



## **SOLDERING RECOMMENDATIONS for SMD**

IXYS surface mount devices ( SMD ) in TO 252 / TO 263 / TO 268 / - packages have tinned terminals and base to allow an similar soldering process like common SMD devices.

Due to the size of the package and the power dissipated there are some special consideration to archive a good solder bond between the base and the substrate.

### **Soldering Techniques**

The recommended soldering techniques are Re-flow Soldering with Convection Heating or Vapour Phase Soldering always with preheating.

In case of the Convection Heating we recommend a suitable gas flow to stay with the gas temperature as close as possible to the maximum allowed package temperature. The advantage is a very homogeneous heating of the whole substrate or board and less stress for all devices.

The gas should be nitrogen better forming gas. This will allow solder paste with low contents of flux witch is the base of a good solder joint for power devices.

Infrared Heating is less suitable because of the size and thickness of the package and the thickness of the cu - base which has a very low absorption of the radiation.

### **Soldering Profile**

The Soldering Profile should be in the following limits:

Heating and cooling ramps should not exceed 2 Kelvin/sec. A preheating for minimum 60 sec at maximum 160°C is necessary. The peak surface temperature of the device is 240°C for maximum 10 sec. The peak temperature of the solder joint should be minimum 30Kelvin above the melting point of the used solder material.

This is only a guideline. For each product the appropriate heat profile has to be adjusted experimentally.

### **Solder Joint**

Voids in the solder under the package result in high thermal impedance and or poor reliability. Increased solder thickness and tilted packages have the same effect. For power devices this is even more critical than with SO - packages. Therefore only a tight control of these parameters allows thermal efficiency and reliable solder joints.