Eagle Stream_Sever_Module

Thermal Guidance form Intel MCC

Table 5-1. TMTV to Sapphire Rapids-SP Product T_{CASE} Guidance

Package Type	TDP (W)	Heatsink Form Factor	System Form Factor	Airflow (CFM)	T_{LA} (°C)	Airport Cove TTV Psi_ca Package Center (°C/W)	Airport Cove TTV Psi_ca Tile Center Downstream (°C/W)	Airport Cove Correction Factor Package Center (°C/W)	Airport Cove Correction Factor Tile Center Downstream (°C/W)	Product Max $T_{CASE\_PACKAGE-CENTER}$ Guidance (°C)	Product Max $T_{CASE\_TILE-CENTER-DOWNSTREAM}$ Guidance (°C)
1x MCC	300	2U	Spreadcore Extended Air	27	38	0.128		0.0153		81	
	270	2U	Spreadcore Extended Air	27	38	0.128		0.0053		74	
	240	2U	Spreadcore	21.5	43	0.136		0.0098		78	
	225	2U	Spreadcore	21.5	43	0.136		0.0018		74	
	225**	2U	Spreadcore Extended Air	27	38	0.128		0.0142		70	
	205**	2U	Spreadcore Extended Air	27	38	0.128		0.0135		67	
	205	1U EVAC	Spreadcore	22	46	0.166		-0.0001		80	
	185	1U	Spreadcore	11	43	0.225		-0.0034		84	
	165	1U	Spreadcore	11	43	0.225		-0.0068		79	
	145	1U	Shadowed	12	53.5	0.214		-0.0106		83	
	125	1U	Shadowed	12	51.1	0.214		-0.0092		77	
	105	1U	Shadowed	12	49.3	0.214		-0.0093		70	

Thermal Guidance form Intel XCC

Table 5-1. TMTV to Sapphire Rapids-SP Product T_{CASE} Guidance

Package Type	TDP (W)	Heatsink Form Factor	System Form Factor	Airflow (CFM)	T_{LA} (°C)	Airport Cove TTV Psi_ca Package Center (°C/W)	Airport Cove TTV Psi_ca Tile Center Downstream (°C/W)	Airport Cove Correction Factor Package Center (°C/W)	Airport Cove Correction Factor Tile Center Downstream (°C/W)	Product Max $T_{CASE\_PACKAGE-CENTER}$ Guidance (°C)	Product Max $T_{CASE\_TILE-CENTER-DOWNSTREAM}$ Guidance (°C)
4x XCC	350	2U EVAC	Spreadcore Extended Air	38	38	0.116*	0.119*	-0.0024	0.006	78	80
	300	2U	Spreadcore Extended Air	27	38	0.128	0.131	-0.0080	-0.0010	74	77
	270	2U	Spreadcore Extended Air	27	38	0.128	0.131	-0.0095	-0.0014	70	73
	250	2U	Spreadcore	21.5	43	0.136	0.139	-0.0080	-0.0030	75	77
	225	2U	Spreadcore	21.5	43	0.136	0.139	-0.0116	-0.0057	71	73
	205	1U EVAC	Spreadcore	22	46	0.166	0.171	-0.0148	-0.0051	77	80

FCN Cooler Product List							
FCN PN	**CPU Architecture**	**H/P Qnantity**	**Fin material: Cu / AL**	**Dimension(W*L*H) (mm)**	**Watt**	**Page**	200 Hours Thermal baking
TN92	MCC 1U	4	AL	118.0*78.0*24.5	165	4	Pass
TN93	MCC 1U	4	AL	118.0*78.0*24.5	165	5	Pass
TN95	MCC 1U	3	AL	118.0*79.0*24.5	165	6	Pass
TN95	MCC 1U	3	AL	118.0*79.0*24.5	205	7	Pass
TN96	MCC 1U	4	CU	118.0*78.0*24.5	165	8	Pass
TNCG	MCC 2U	4	AL	118.0*78.0*64.0	240	14	Pass
TNCN	MCC 2U	4	CU	118.0*78.0*64.0	240	15	Pass
TNCG	XCC 2U	4	AL	118.0*78.0*64.0	270	16	Pass
TNCN	XCC 2U	4	CU	118.0*78.0*64.0	270	17	Pass

165Watt

Thermal Module for Server-EGS

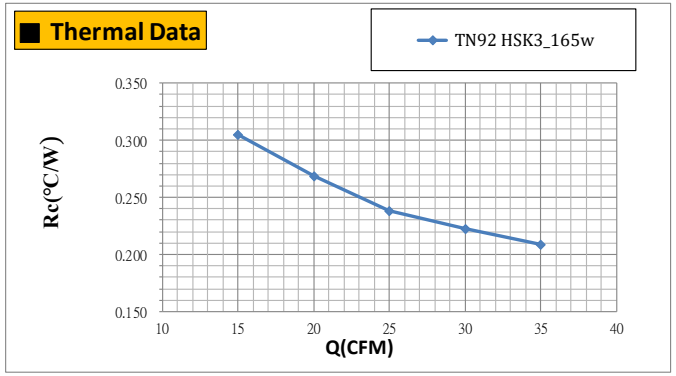
Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	165			165/205
5.Air Flow(cfm)	15、20、25、30、35、40、45			
6.Cross Section Area(cm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material(mm)	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	240	280

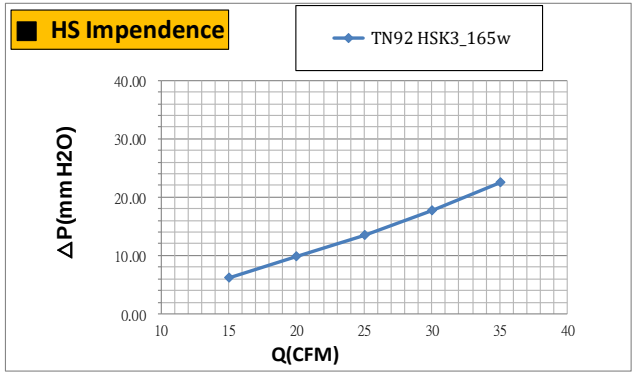
Results

TN92_165W

No.	Flow Rate	PS	Tc	Ta	Tout	△T	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	V	A	Watts	°C/W
TN92	15	6.17	76.0	25.6	44.4	50.40	73.8	2.24	165.312	0.305
	20	9.87	70.1	25.6	39.7	44.50	73.8	2.24	165.312	0.269
	25	13.45	65.0	25.6	37.5	39.40	73.8	2.24	165.312	0.238
	30	17.68	62.4	25.6	36.1	36.80	73.8	2.24	165.312	0.223
	35	22.55	60.2	25.6	34.8	34.60	73.8	2.24	165.312	0.209

Results





▲Thermal Resistance: Res:0.305C/W @ 15CFM (w/ EGS TTV)
▲Pressure drop : 6.17 mmAq @ 15CFM

165Watt

Thermal Module for Server-EGS

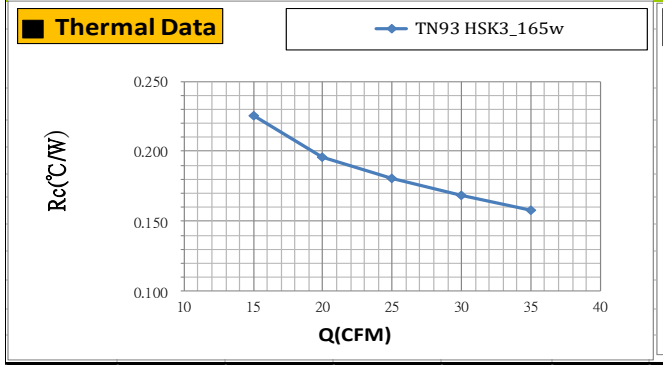
Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	165			165/205
5.Air Flow(cfm)	15、20、25、30、35、40、45			
6.Cross Section Area(cm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material(mm)	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	240	280

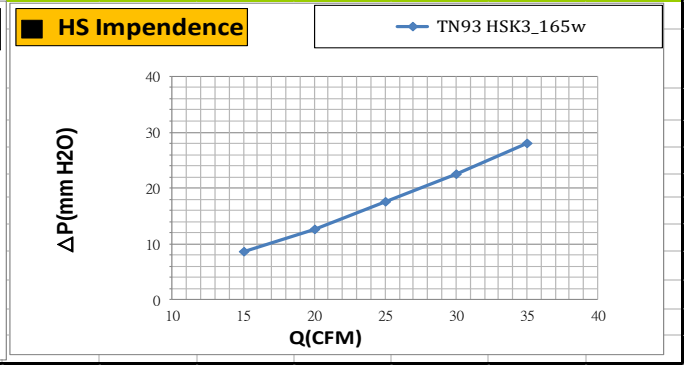
Results

TN93_165w

No.	Flow Rate	PS	Tc	Ta	Tio	Tout	△T	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	°C	V	A	Watts	°C/W
TN93	15	8.65	62.8	25.6	60.9	49.2	37.2	73.8	2.24	165.312	0.225
	20	12.52	58.0	25.6	56.0	45.2	32.4	73.8	2.24	165.312	0.196
	25	17.53	55.4	25.6	53.6	39.4	29.8	73.8	2.24	165.312	0.180
	30	22.43	53.5	25.6	51.7	37.6	27.9	73.8	2.24	165.312	0.169
	35	28.10	51.7	25.6	49.9	36.1	26.1	73.8	2.24	165.312	0.158

Results





▲Thermal Resistance: Res:0.225C/W @ 15CFM (w/ EGS TTV)
▲Pressure drop : 8.65 mmAq @ 15CFM

165Watt

Thermal Module for Server-EGS

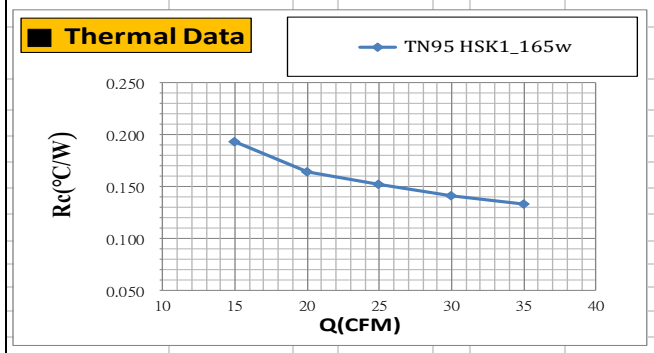
Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	165			165/205
5.Air Flow(cfm)	15、20、25、30、35			
6.Cross Section Area(cm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material(mm)	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	240	280

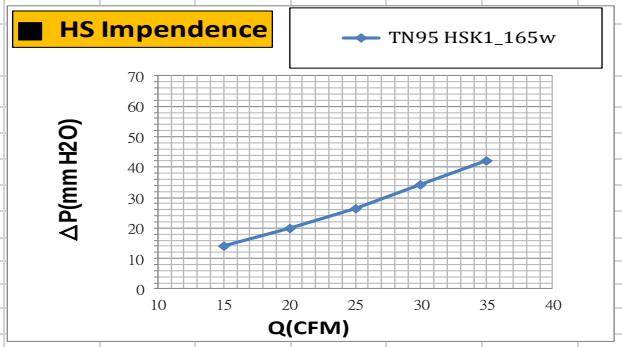
Results

TN95 _165w

No.	Flow Rate	PS	Tc	Ta	Tout	△T	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	V	A	Watts	°C/W
TN95	15	14.00	57.5	25.6	49.7	31.9	73.8	2.24	165.312	0.193
	20	19.92	52.7	25.6	42.8	27.1	73.8	2.24	165.312	0.164
	25	26.52	50.8	25.6	40.4	25.2	73.8	2.24	165.312	0.152
	30	34.28	49.0	25.6	38.1	23.4	73.8	2.24	165.312	0.142
	35	42.00	47.6	25.6	36.6	22.0	73.8	2.24	165.312	0.133

Results





▲Thermal Resistance: Res:0.193C/W @ 15CFM (w/ EGS TTV)
▲Pressure drop : 14.00 mmAq @ 15CFM

205Watt

Thermal Module for Server-EGS

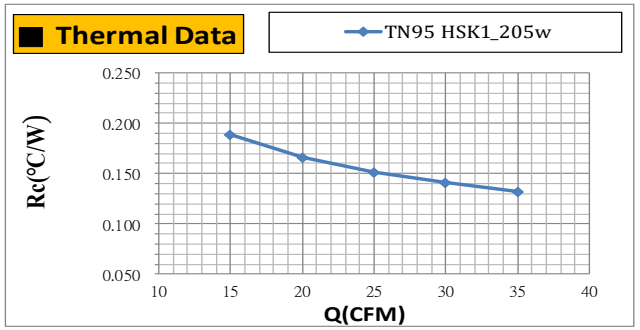
Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	165			165/205
5.Air Flow(cfm)	15、20、25、30、35			
6.Cross Section Area(cm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material(mm)	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	240	280

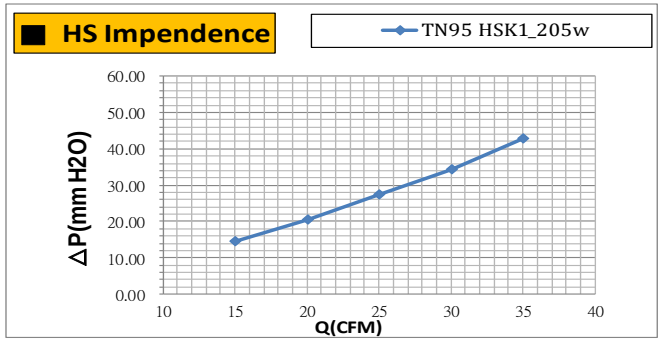
Results

TN95 _205w

No.	Flow Rate	PS	Tc	Ta	Tout	△T	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	V	A	Watts	°C/W
TN95	15	14.4	64.6	25.6	52.8	39.0	76.0	2.71	205.960	0.189
	20	20.33	59.9	25.6	47.8	34.3	76.0	2.71	205.960	0.167
	22	23.63	58.6	25.6	46.1	33.0	76.0	2.71	205.960	0.160
	25	27.51	56.8	25.6	44.0	31.2	76.0	2.71	205.960	0.151
	30	34.40	54.6	25.6	41.4	29.0	76.0	2.71	205.960	0.141
	35	42.82	52.7	25.6	39.3	27.1	76.0	2.71	205.960	0.132

Results





▲Thermal Resistance: Res:0.160C/W @ 22CFM (w/ EGS TTV)
▲Pressure drop : 23.63 mmAq @ 22CFM

165Watt

Thermal Module for Server-EGS

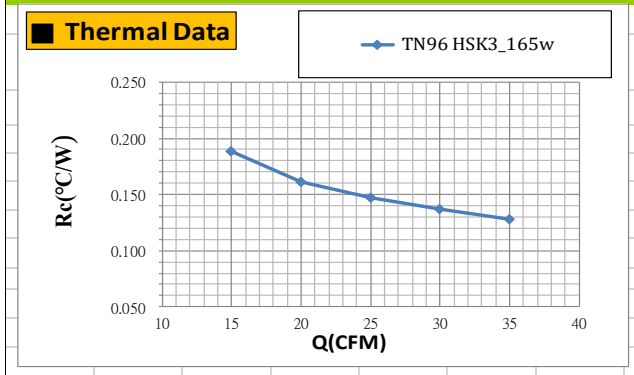
Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	165			165/205
5.Air Flow(cfm)	15、20、25、30、35			
6.Cross Section Area(cm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material(mm)	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	240	280

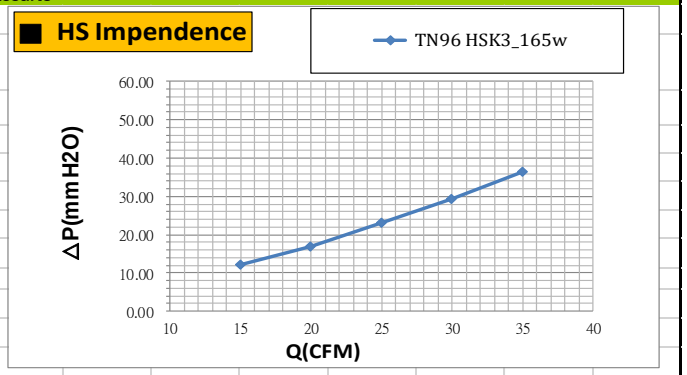
Results

TN96_165w

No.	Flow Rate	PS	Tc	Ta	Tio	Tout	△T	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	°C	V	A	Watts	°C/W
TN96	15	12.19	56.7	25.6	54.9	49.6	31.10	73.8	2.24	165.312	0.188
	20	16.88	52.2	25.6	50.2	43.0	26.60	73.8	2.24	165.312	0.161
	25	23.12	49.9	25.6	48.3	39.9	24.30	73.8	2.24	165.312	0.147
	30	29.46	48.2	25.6	46.6	38.2	22.60	73.8	2.24	165.312	0.137
	35	36.37	46.8	25.6	45.1	36.7	21.20	73.8	2.24	165.312	0.128

Results





▲Thermal Resistance: Res:0.188C/W @ 15CFM (w/ EGS TTV)
▲Pressure drop : 12.19 mmAq @ 15CFM

10

145Watt

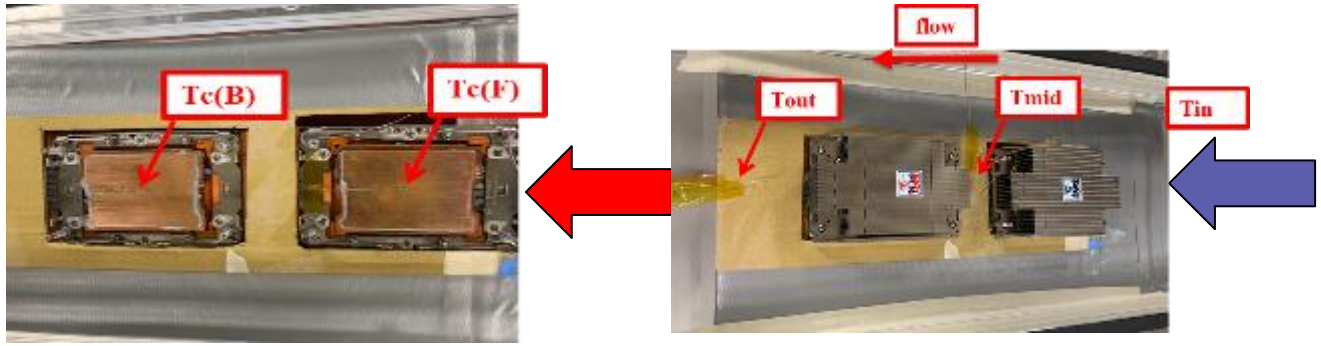
1U Shadowed type for Server-EGS

Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	145			
5.Air Flow(cfm)	15、20、25、30、35、40、45			
6.Cross Section Area(mm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	260	280
12.Module Cooperate	Shadow1 TN93_TN95	Shadow2 TN96_TN95	Shadow3 TN95_TN96	Shadow4 TN92_TN96

Results

Shadow_1

No.	Flow Rate	PS	Tc(F)	Tc(B)	Tin	Tmid	Tout	Ta	△T(F)	△T(B)	Input Voltage	Input Current	Input Power	θca(TN93Al)	θca(TN95Al)
	CFM	mmAq	°C	°C	°C	°C	°C	°C	°C	°C	V	A	Watts	°C/W	°C/W
TN93(Al)+TN95(Al) Tc(F) Tc(B)	15	18.00	58.4	74.2	25.6	45.9	67.6	25.6	32.8	28.3	35.0	4.15	145.250	0.226	0.195
	20	25.83	54.5	65.5	25.6	40.8	57.4	25.6	28.9	24.7	35.0	4.15	145.250	0.199	0.170
	25	34.87	51.8	60.1	25.6	37.0	50.6	25.6	26.2	23.1	35.0	4.15	145.250	0.180	0.159
	30	44.45	50.0	56.9	25.6	35.1	46.8	25.6	24.4	21.8	35.0	4.15	145.250	0.168	0.150
	35	55.48	48.5	54.3	25.6	34.3	43.6	25.6	22.9	20.0	35.0	4.15	145.250	0.158	0.138
	40	65.06	47.4	52.7	25.6	32.7	41.8	25.6	21.8	20.0	35.0	4.15	145.250	0.150	0.138
	45	77.31	46.1	50.7	25.6	31.6	39.8	25.6	20.5	19.1	35.0	4.15	145.250	0.141	0.131



145Watt

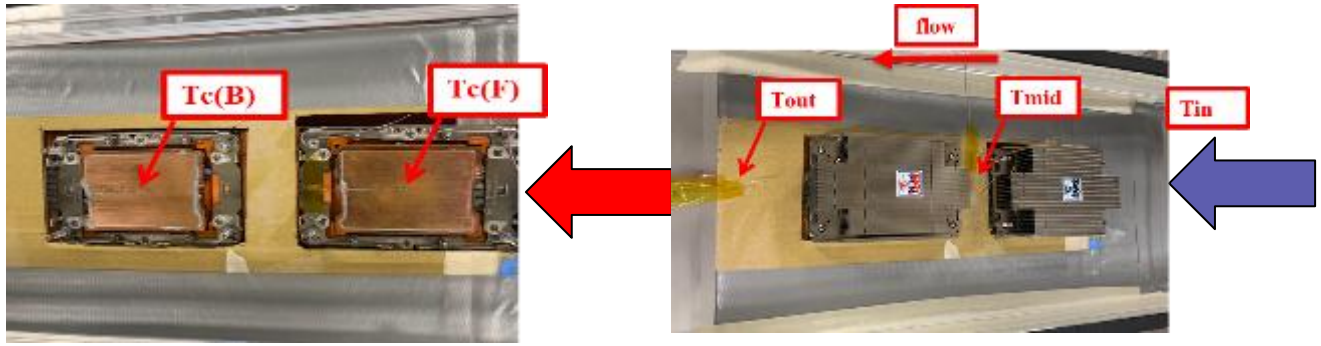
1U Shadowed type for Server-EGS

Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	145			
5.Air Flow(cfm)	15、20、25、30、35、40、45			
6.Cross Section Area(mm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	260	280
12.Module Cooperate	Shadow1 TN93_TN95	Shadow2 TN96_TN95	Shadow3 TN95_TN96	Shadow4 TN92_TN96

Results

Shadow_2

No.	Flow Rate	PS	Tc(F)	Tc(B)	Tin	Tmid	Tout	Ta	△T(F)	△T(B)	Input Voltage	Input Current	Input Power	θca(TN96Cu)	θca(TN95Al)
	CFM	mmAq	°C	°C	°C	°C	°C	°C	°C	°C	V	A	Watts	°C/W	°C/W
TN96(Cu)+TN95(Al) Tc(F) Tc(B)	15	20.32	53.4	74.8	25.6	47.7	68.6	25.6	27.8	27.1	35.0	4.15	145.250	0.191	0.187
	20	29.18	49.3	65.7	25.6	41.8	58.2	25.6	23.7	23.9	35.0	4.15	145.250	0.163	0.165
	25	39.54	47.3	60.7	25.6	38.7	51.8	25.6	21.7	22.0	35.0	4.15	145.250	0.149	0.151
	30	49.36	45.8	57.3	25.6	37.1	47.9	25.6	20.2	20.2	35.0	4.15	145.250	0.139	0.139
	35	60.12	44.7	54.8	25.6	35.2	44.9	25.6	19.1	19.6	35.0	4.15	145.250	0.131	0.135
	40	70.32	43.8	52.8	25.6	34.0	42.7	25.6	18.2	18.8	35.0	4.15	145.250	0.125	0.129
	45	82.86	42.9	51.0	25.6	33.0	40.8	25.6	17.3	18.0	35.0	4.15	145.250	0.119	0.124



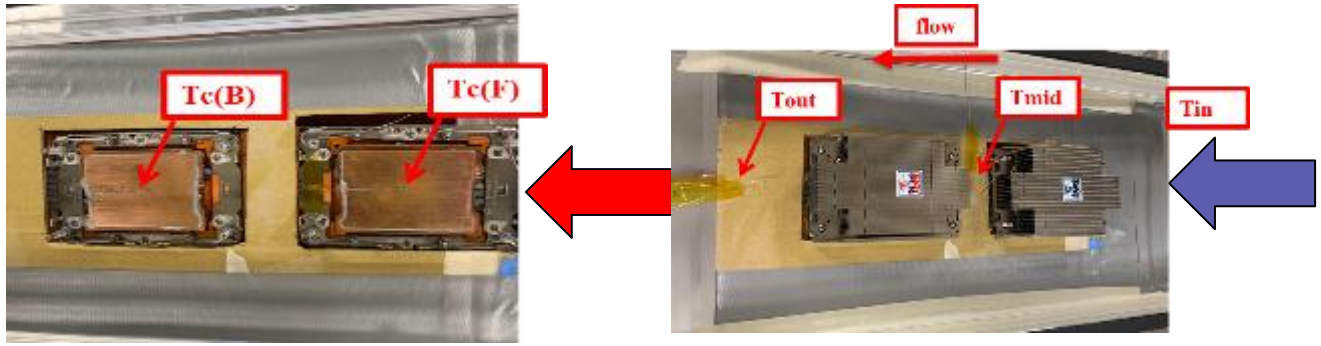
1U Shadowed type for Server-EGS

Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	145			
5.Air Flow(cfm)	15、20、25、30、35、40、45			
6.Cross Section Area(mm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	260	280
12.Module Cooperate	Shadow1 TN93_TN95	Shadow2 TN96_TN95	Shadow3 TN95_TN96	Shadow4 TN92_TN96

Results

Shadow_3

No.	Flow Rate	PS	Tc(F)	Tc(B)	Tin	Tmid	Tout	Ta	△T(F)	△T(B)	Input Voltage	Input Current	Input Power	θca(TN95Al)	θca(TN96Cu)
	CFM	mmAq	°C	°C	°C	°C	°C	°C	°C	°C	V	A	Watts	°C/W	°C/W
TN95(Al)_TN96(Cu) Tc(F) Tc(B)	15	18.06	55.1	78.1	25.6	49.1	72.8	25.6	29.5	29.0	35.0	4.15	145.250	0.203	0.200
	20	25.68	50.8	68.3	25.6	43.3	61.8	25.6	25.2	25.0	35.0	4.15	145.250	0.173	0.172
	25	34.89	48.6	62.7	25.6	39.6	54.8	25.6	23.0	23.1	35.0	4.15	145.250	0.158	0.159
	30	44.28	46.9	58.8	25.6	37.2	49.9	25.6	21.3	21.6	35.0	4.15	145.250	0.147	0.149
	35	54.55	45.6	55.8	25.6	35.6	46.3	25.6	20.0	20.2	35.0	4.15	145.250	0.138	0.139
	40	64.48	44.9	54.1	25.6	34.6	44.0	25.6	19.3	19.5	35.0	4.15	145.250	0.133	0.134
	45	76.20	43.9	52.2	25.6	33.5	42.0	25.6	18.3	18.7	35.0	4.15	145.250	0.126	0.129



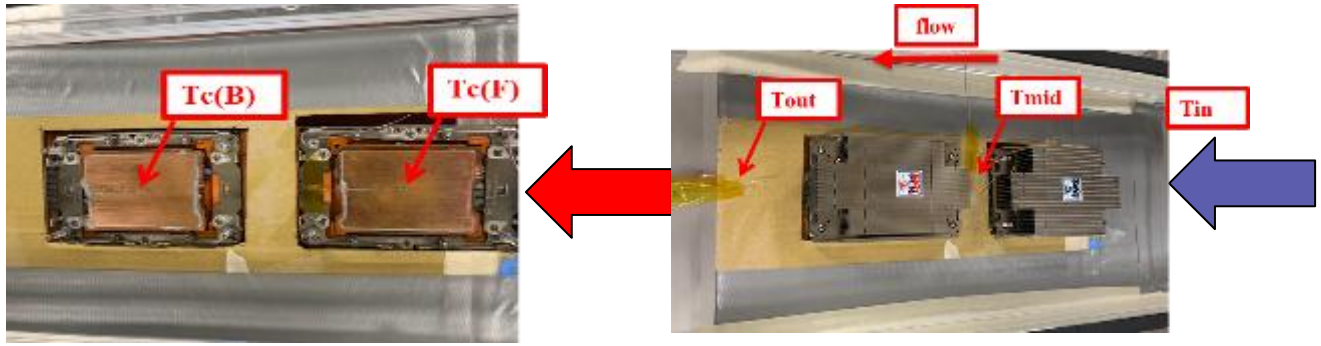
1U Shadowed type for Server-EGS

Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	145			
5.Air Flow(cfm)	15、20、25、30、35、40、45			
6.Cross Section Area(mm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	260	280
12.Module Cooperate	Shadow1 TN93_TN95	Shadow2 TN96_TN95	Shadow3 TN95_TN96	Shadow4 TN92_TN96

Results

Shadow_4

No.	Flow Rate	PS	Tc(F)	Tc(B)	Tin	Tmid	Tout	Ta	△T(F)	△T(B)	Input Voltage	Input Current	Input Power	θca(TN92Al)	θca(TN96Cu)
	CFM	mmAq	°C	°C	°C	°C	°C	°C	°C	°C	V	A	Watts	°C/W	°C/W
TN92(Al)_TN96(Cu) Tc(F) Tc(B)	15	13.45	71.3	73.4	25.6	47.5	67.0	25.6	45.7	25.9	35.0	4.15	145.250	0.315	0.178
	20	19.60	65.7	65.1	25.6	43.6	57.0	25.6	40.1	21.5	35.0	4.15	145.250	0.276	0.148
	25	27.28	61.7	60.2	25.6	38.7	50.8	25.6	36.1	21.5	35.0	4.15	145.250	0.249	0.148
	30	35.18	59.0	56.7	25.6	35.6	46.3	25.6	33.4	21.1	35.0	4.15	145.250	0.230	0.145
	35	43.73	56.9	54.4	25.6	33.3	43.0	25.6	31.3	21.1	35.0	4.15	145.250	0.215	0.145
	40	51.38	55.5	52.6	25.6	32.4	41.1	25.6	29.9	20.2	35.0	4.15	145.250	0.206	0.139
	45	61.32	54.1	51.2	25.6	31.8	39.8	25.6	28.5	19.4	35.0	4.15	145.250	0.196	0.134

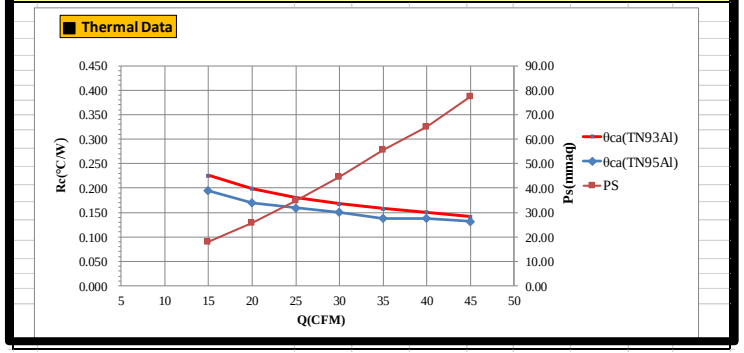


145Watt

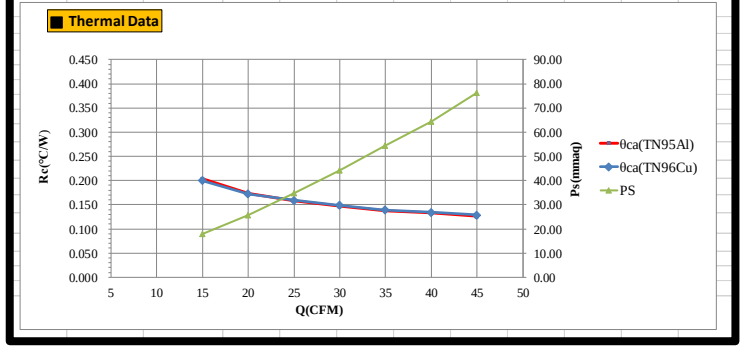
1U Shadowed type for Server-EGS

Thermal performace Test				
Item	**Condition_With curved plate**			
1. Test System	Wind Tunnel			
2. Grease(mm)	TC-5888 t=0.2			
3. Heat source(mm)	74.0*51.0			
4. Power(watt)	145			
5.Air Flow(cfm)	15、20、25、30、35、40、45			
6.Cross Section Area(mm)	20.5*5.8			
7.Module	**TN92**	**TN96**	**TN93**	**TN95**
8.Heat sink Dim(mm)	118.0*78.0*24.5			118.0*79.0*24.5
9.Pipe type	4 pipes			3pipes
10.Fin Dim & Material	(Al 1050)0.3t x3.0p	(Cu 1100) 0.3t x 1.6p	(Al 1050) 0.3t x 2.0p	(Al 1050) 0.4t x 1.6p 交叉
11.Total weight(g) (With Anti-Tilt)	245	440	260	280
12.Module Cooperate	Shadow1 TN93_TN95	Shadow2 TN96_TN95	Shadow3 TN95_TN96	Shadow4 TN92_TN96

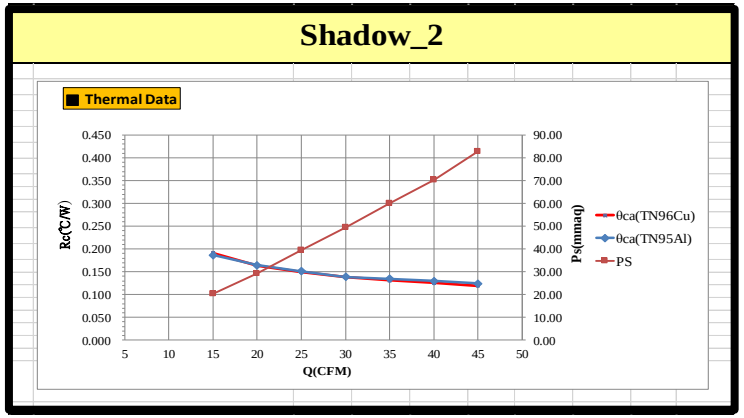
Shadowed_1



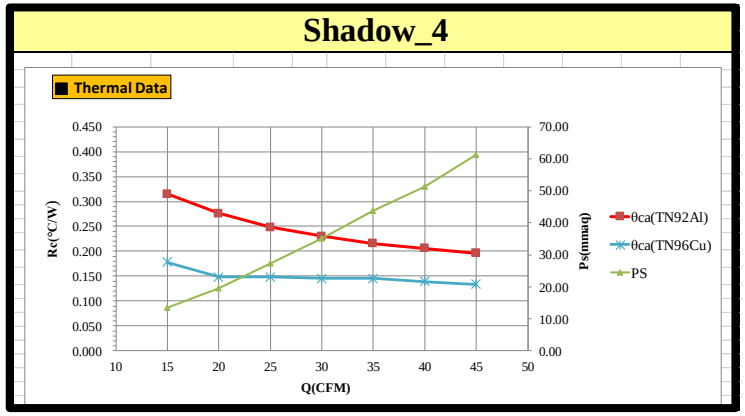
Shadow_3

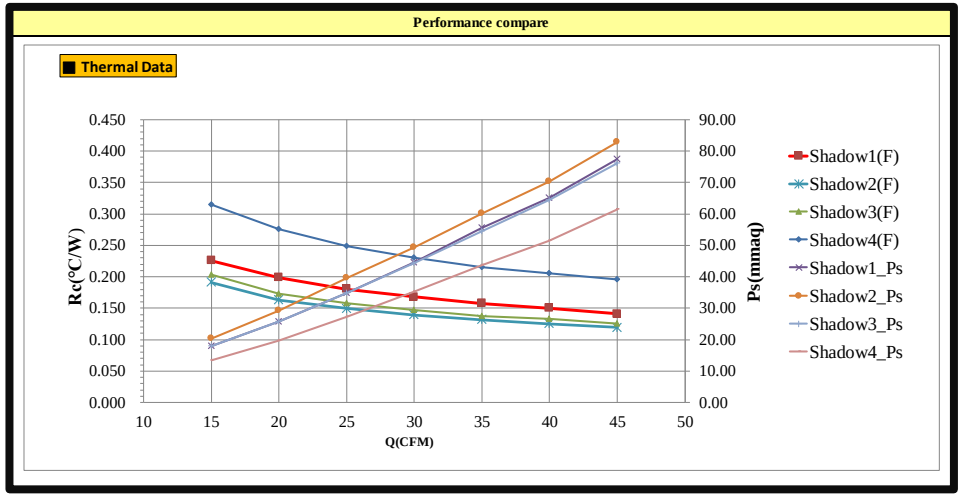


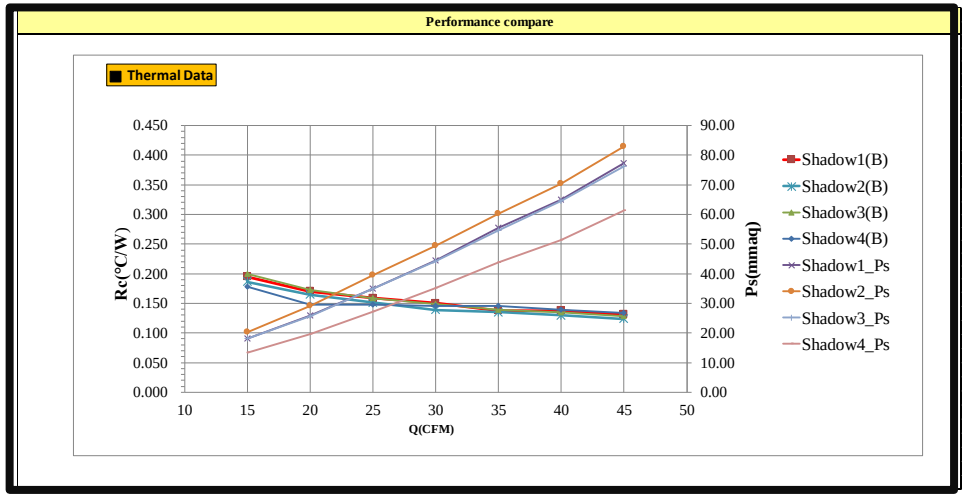
Shadow_2



Shadow_4



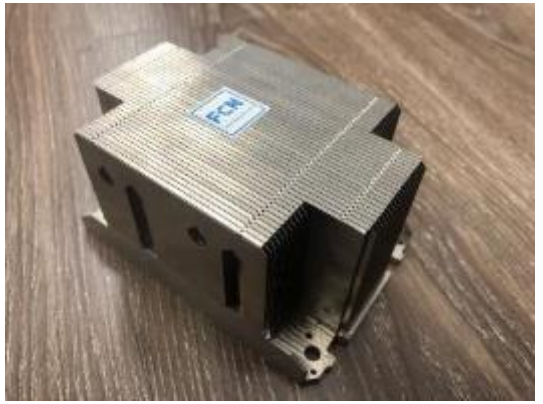


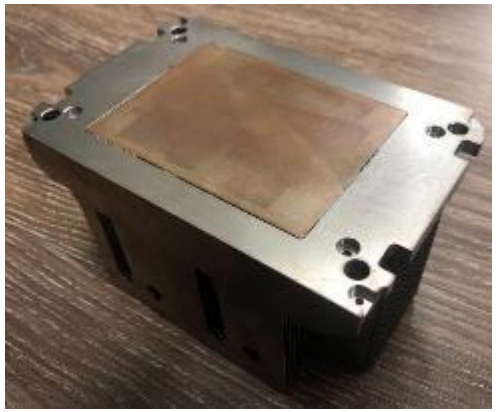


240Watt

2U Thermal Module for Server-EGS

Thermal performace Test		
Item	**Condition_With curved plate**	
1. Test System	Wind Tunnel	
2. Grease (mm)	TC-5888 t=0.2	
3. Heat source (mm)	74.0*51.0	
4. Power (Watt)	240	
5.Air Flow (cfm)	15、20、25、30、35	
6.Cross Section Area (mm)	20.5*80	
7.Module	**TNCG**	**TNCN**
8.Heat sink Dim (mm)	118.0*78.0*64.0	
9.Pipe type	4 pipes	
10.Fin Dim & Material	(Al 1050)0.3t x1.8p	(Cu1100)0.3t x1.8p
11.Total weight (g) (With Anti-Tilt)	400	820

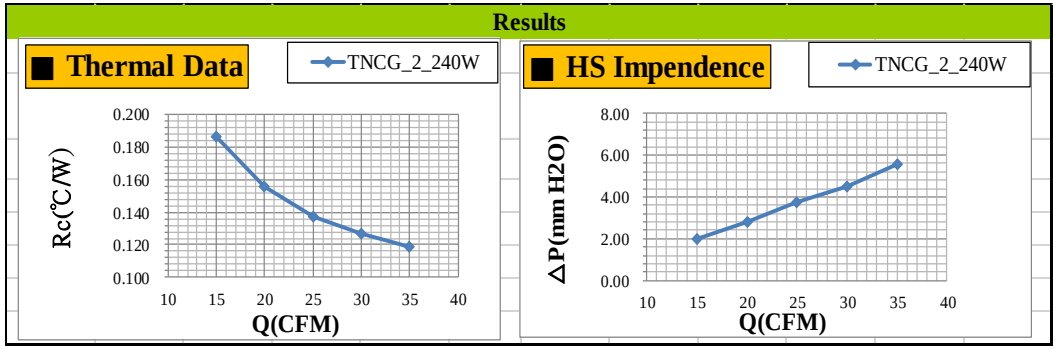




Results

TNCG_240W

No.	Flow Rate	PS	Tc	Ta	△T	Tout	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	V	A	Watts	°C/W
TNCG_240W	15	1.96	70.3	25.5	44.8	64.8	80.0	3.01	240.800	0.186
	20	2.79	63.0	25.5	37.5	57.9	80.0	3.01	240.800	0.156
	21.5	3.07	61.9	25.5	36.4	56.3	80.0	3.01	240.800	0.151
	25	3.74	58.6	25.5	33.1	52.6	80.0	3.01	240.800	0.137
	30	4.53	56.1	25.5	30.6	49.6	80.0	3.01	240.800	0.127
	35	5.56	54.1	25.5	28.6	47	80.0	3.01	240.800	0.119



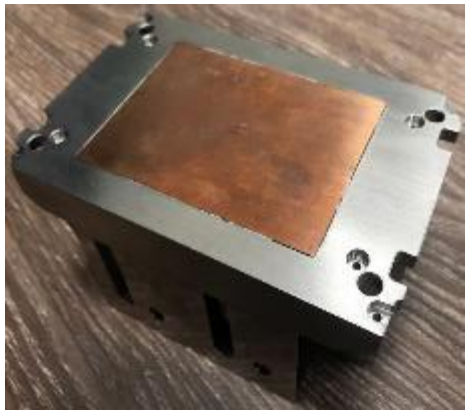
▲Thermal Resistance: Res:0.151˚C/W @ 21.5CFM (w/ EGS TTV)

▲ Pressure drop: 3.07mmAq @ 21.5CFM

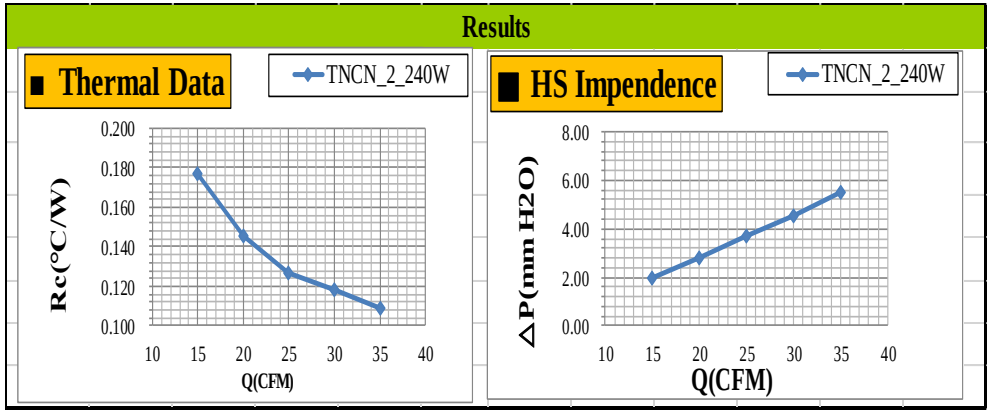
240Watt

2U Thermal Module for Server-EGS

Thermal performace Test		
Item	**Condition_With curved plate**	
1. Test System	Wind Tunnel	
2. Grease (mm)	TC-5888 t=0.2	
3. Heat source (mm)	74.0*51.0	
4. Power (Watt)	240	
5.Air Flow (cfm)	15、20、25、30、35	
6.Cross Section Area (mm)	20.5*80	
7.Module	**TNCG**	**TNCN**
8.Heat sink Dim (mm)	118.0*78.0*64.0	
9.Pipe type	4 pipes	
10.Fin Dim & Material	(Al 1050)0.3t x1.8p	(Cu1100)0.3t x1.8p
11.Total weight (g) (With Anti-Tilt)	400	820



Results										
TNCN_240W										
No.	Flow Rate	PS	Tc	Ta	△T	Tout	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	V	A	Watts	°C/W
TNCN_240W	15	1.96	68.2	25.5	42.7	63.7	80.0	3.01	240.800	0.177
	20	2.78	60.6	25.5	35.1	55.8	80.0	3.01	240.800	0.146
	21.5	3.08	59.5	25.5	34.0	53.6	80.0	3.01	240.800	0.141
	25	3.73	56.1	25.5	30.6	49.6	80.0	3.01	240.800	0.127
	30	4.53	53.9	25.5	28.4	46.3	80.0	3.01	240.800	0.118
	35	5.54	51.7	25.5	26.2	45	80.0	3.01	240.800	0.109



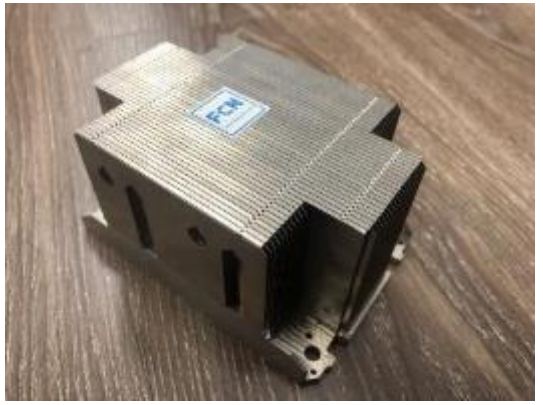
▲Thermal Resistance: Res:0.141°C/W @ 21.5CFM (w/ EGS TTV)

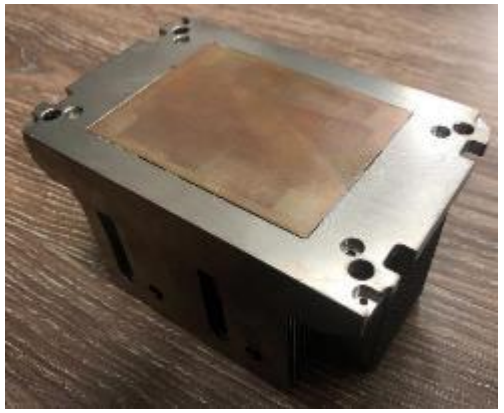
▲ Pressure drop: 3.08mmAq @ 21.5CFM

270Watt

2U Thermal Module for Server-EGS

Thermal performace Test		
Item	**Condition_With curved plate**	
1. Test System	Wind Tunnel	
2. Grease (mm)	TC-5888 t=0.2	
3. Heat source (mm)	74.0*51.0	
4. Power (Watt)	270	
5.Air Flow (cfm)	15、20、25、30、35	
6.Cross Section Area (mm)	20.5*80	
7.Module	**TNCG**	**TNCN**
8.Heat sink Dim (mm)	118.0*78.0*64.0	
9.Pipe type	4 pipes	
10.Fin Dim & Material	(Al 1050)0.3t x1.8p	(Cu1100)0.3t x1.8p
11.Total weight (g) (With Anti-Tilt)	400	820

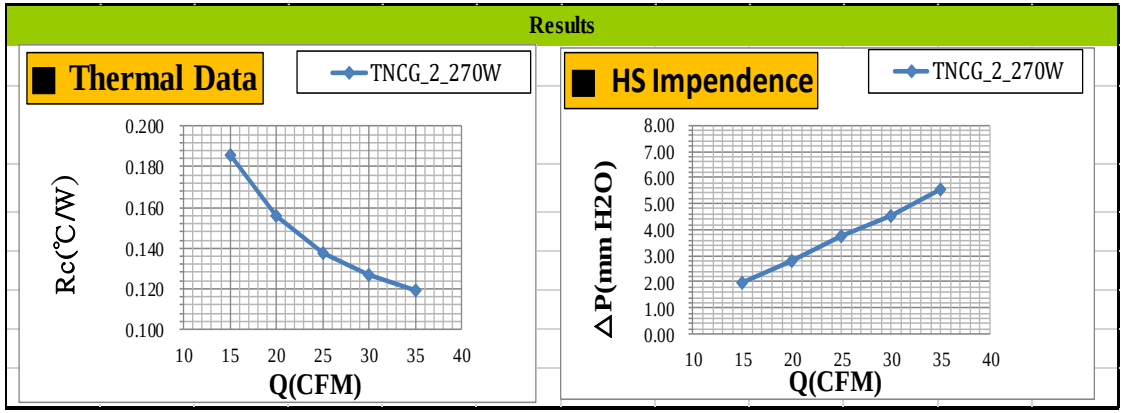




Results

TNCG_270W

No.	Flow Rate	PS	Tc	Ta	△T	Tout	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	V	A	Watts	°C/W
TNCG_270W	15	2.01	76.0	25.5	50.5	70.5	80.0	3.38	270.400	0.187
	20	2.83	67.8	25.5	42.3	62.2	80.0	3.38	270.400	0.156
	25	3.78	62.4	25.5	36.9	55.7	80.0	3.38	270.400	0.136
	27	4.05	61.7	25.5	36.2	54.9	80.0	3.38	270.400	0.134
	30	4.57	59.7	25.5	34.2	52.7	80.0	3.38	270.400	0.126
	35	5.61	57.4	25.5	31.9	49.7	80.0	3.38	270.400	0.118



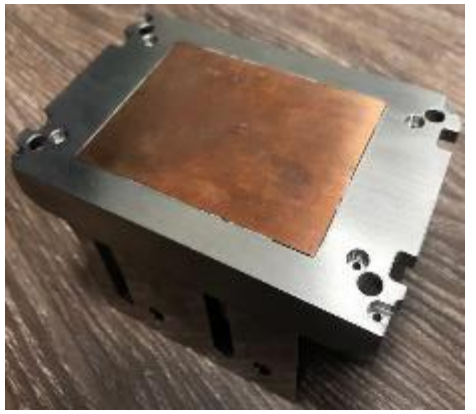
▲Thermal Resistance: Res:0.134°C/W @ 27CFM (w/ EGS TTV)

▲ Pressure drop: 4.05mmAq @ 27CFM

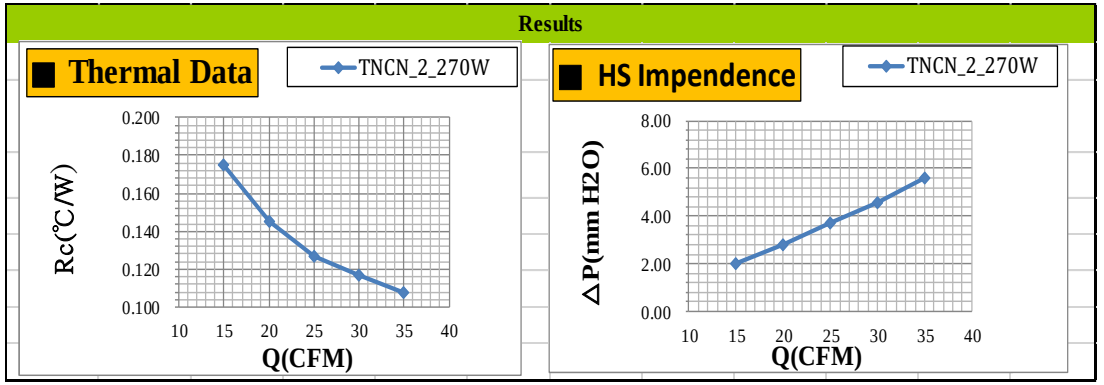
270Watt

2U Thermal Module for Server-EGS

Thermal performace Test		
Item	**Condition_With curved plate**	
1. Test System	Wind Tunnel	
2. Grease (mm)	TC-5888 t=0.2	
3. Heat source (mm)	74.0*51.0	
4. Power (Watt)	270	
5.Air Flow (cfm)	15、20、25、30、35	
6.Cross Section Area (mm)	20.5*80	
7.Module	**TNCG**	**TNCN**
8.Heat sink Dim (mm)	118.0*78.0*64.0	
9.Pipe type	4 pipes	
10.Fin Dim & Material	(Al 1050)0.3t x1.8p	(Cu1100)0.3t x1.8p
11.Total weight (g) (With Anti-Tilt)	400	820



Results										
TNCN_270W										
No.	Flow Rate	PS	Tc	Ta	△T	Tout	Input Voltage	Input Current	Input Power	θca
	CFM	mmAq	°C	°C	°C	°C	V	A	Watts	°C/W
TNCN_270W	15	1.98	72.8	25.5	47.3	68.5	80.0	3.38	270.400	0.175
	20	2.79	64.7	25.5	39.2	58.4	80.0	3.38	270.400	0.145
	25	3.73	59.7	25.5	34.2	52.7	80.0	3.38	270.400	0.126
	27	4.08	58.8	25.5	33.3	50.9	80.0	3.38	270.400	0.123
	30	4.56	57.0	25.5	31.5	49.8	80.0	3.38	270.400	0.116
	35	5.57	54.7	25.5	29.2	47	80.0	3.38	270.400	0.108



▲Thermal Resistance: Res:0.123°C/W @ 27CFM (w/ EGS TTV)

▲ Pressure drop: 4.08mmAq @ 27CFM