Thermal and Electromagnetics simulation – Part # SN270-681M-3.8AH– Current rated 3.8A @ 1kHz
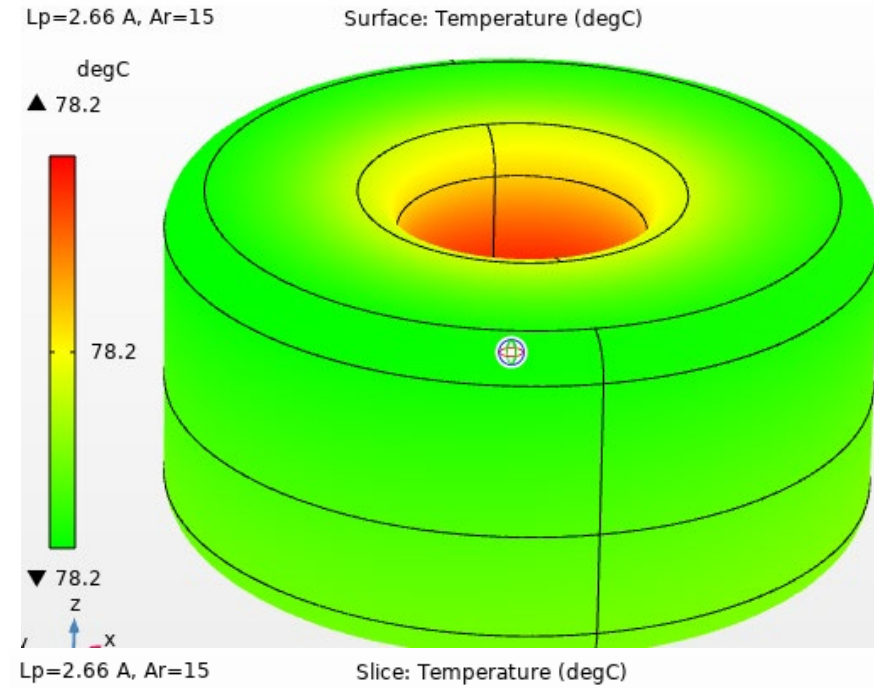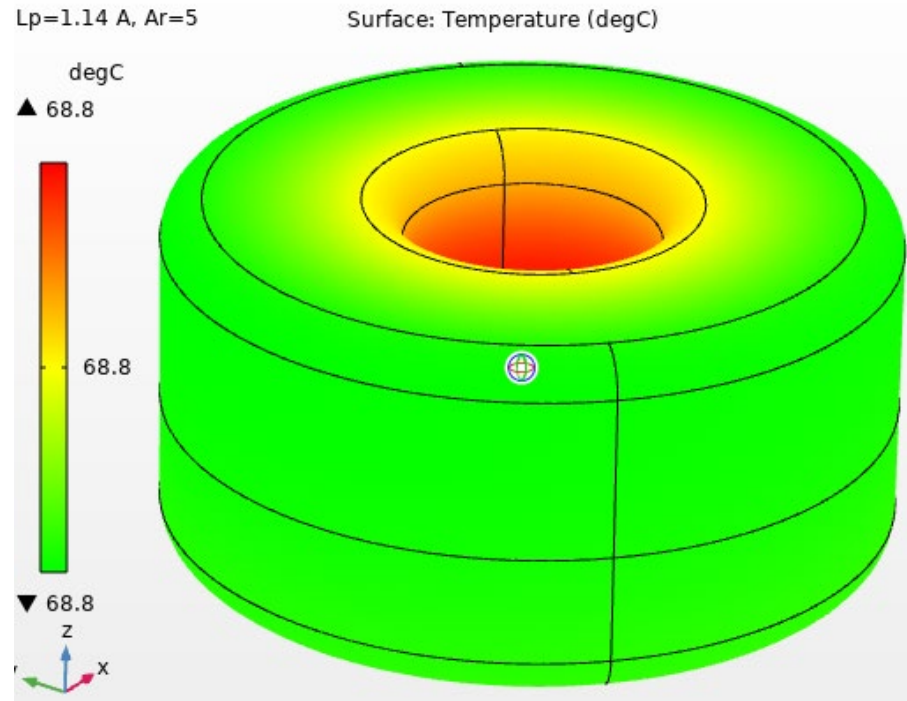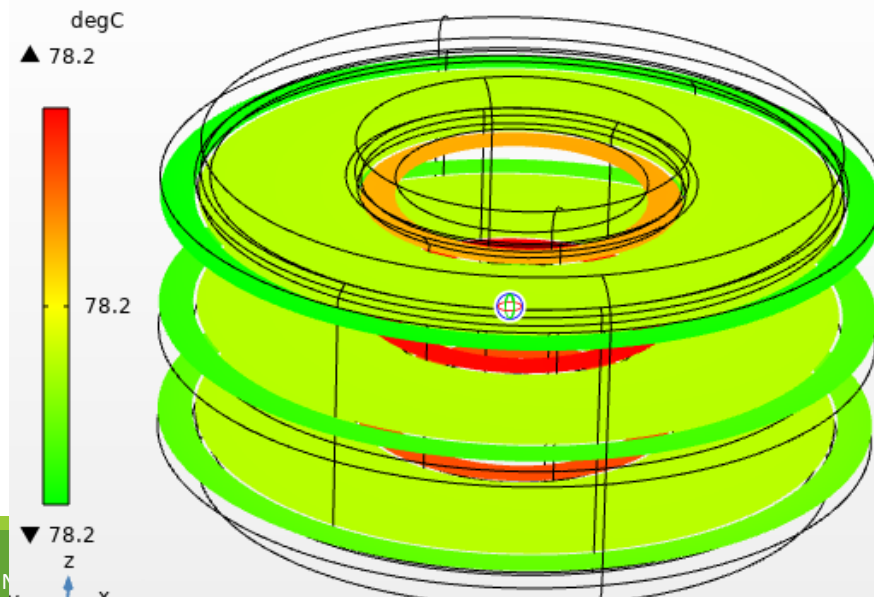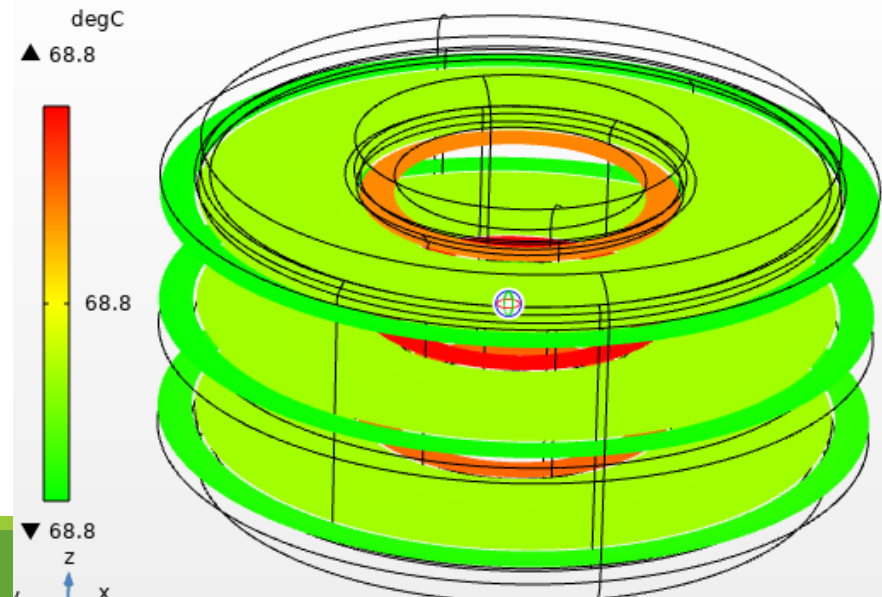
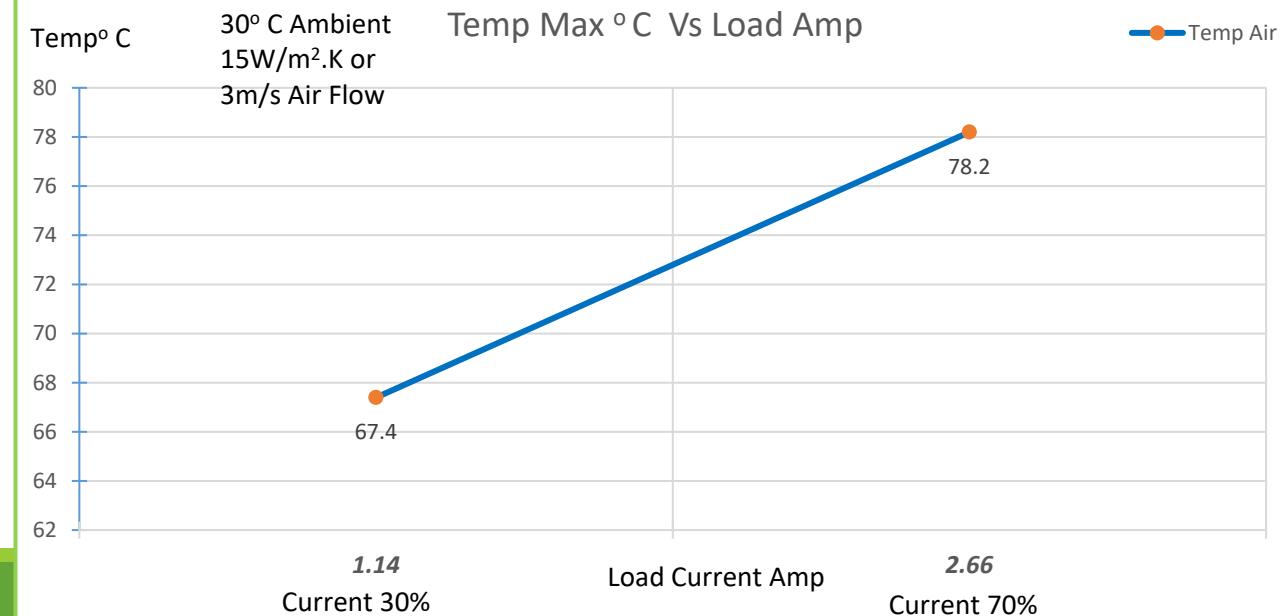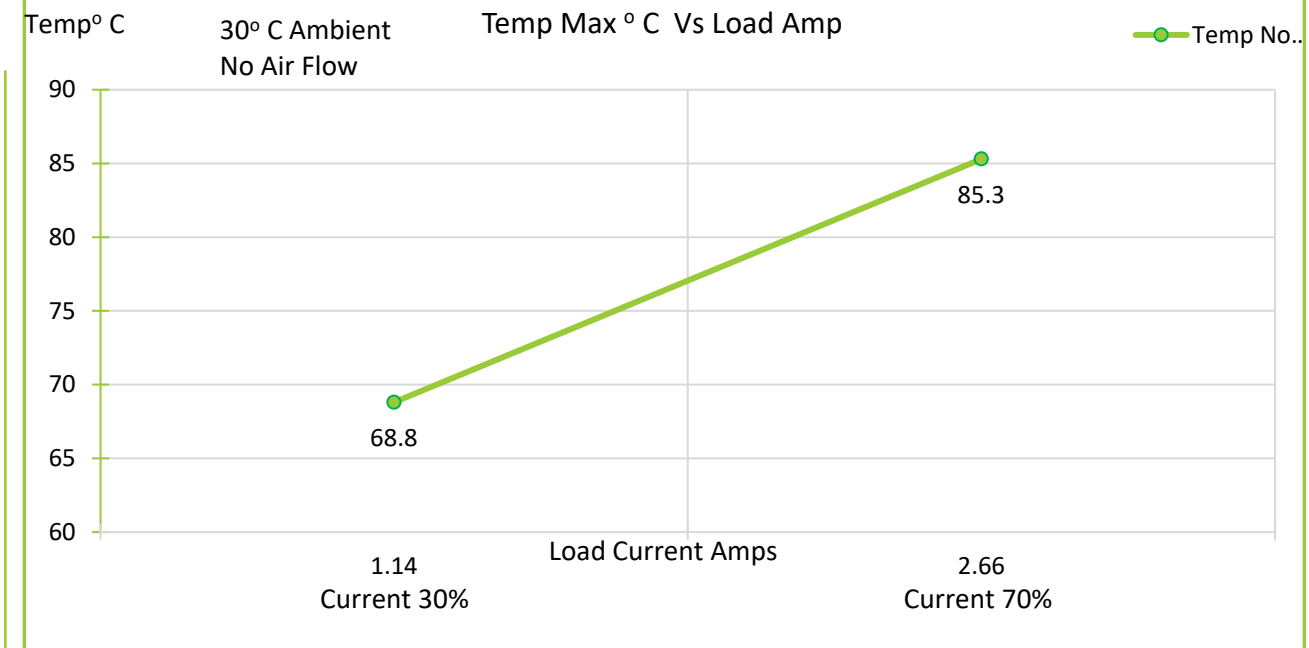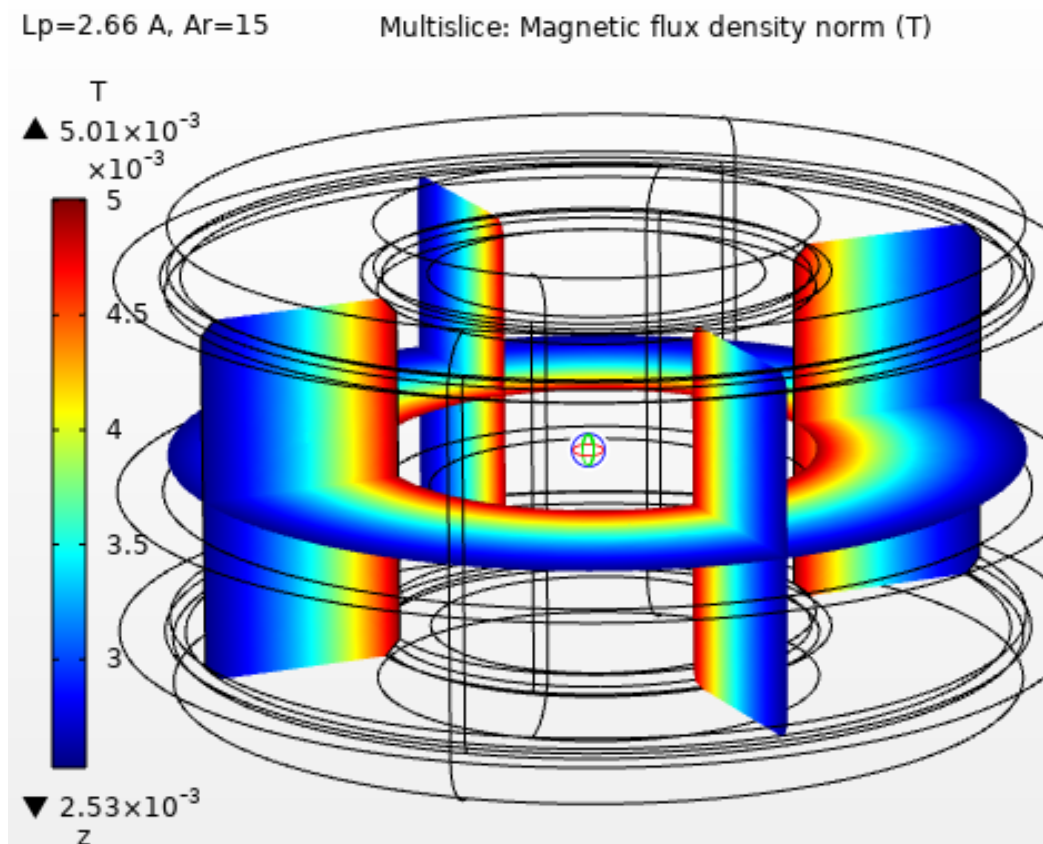Current 30% (1.14A)
No Airflow
Natural convection

Current 70% (2.66A)
15 W/ (m²K) or 3 m/s
air flow.

Lp=2.66 A, Ar=15   Multislice: Magnetic flux density norm (T)
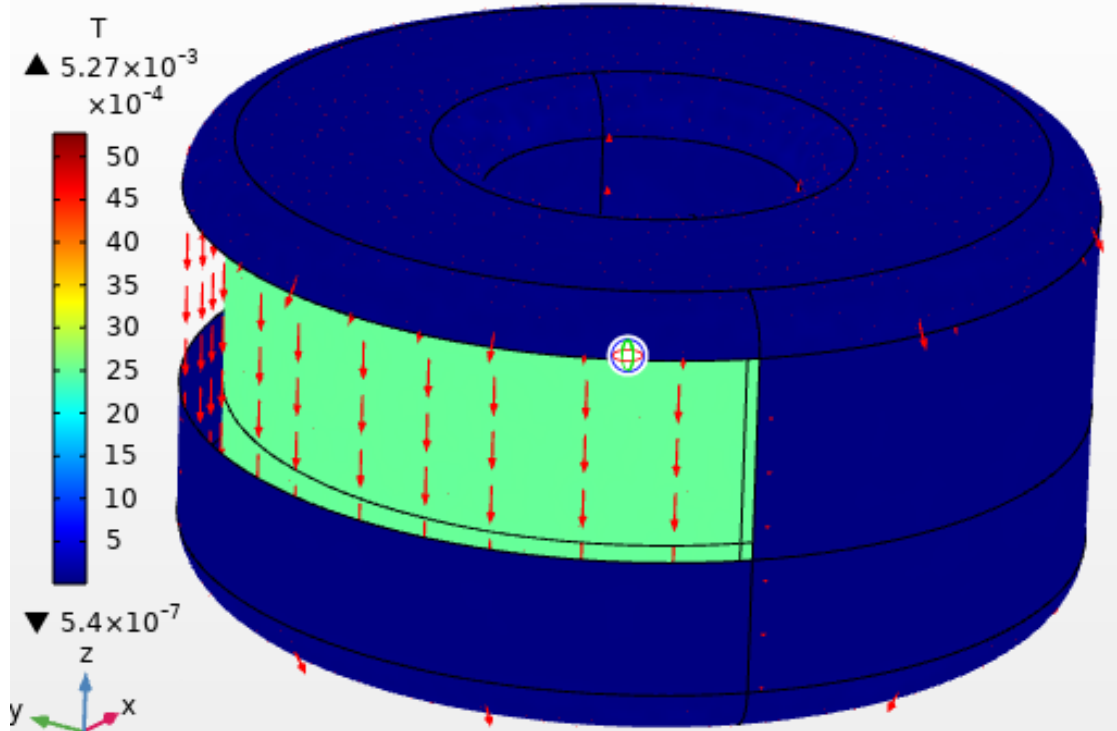
T
▲ 5.01×10⁻³
×10⁻³
5
4.5
4
3.5
3
▼ 2.53×10⁻³
z

Temp° C   30° C Ambient   Temp Max ° C Vs Load Amp   ─●─ Temp No..
No Air Flow

90
85   85.3
80
75
70
68.8
65
60
            Load Current Amps
        1.14   2.66
        Current 30%   Current 70%

Temp° C   30° C Ambient   Temp Max ° C Vs Load Amp   ── Temp Air
15W/m².K or
3m/s Air Flow
80
78   78.2
76
74
72
70
68
67.4
66
64
62
        1.14   Load Current Amp   2.66
        Current 30%   Current 70%

COIL WINDING SPECIALI

Magnetics Flux in Coil

Magnetic Flux in Core
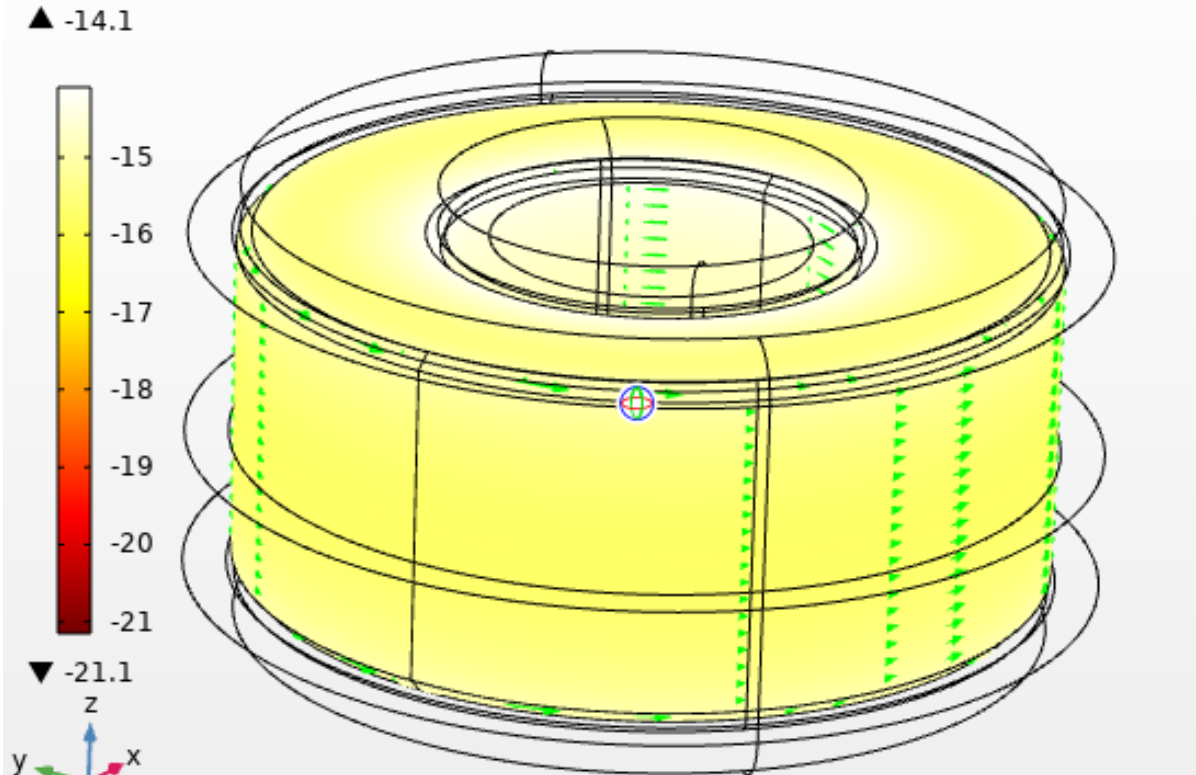
Abbreviations

Ld   : Current rated Amps
Ar   : Airflow
W/m^2.K   : Watts / Sq meter .Kelvin – Heat Convection rate
m/s   : Meter/ Second - Airflow
degC   : Temperature in Deg C
T   : Tesla – Magnetic Flux density
Temp   : Temperature
Temp max: Temperature Maximum
Amb   : Ambient Temperature
Amps   : Ampere Load current.
Slice   : Sectional view

Note : For the modeling purpose the winding is considered as homogenous multilayer winding .

Disclaimer :
-Simulation MODEL is an effective tool for evaluating product performance by simulation; however, it does not simulate product performance in all test environments and is not intended to be a replacement for testing of the actual device by means of a test board or otherwise.
- Simulation results are for reference purposes only; CUSTOMER shall perform thorough testing using the actual device.