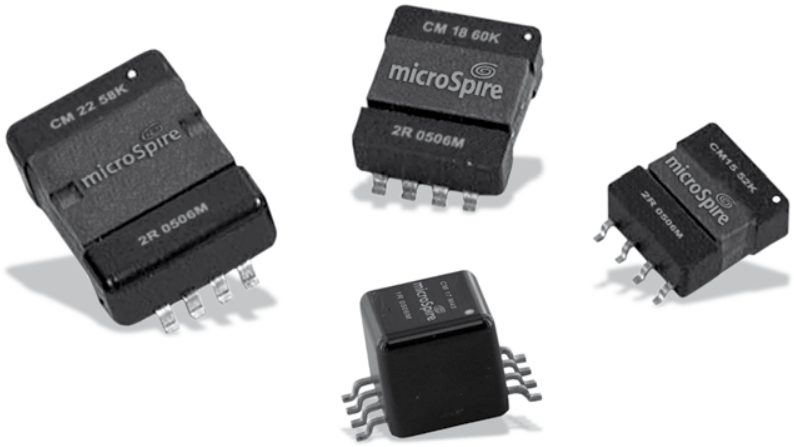
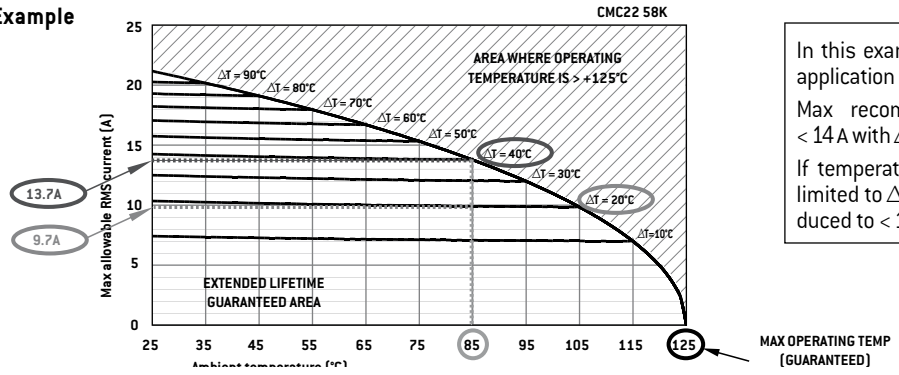
Technical note - Appendix
CMC 15 - 18 - 22 & CMC 17 Temperature Application



- The operating temperature announced in the datasheets takes into account maximum ambient temperature around the component + its self heating temperature in operation.
- Typical T° range is −55 °C +125 °C for usual embedded applications (avionics, defence, space...) in order to ensure a good ageing of the products.
- Microspire guarantees an extended lifetime in this operational T° range, because only high temperature class materials are used and offer sufficient safety margin: all plastic materials used are H class according to IEC85 standard (180 °C during 20.000 hours) and magnetic cores show a high Curie temperature value (Tc > 200 °C).
- Typical values for admissible current at +25 °C ambient for a 40 °C nominal temperature increase are defined without any heatsink in our litterature.
- When using an appropriate cooling device, these values can be slightly increased
- The associated derating curves allow to check maximum current possible in the component versus acceptable temperature increase above ambient temperature of the application.

Example



In this example, CMC22 58K is chosen for an application at Tamb = +85 °C.

Max recommended RMS current is then < 14 A with ΔT < 40 °C.

If temperature increase in the application is limited to ΔT < 20 °C. current value must be reduced to < 10 A.

- With the above data, it is clear that the « theoretical » maximum possible current reaches zero for +125 °C ambient temperature (because heating above is not recommended) !
- However, it still remains possible to load the component with current leading to operating temperature greater than +125 °C but in this case, extended lifetime for the product is not guaranteed any longer.
- Heating values versus current above +125 °C operating temperature can still be calculated upon request.