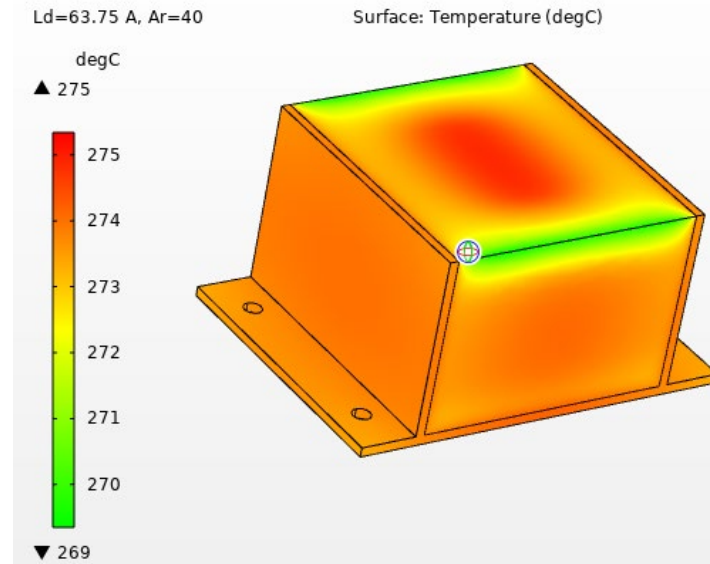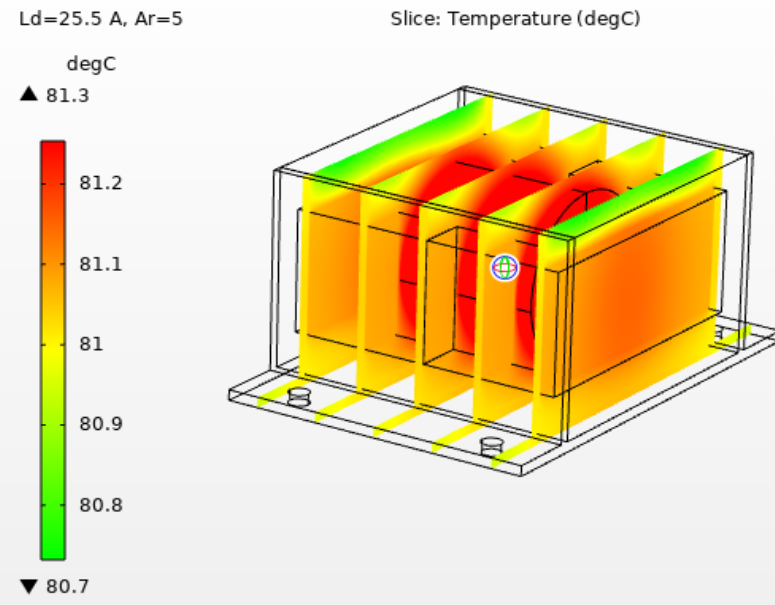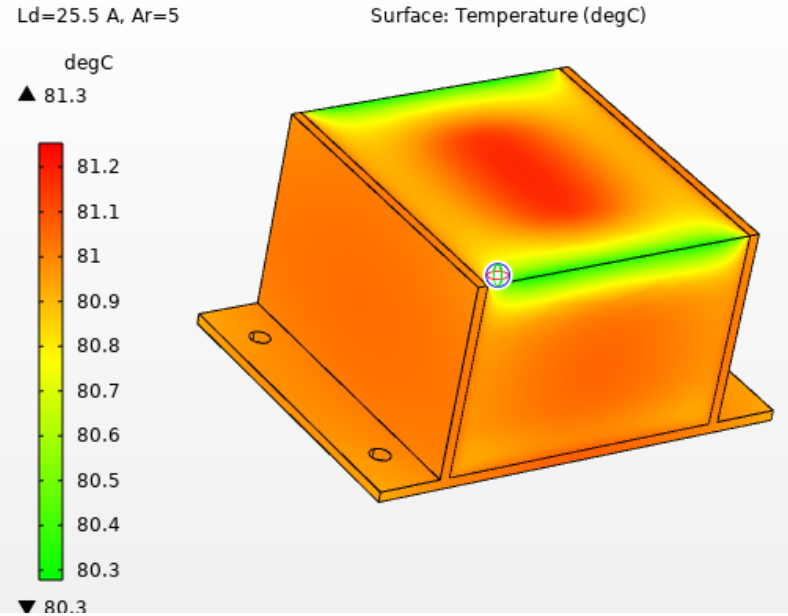# Thermal and Electromagnetics simulation – Part # EEK55246-800M-85A – Current rated 85A @ 10kHz

Current 30% (25.5 A)
No Airflow
Natural convection

Current 75% (63.75A)
40 W/ (m^{2}K) or 3 m/s air flow.

Ld=25.5 A, Ar=5 — Surface: Temperature (degC)

degC
▲ 81.3
81.2
81.1
81
80.9
80.8
80.7
80.6
80.5
80.4
80.3
▼ 80.3

Ld=63.75 A, Ar=40 — Surface: Temperature (degC)

degC
▲ 275
275
274
273
272
271
270
▼ 269

Ld=25.5 A, Ar=5 — Slice: Temperature (degC)

degC
▲ 81.3
81.2
81.1
81
80.9
80.8
▼ 80.7

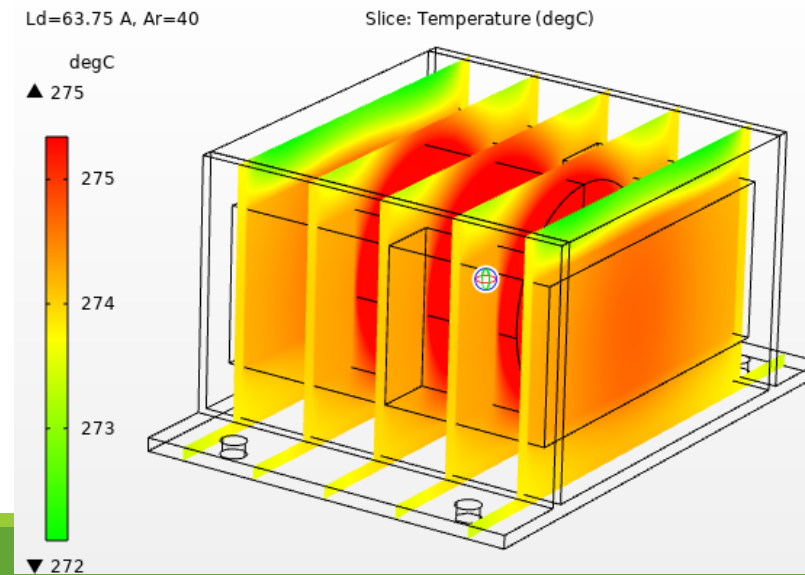Ld=63.75 A, Ar=40 — Slice: Temperature (degC)

degC
▲ 275
275
274
273
▼ 272

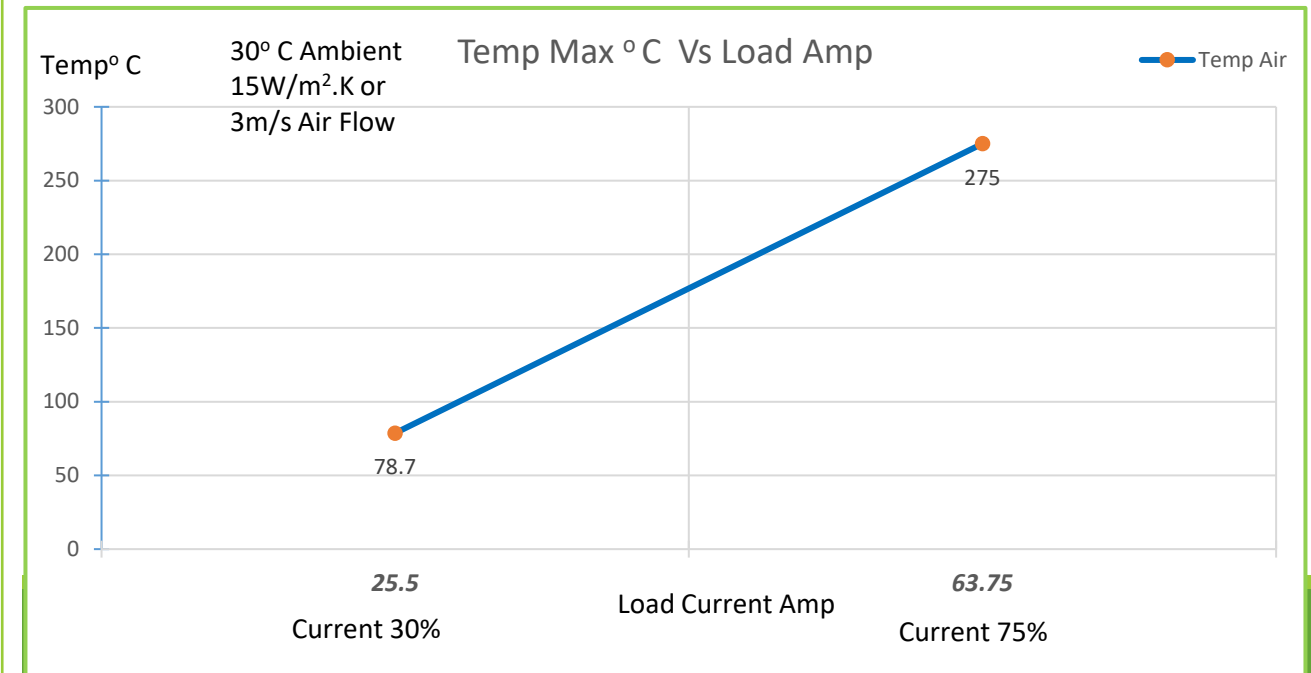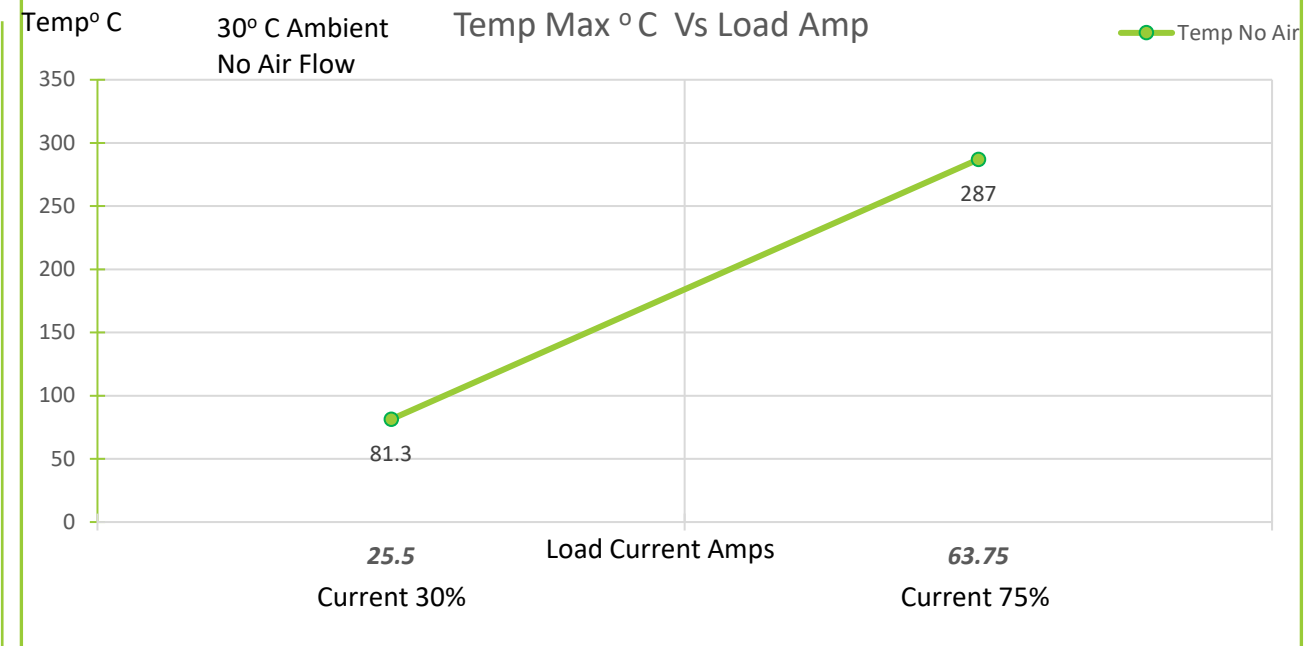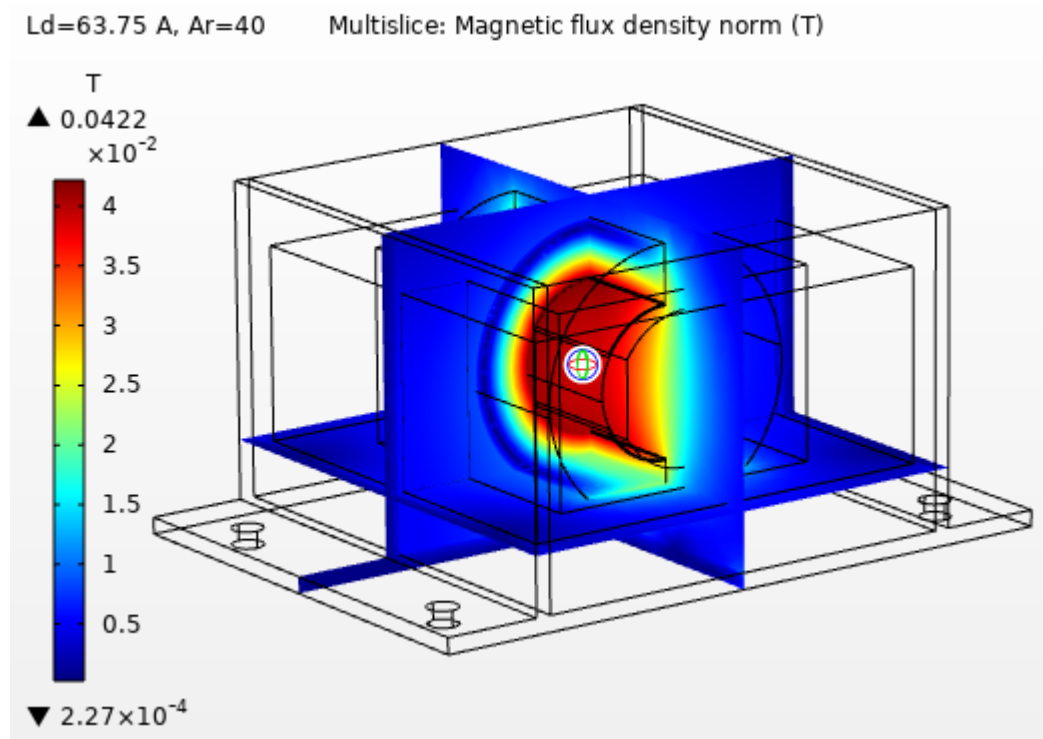# Thermal and Electromagnetics simulation – Part # EEK55246-800M-85A – Current rated 85A @ 10kHz

Ld=63.75 A, Ar=40   Multislice: Magnetic flux density norm (T)

T
▲ 0.0422
×10^{-2}

4
3.5
3
2.5
2
1.5
1
0.5

▼ 2.27×10^{-4}

Temp^{o} C   30° C Ambient   **Temp Max ^{o}C Vs Load Amp**   Temp No Air
No Air Flow

350
300
250   287
200
150
100
50   81.3
0

Load Current Amps

25.5   63.75
Current 30%   Current 75%

Temp^{o} C   30° C Ambient   **Temp Max ^{o}C Vs Load Amp**   Temp Air
15W/m^{2}.K or
3m/s Air Flow

300
250   275
200
150
100
50   78.7
0

25.5   63.75
Current 30%   Load Current Amp   Current 75%

Thermal and Electromagnetics simulation – Part # EEK55246-800M-85A – Current rated 85A @ 10kHz

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