WV series Heat Sink Thermal Performance Analysis/Test
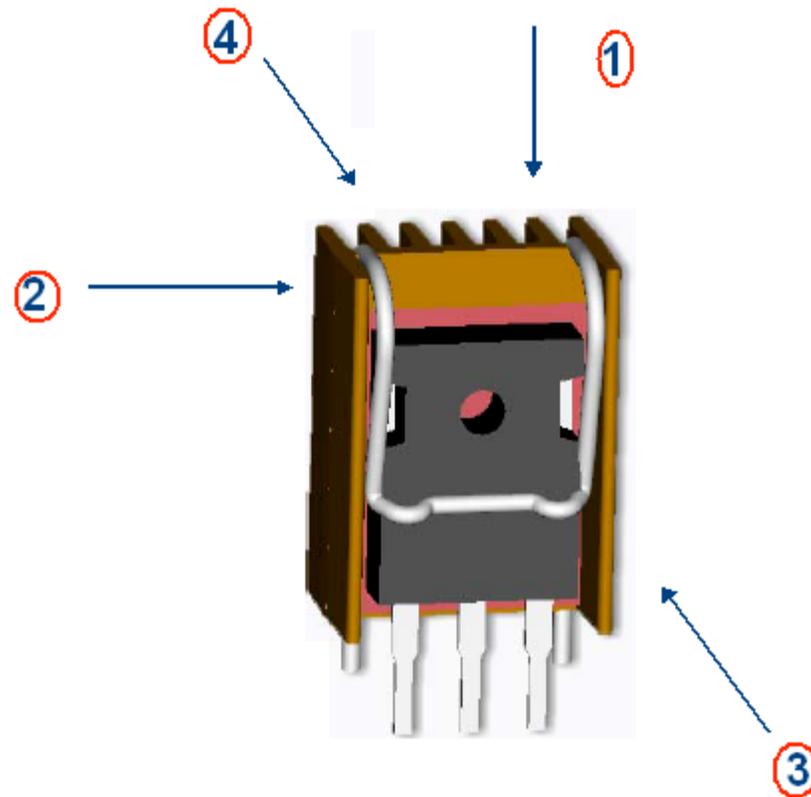
Air Direction Options:

   (1) parallel with the fins
   (2) from side to side of the heat sink
   (3) perpendicular to device, from the front
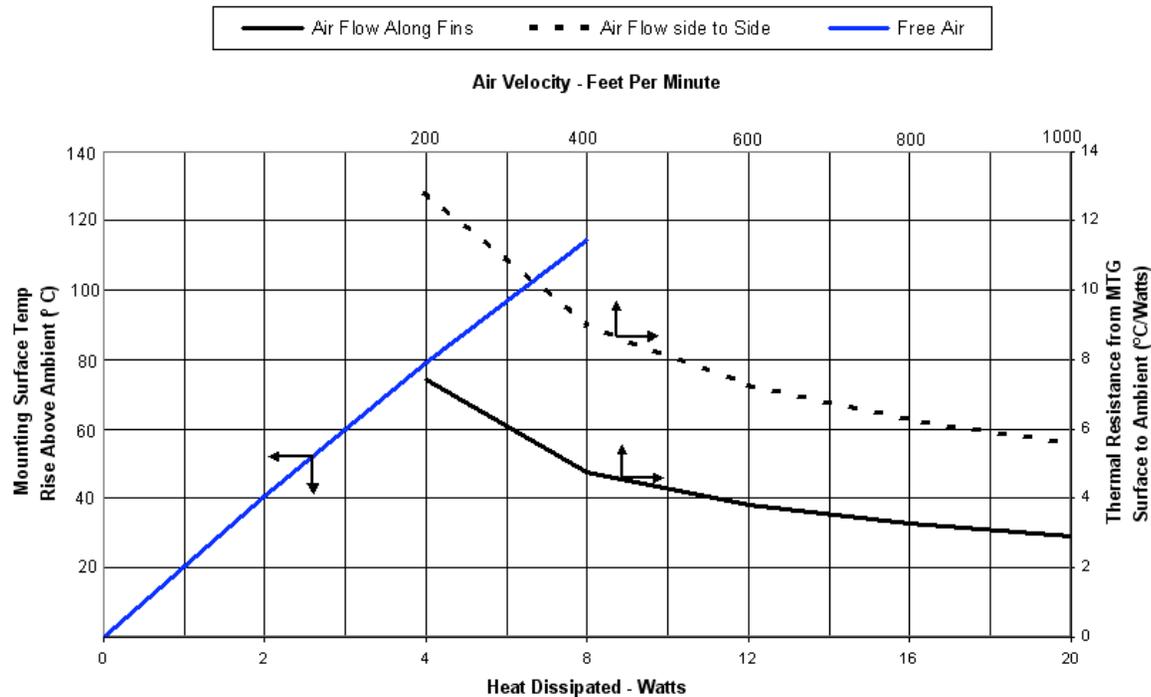   (4) perpendicular to device, from the back

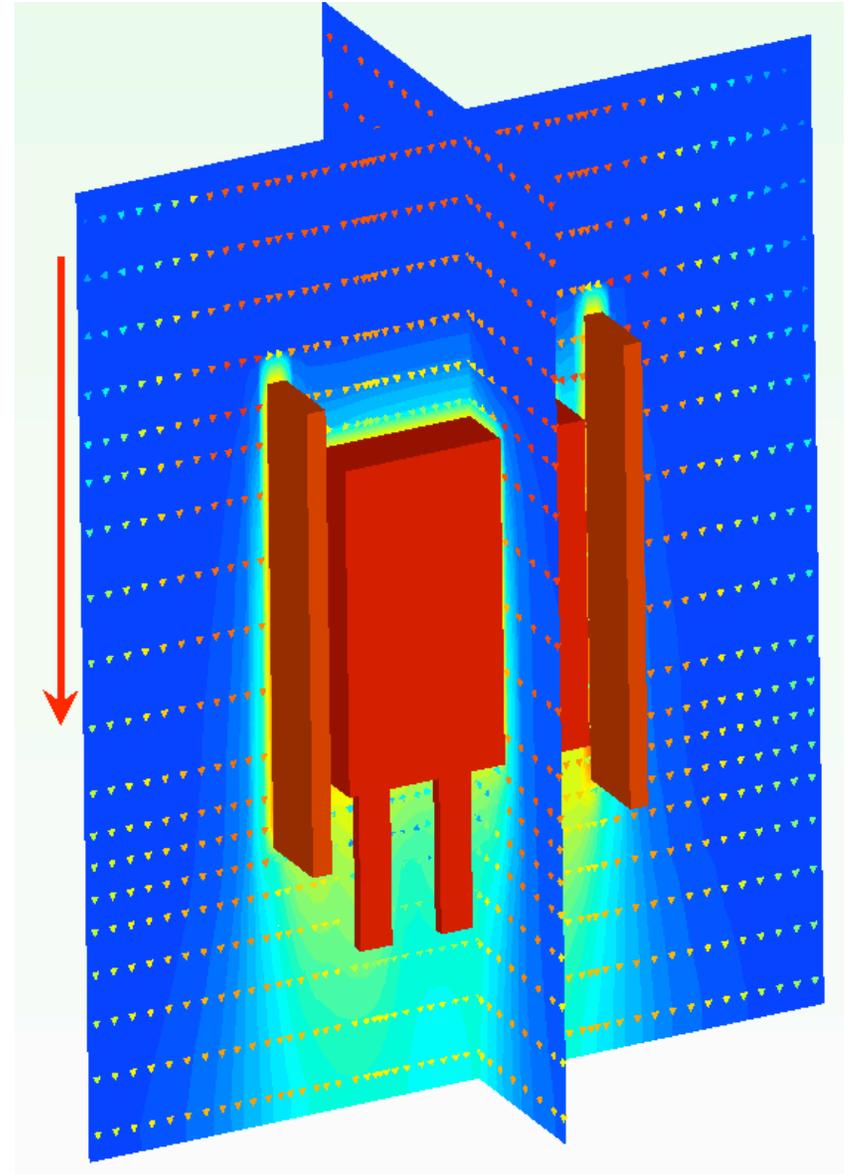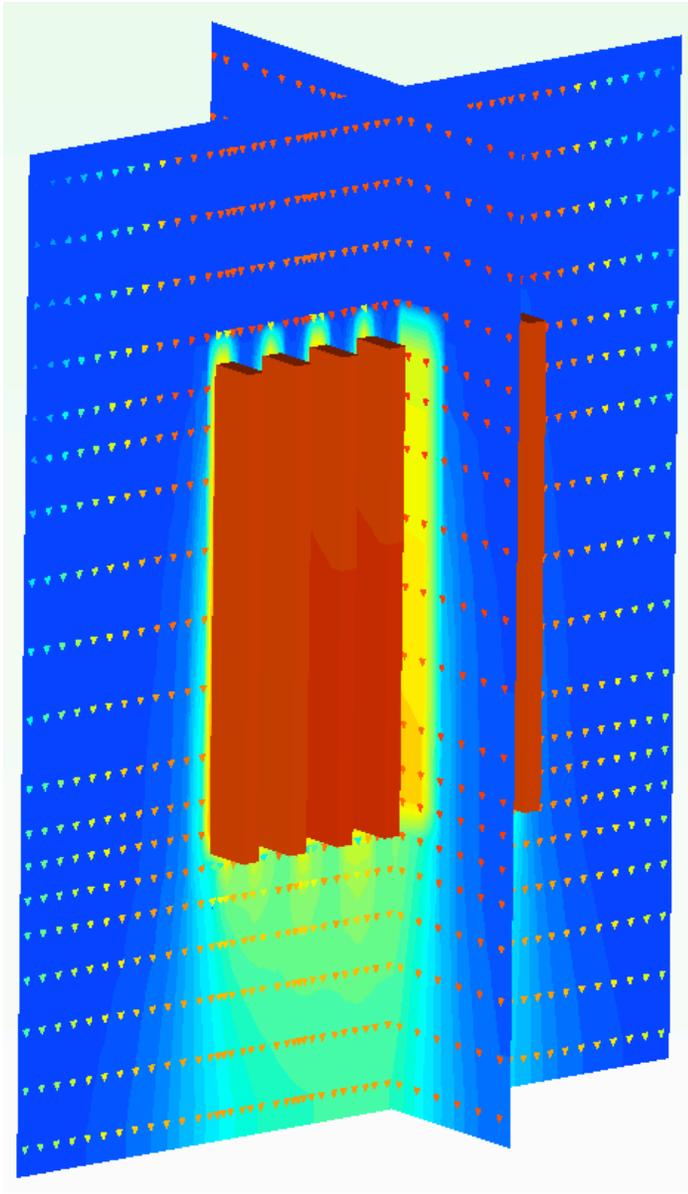*The Analyses/Tests below using Option (1) and (2) plus free convection (no forced air)*

Ambient temperature 25 ºC, TO-247 Package

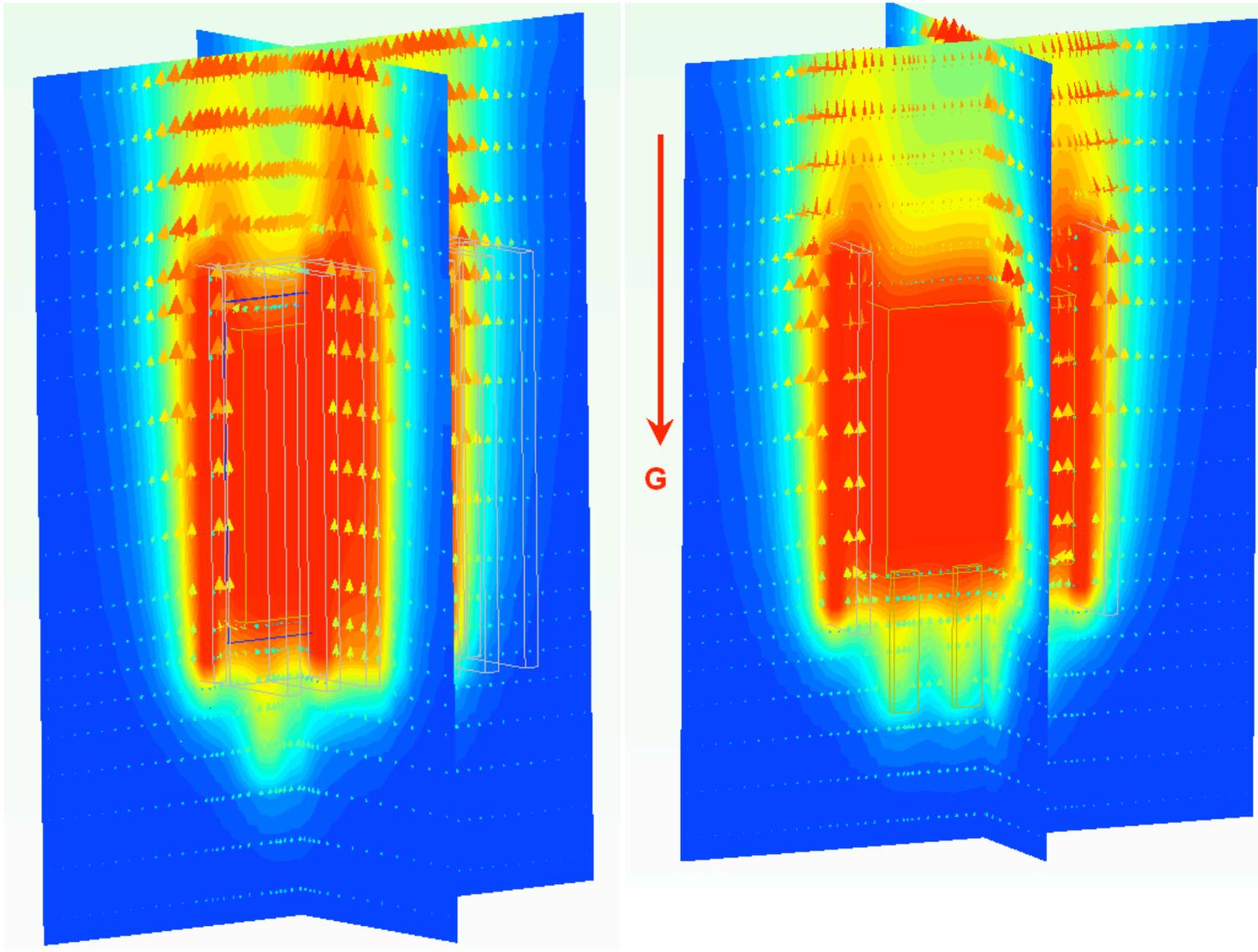| Analysis Data							
Power (W)	0	2	4	8	12	16	20
Air Velocity (Feet per Minute)	0		200	400	600	800	1000
Mounting Surface Temp (ºC) (w/air, option 1)	0		54.7	63.2	70.9	77.6	83.2
Mounting Surface Temp (ºC) (w/air, option 2)	0		76.3	96.9	112.2	125.3	136.6
Mounting Surface Temp (ºC) (no air)	0	59.9	92.9	122.92			
Mounting Surface Temp Rise above Ambient (ºC)	0		29.7	38.2	45.9	52.6	58.2
Mounting Surface Temp Rise above Ambient (ºC)	0		51.3	71.9	87.2	100.3	111.6
Mounting Surface Temp Rise above Ambient (ºC)	0	34.9	67.9	97.9			
Thermal resistance from MTG Surface to Ambient (ºC/W)	0		7.43	4.78	3.83	3.29	2.91
Thermal resistance from MTG Surface to Ambient (ºC/W)			12.83	8.99	7.27	6.27	5.58
Thermal resistance from MTG Surface to Ambient (ºC/W)		17.4	17.0	12.2			

Radiation is applied in Natural convection

WV-T247-101

Option 1 Air flow direction

Natural Convection
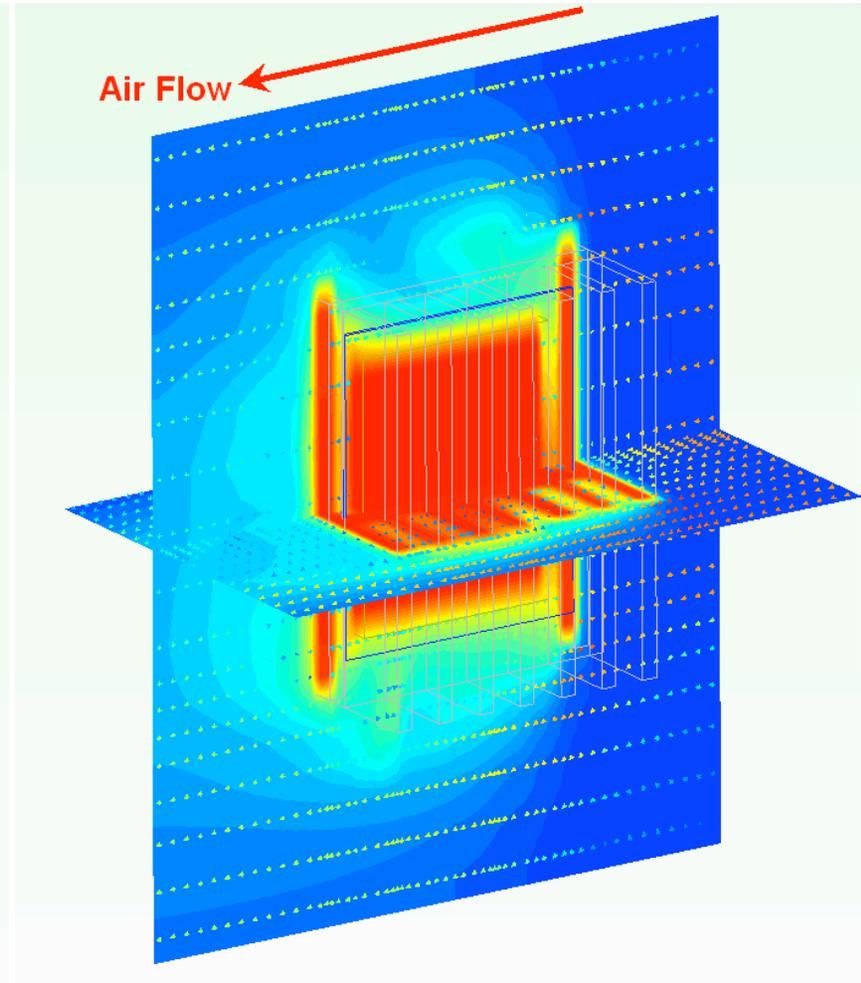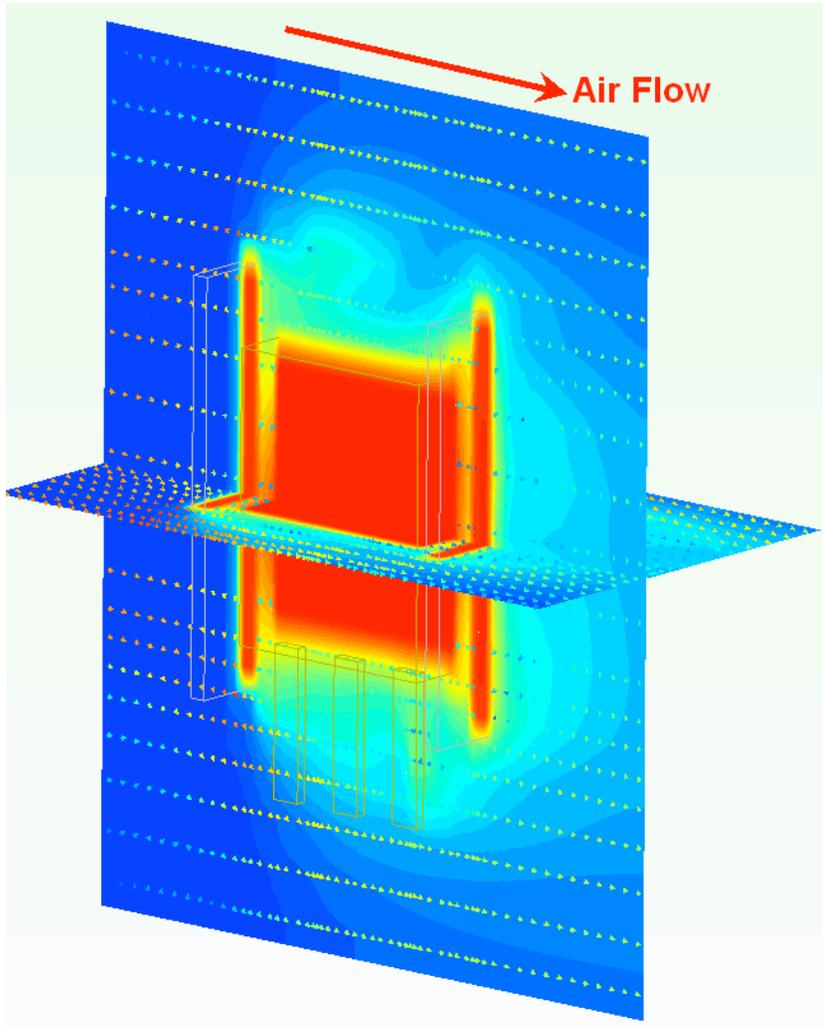
Air Flow

Air Flow

Option 2 Air flow direction

Ambient temperature 25 ºC, TO-220 Package (WV-T220-101)

| Analysis Data							
Power (W)	0	2	4	8	12	16	20
Air Velocity (Feet per Minute)	0		200	400	600	800	1000
Mounting Surface Temp (ºC) (w/air, option 1)	0		59.7	68.5	76.5	83.5	90.1
Mounting Surface Temp (ºC) (w/air, option 2)	0		80.5	96.8	110.0	121.8	132.7
Mounting Surface Temp (ºC) (Free air)	0	68.2	106.7	134.6			
Mounting Surface Temp Rise above Ambient (ºC)	0		34.7	43.5	51.5	58.5	65.1
	0		55.5	71.8	85.0	96.8	107.7
	0	43.2	81.7	109.6			
Thermal resistance from MTG surface to Ambient (ºC/W)	0		8.68	5.44	4.29	3.66	3.26
	0		13.88	8.98	7.08	6.05	5.39
	0	21.6	20.4	13.7			

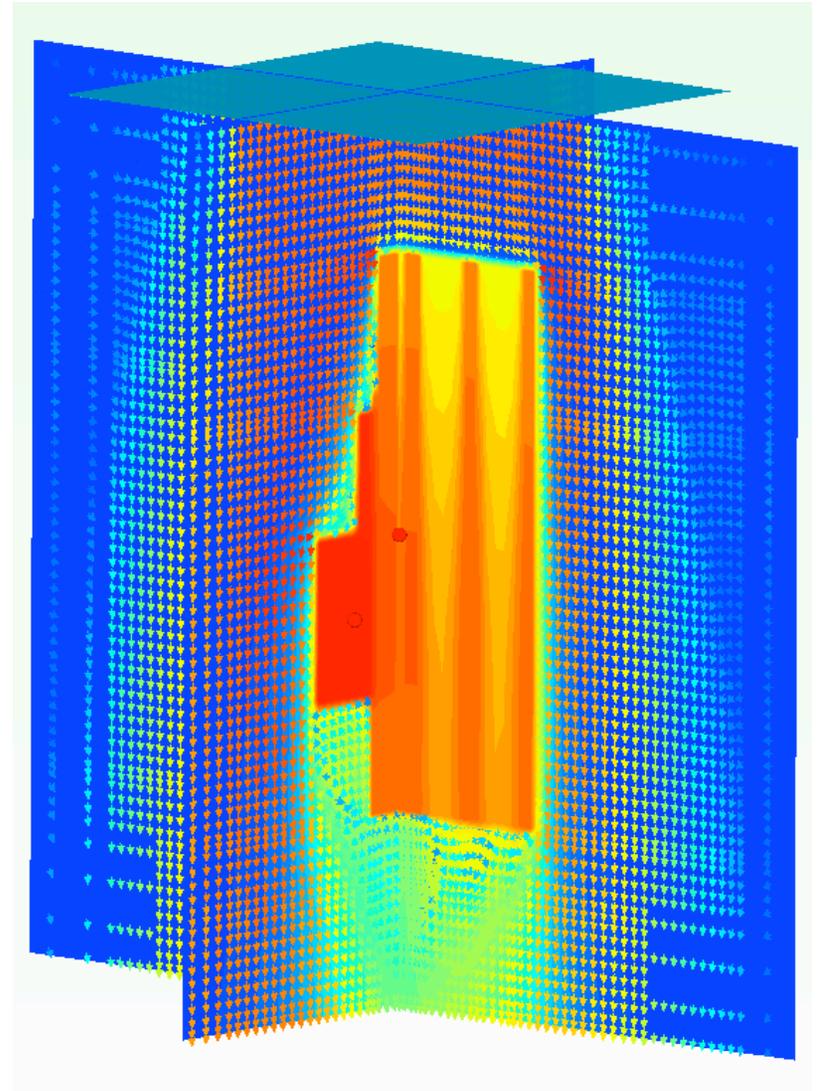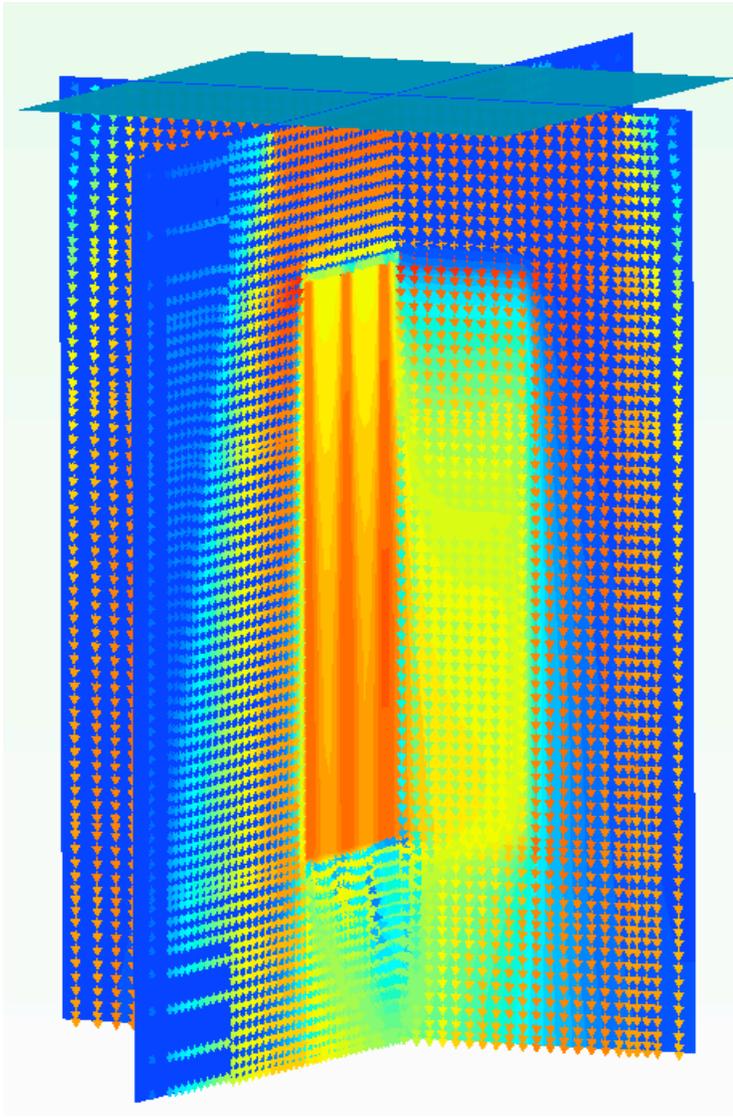*Radiation is applied in Natural convection*

WV-T220-101
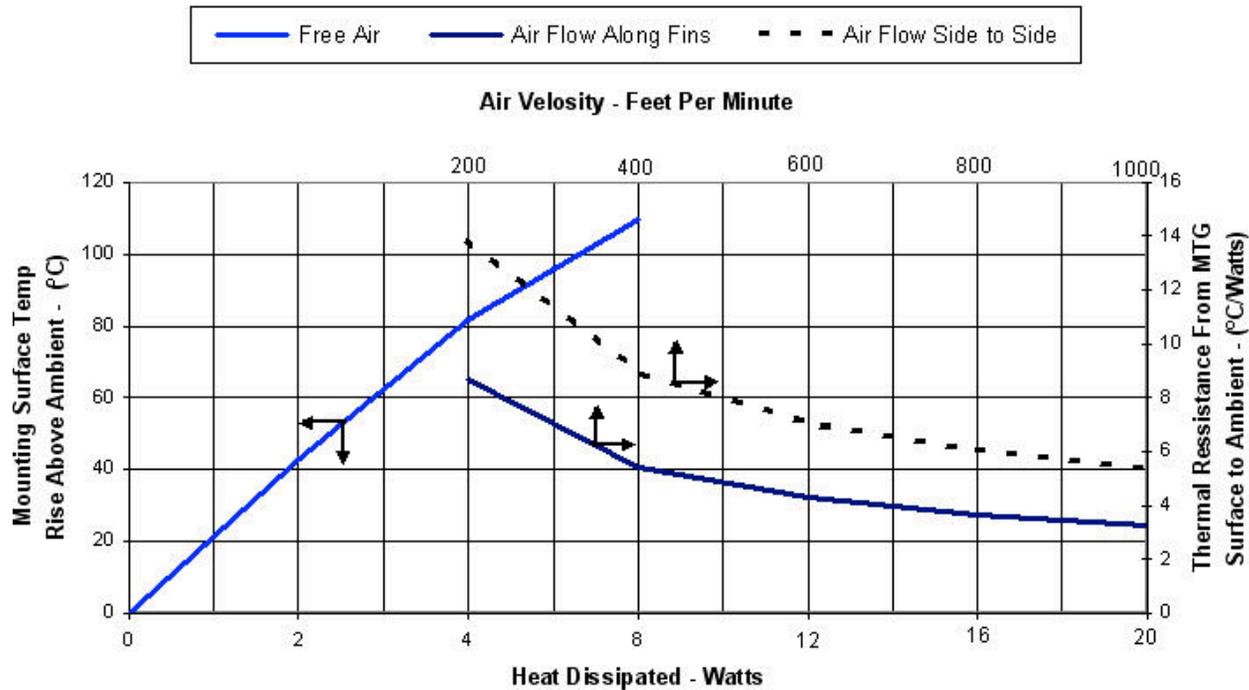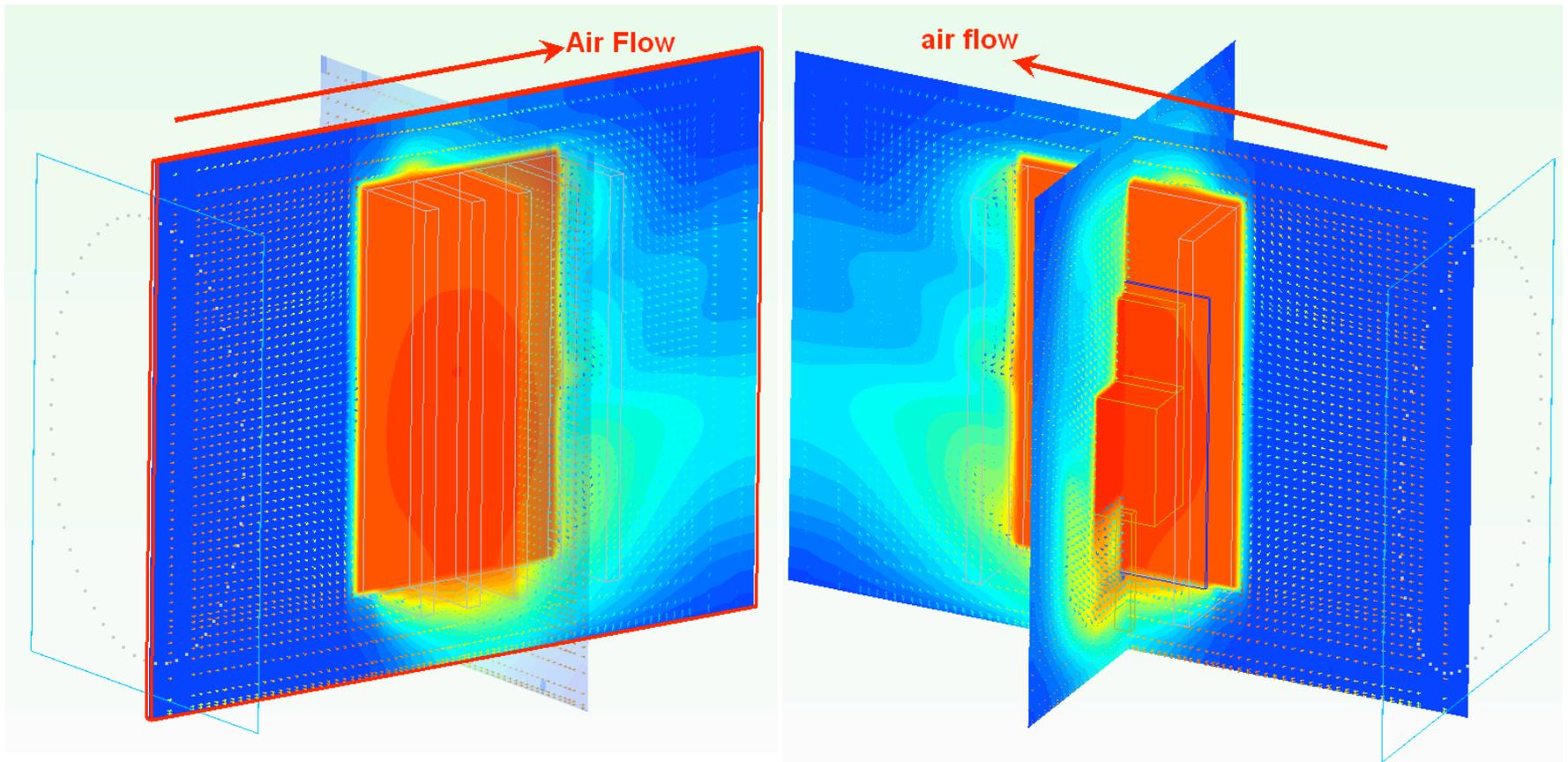
Option 2 Air flow direction
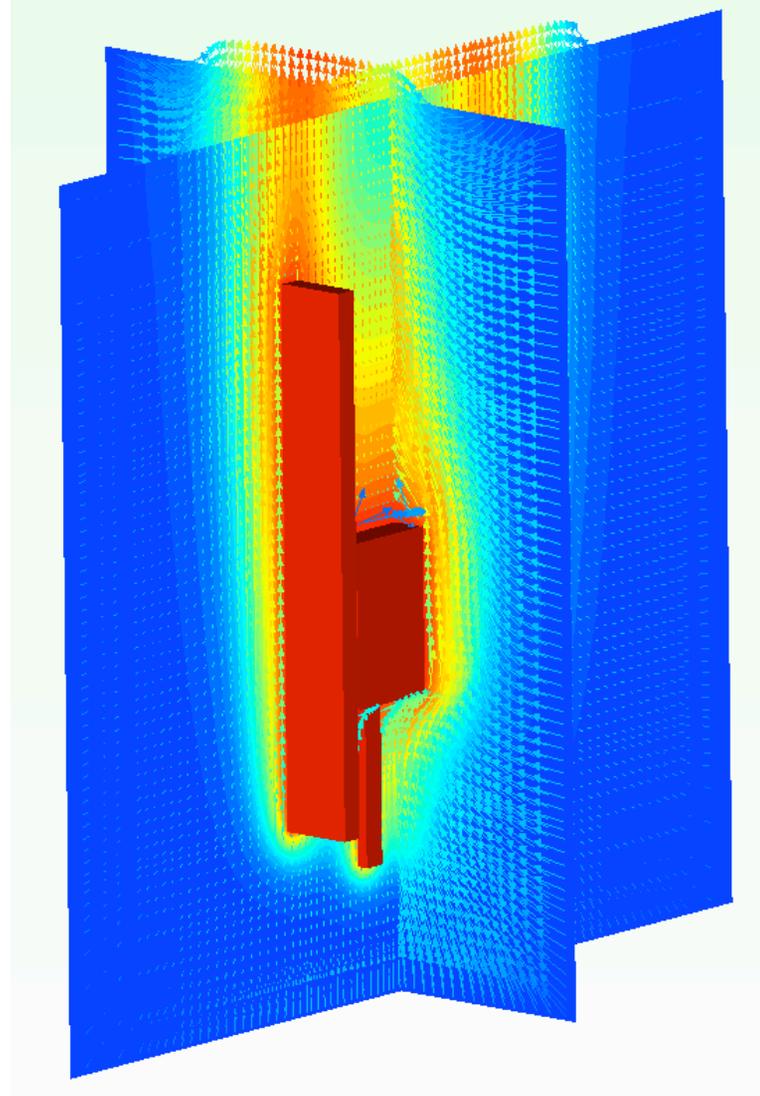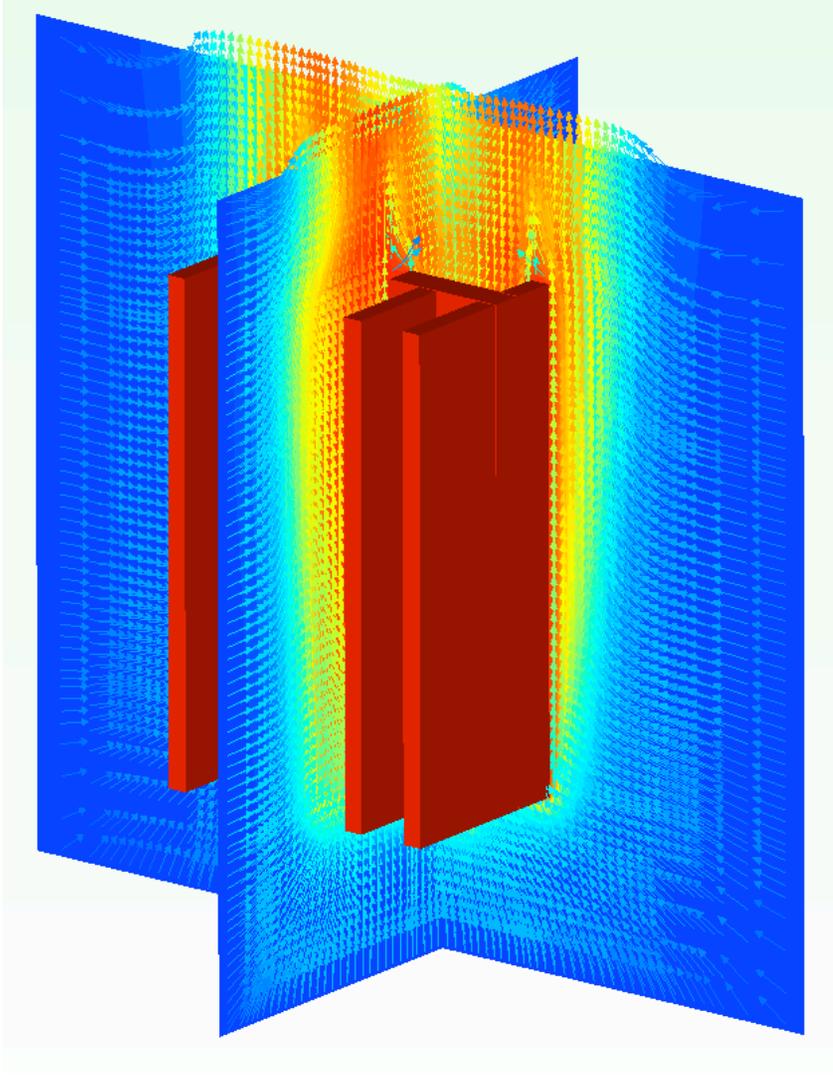
Natural Convection

Option 1 Air flow direction