be embodied as either a T<sub>j</sub> limitation or internal current capacity of the device. (JEDEC 51-14, section 4.1.2)
- 2) The reference temperature for the measurements is the inlet cooling liquid temperature (JEDEC 51-14, section 4.2.2)
- 3) The minimum difference between the steady state thermal resistances of the two tests used for comparison is 0.5 °C/W (JEDEC 51-14, section 4.2.5)
- 4) On the choice of heating curve comparison (HCC) versus structure function comparison (SFC) (JEDEC 51-14, section 5.1) :
  - a. Use HCC for high thermal conductivity die attach
  - b. Use HCC where R<sub>jc</sub> < 1°C/W .
  - c. Use SFC for glue die attach
  - d. If in doubt, use the higher R<sub>jc</sub> of the HCC and SFC comparisons
- 5) With regard to application of the Analysis Tech R<sub>jc</sub> Liquid Fixture, this fixture is capable of satisfying the JEDEC 51-14 requirements up to approximately 200 watts of device power dissipation when used in conjunction with a recirculating chiller capable of handling a minimum of 600 watts heat-load at 8 liters/min with a set point stability of +/- 0.5°C or better.

For additional technical questions, contact Analysis Tech support staff.