Thin Film Technology Corp.

HOME

Electrothermal Simulation Process

Process of Simulation

Q3D:
DC Electrical

↓ Volume Loss Map (W/m^3)

IcePak:
Convection+
Conduction
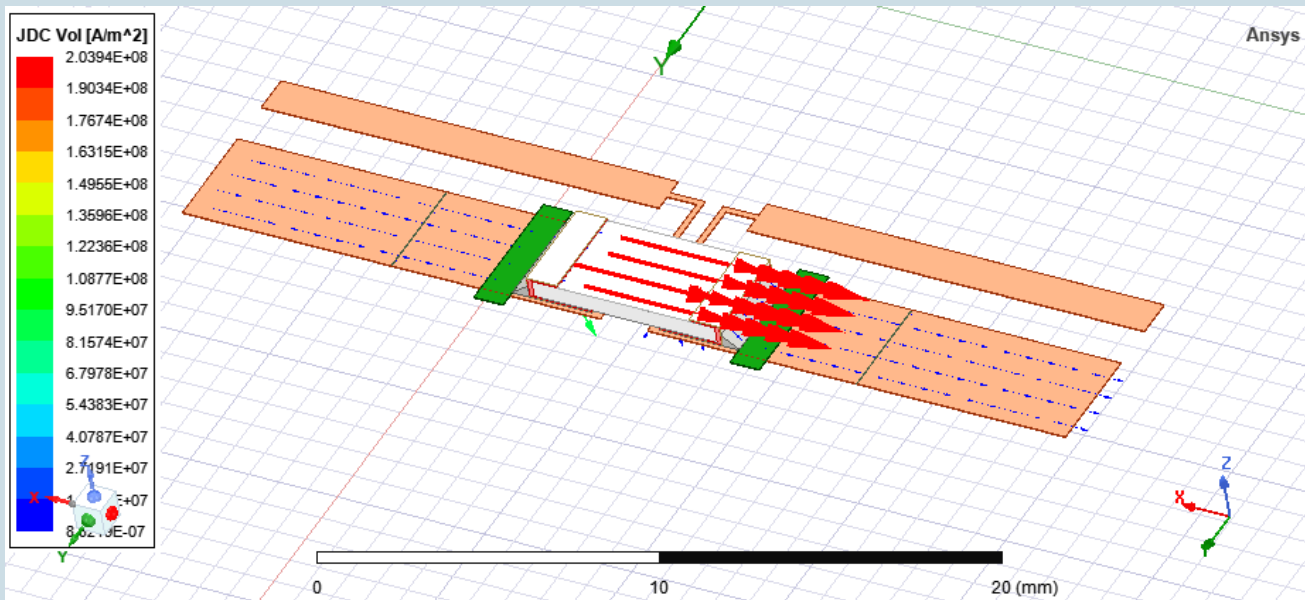Thermal Sim
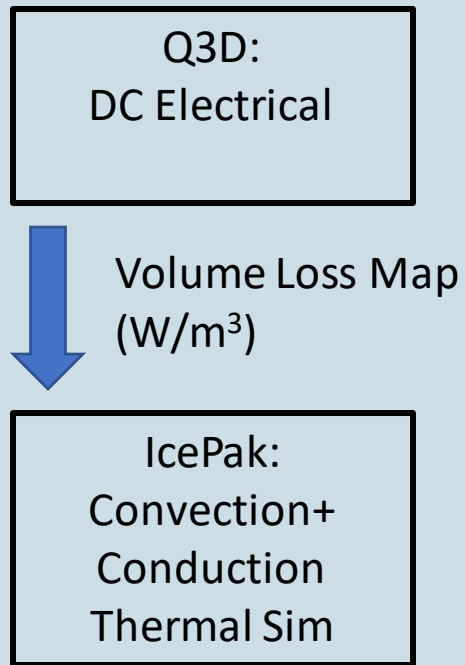
- DC simulation is to be performed in Q3D, from which, loss information will be passed to IcePak
- IcePak simulation includes convection with room temperature air as well as conduction
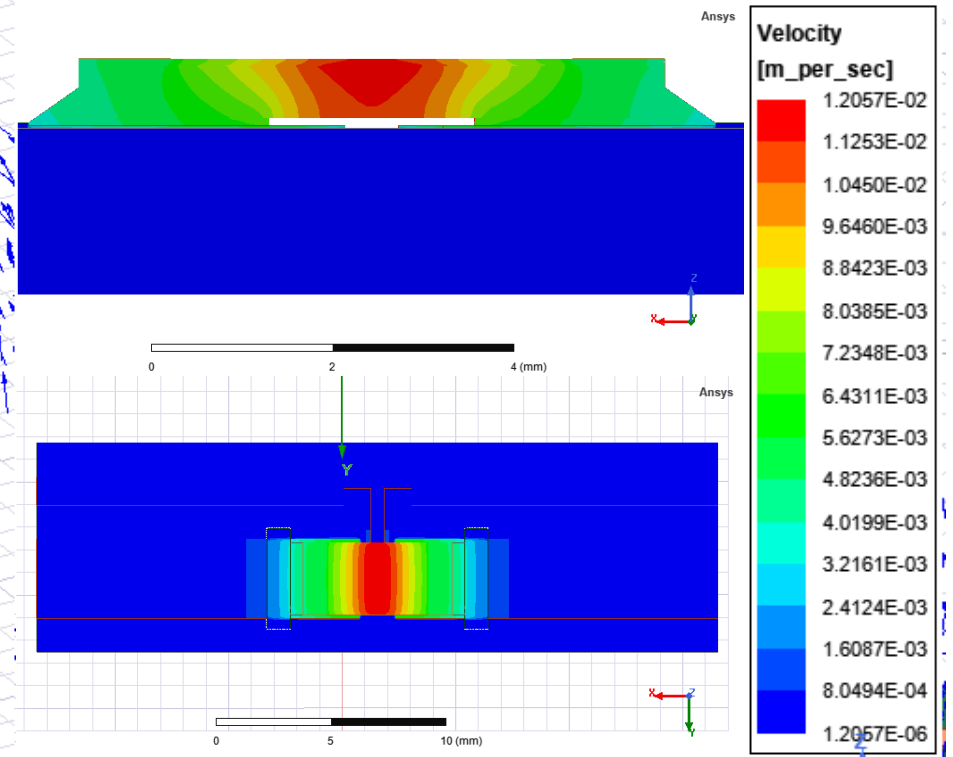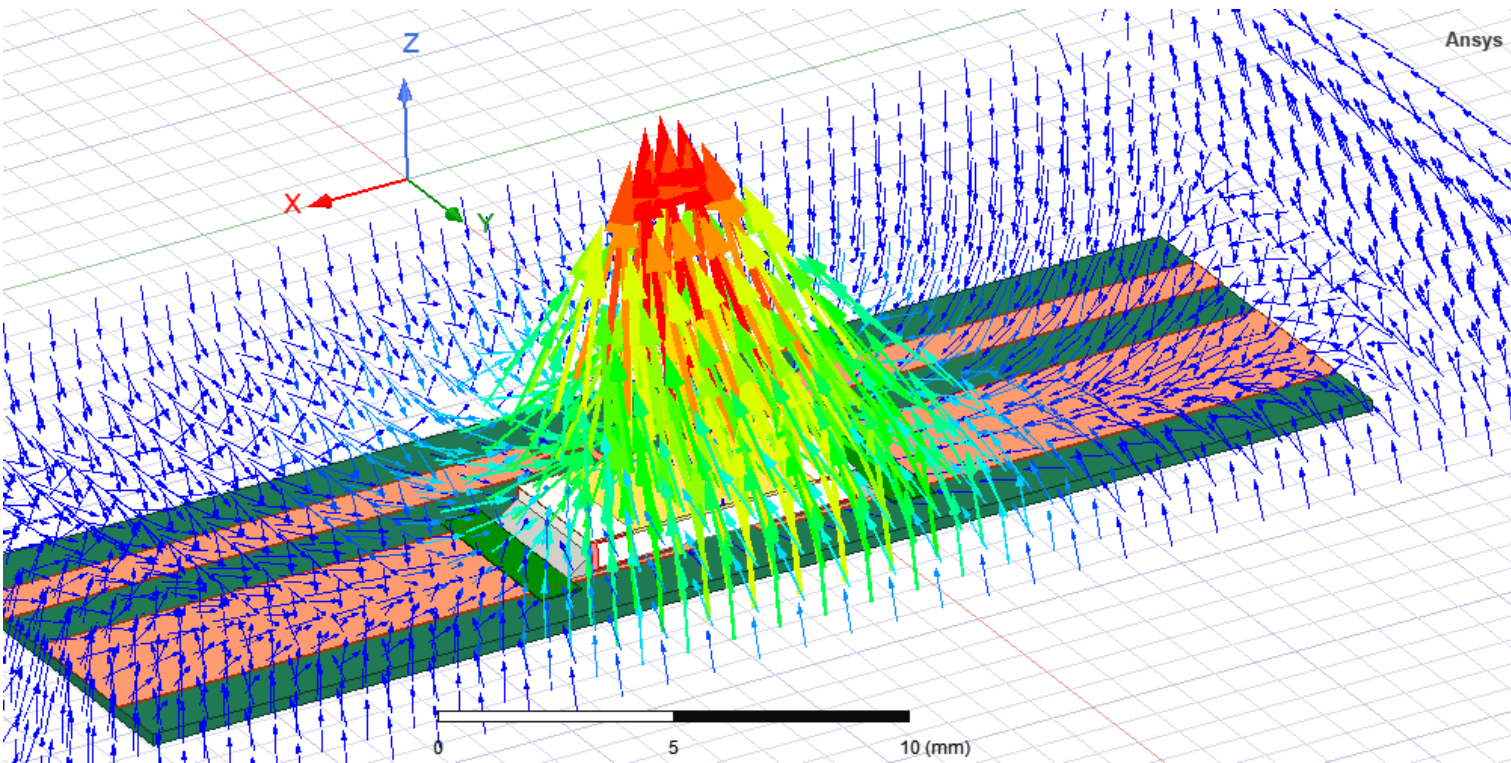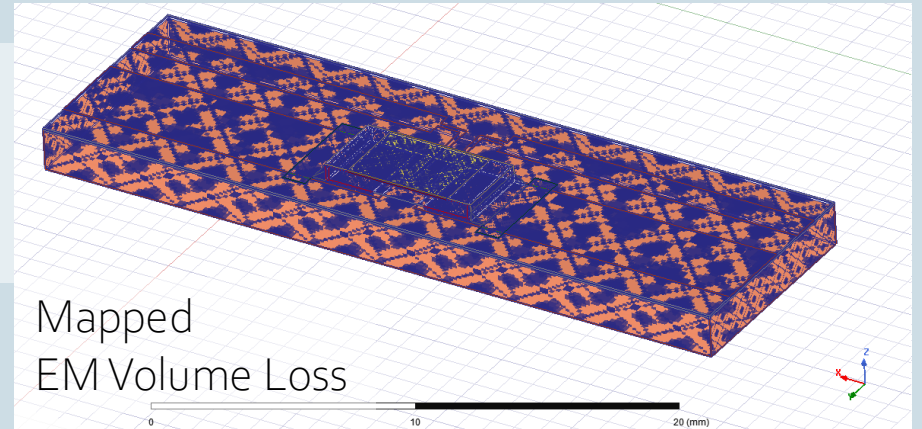
Q3D Simulation example

The Following results correspond to Q3D dissipated power, from 1 amp excitation using 22 Ohm Resistor

IcePak Simulation

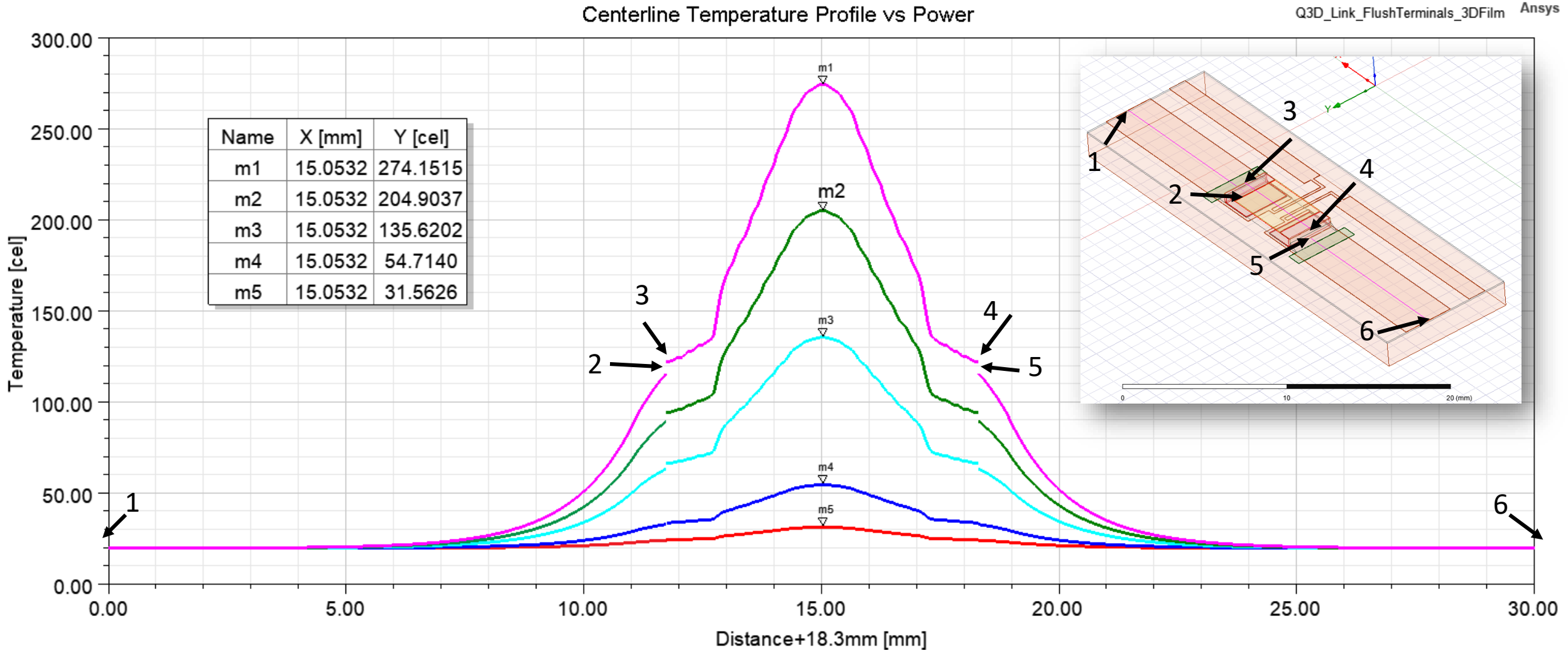- EM Volume losses mapped from Q3D
- Temperature and velocity gradients are generated

Mapped
EM Volume Loss

Velocity
[m_per_sec]

1.2057E-02
1.1253E-02
1.0450E-02
9.6460E-03
8.8423E-03
8.0385E-03
7.2348E-03
6.4311E-03
5.6273E-03
4.8236E-03
4.0199E-03
3.2161E-03
2.4124E-03
1.6087E-03
8.0494E-04
1.2057E-06

Temperature profile example using a power sweep

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We appreciate your time