ISO 9001:2000
CERTIFIED

MELCOR® | a unit of Laird TECHNOLOGIES®

global solutions :
local support™

Laird Technologies
Thermoelectric Products

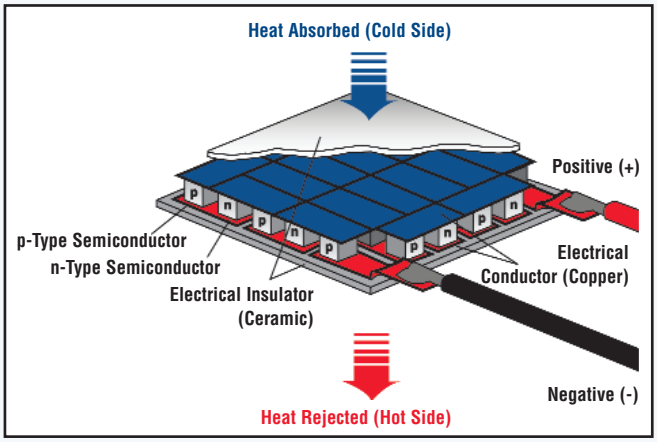
engineered emi, antenna and thermal applications

About Us

In 1959, scientists from the world-famous RCA (Sarnoff) Research Laboratories founded Materials Electronics Products Corporation, now known as MELCOR. They were pioneers in developing the first commercially available thermoelectric cooler. Today, Melcor offers a broad range of thermoelectric products and solutions. We specialize in quality, cost-effective standard products and custom system designs. Melcor's products are prominent in Telecom, Military, Medical, Photonics and Commercial applications. Melcor, a unit of Laird Technologies, is ISO 9001:2000 certified.

A Brief Introduction to Thermoelectrics

Thermoelectric coolers (TECs) are solid-state heat pumps that utilize the Peltier effect. During operation, DC current flows through the TEC, resulting in heat being transferred from one side of the TEC to the other, creating a cold and hot side. A single-stage TEC can achieve temperature differences up to 70˚C, or can transfer heat at a rate of 138W. To achieve greater temperature differences (up to 131˚C) select a multistage (cascade) TEC. To increase the amount of heat transferred, the TEC's modular design allows the use of multiple TECs mounted side-by-side.



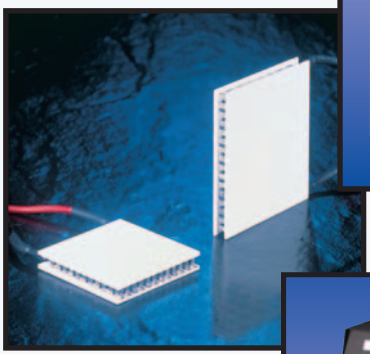
Benefits of MELCOR TECs

The special combination of benefits attained by TECs makes them the only effective solution for certain applications:

- Precision temperature control capability
- Quick and economical cooling to below ambient
- Reduced space, size and weight
- Reliable solid-state operation – no sound or vibration (lifetimes of more than 200,000 hours!)
- Virtually no electrical noise
- DC operation
- Heating or cooling by changing direction of current flow
- Multistage cascades to below -100˚C, standard or designed to specifications
- Patented ThermaTEC™ cools at +225˚C!

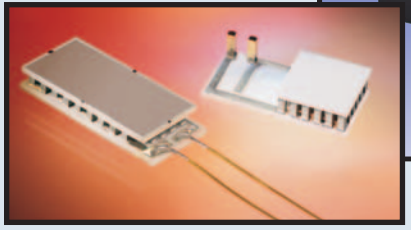
See the following pages for examples of Melcor's products and services.

External Mount Air Conditioners



CP Series

Laser Chillers



OptoTEC™

MAA Series Thermoelectric Air Conditioners

Melcor's MAA series air conditioners are designed for cooling telecom, medical, industrial and commercial enclosures. Cooling capacities range from 50 BTUs to 1200 BTUs. NEMA 12 and NEMA 4X available. T-stat and digital controller available on some units.

Model	BTU/Hr (Watts)	Input voltage
MAA1200E-115	1200 (352)	115 VAC
MAA1200E-230E/N	1200 (352)	230 VAC
MAA600T-24	600 (176)	24 VDC
MAA555T-115	555 (163)	115 VAC
MAA510T-24	510 (149)	24 VDC
MAA280T-12	280 (82)	12 VDC
MAA260T-24	260 (76)	24 VDC
MAA150T-12	150 (44)	12 VDC
MAA150T-24	150 (44)	24 VDC
MAA070T-12	70 (21)	12 VDC
MAA050T-12	50 (15)	12 VDC

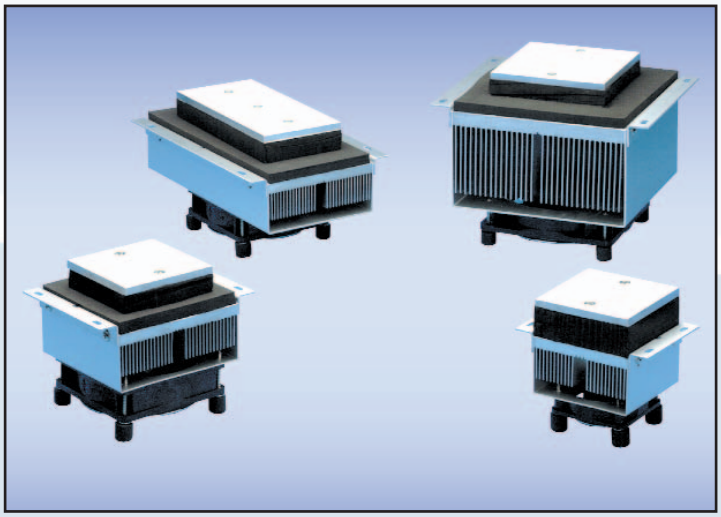
MRC Series Recirculating Thermoelectric Chillers

Melcor's MRC series chillers are designed to cool lasers and other applications in the medical, photonics and semiconductor industries. Cooling capacities range from 150 Watts to 600 Watts. All models come with a high precision temperature controller. Heating, RS232, 115VAC or 230VAC options available.

Model	Watts	Input voltage
MRC600	587	100-240 VAC
MRC300	299	100-240 VAC
MRC150	151	100-240 VAC
RM300	262	100-240 VAC

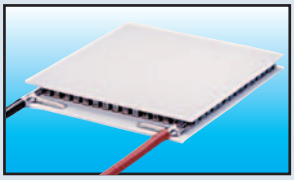
MPA Series Thermoelectric Plate-to-Air Systems

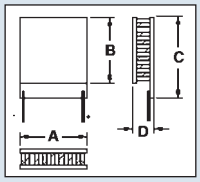
Melcor's MPA series plate-to-air systems are designed to cool or heat chambers or plate surfaces in the medical, photonics and industrial market segments. Cooling capacities range from 75 BTUs to 250 BTUs. MPAs are perfect for rapid prototype testing.



Model	BTU/Hr (Watts)	Input voltage
MPA075-12	73 (21)	0-14.4 VDC
MPA100-12	112 (33)	0-14.4 VDC
MPA200-12	200 (58)	0-14.4 VDC
MPA200-24	200 (58)	0-28.8 VDC
MPA250-12	250 (74)	0-15.4 VDC

PolarTEC™



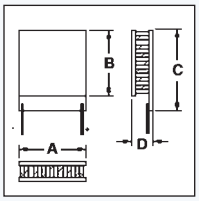


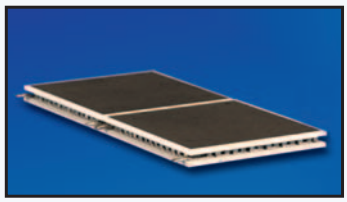
- Porch style ceramic for increased heat dissipation
- Strong porch style lead attachments
- Full range of size, power and cooling capacities

Catalog Number	Th = 25˚C				N	Dimensions (mm)			
	Qmax[1] (Watts)	Imax (Amps)	Vmax (Volts)	ΔTmax (˚C)		A	B	C	D
PT4-7-30	18	3.7	8.1	67	71	30	30	34	4.1
PT2-12-30	20	2.3	14.4	65	127	30	30	34	3.6
PT6-7-30	29	6.0	8.1	65	71	30	30	34	3.8
PT4-12-30	33	3.9	14.4	65	127	30	30	34	3.2
PT4-12-40	32	3.7	14.4	67	127	40	40	44	4.1
PT6-12-40	52	6.0	14.4	65	127	40	40	44	3.8
PT8-12-40	72	8.5	14.4	64	127	40	40	44	3.3
PT8-25-40X80	148	8.7	27.7	67	144	80	40	44	3.3
PT8-26-56	154	8.6	29.9	67	144	56	56	60	3.2

UltraTEC™

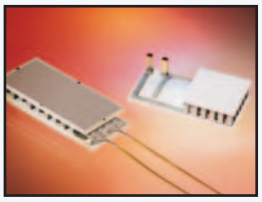
Catalog Number	Th = 25˚C				N	Dimensions (mm)			
	Qmax[1] (Watts)	Imax (Amps)	Vmax (Volts)	ΔTmax (˚C)		A	B	C	D[2]
UT8-12-25-F2	69	7.9	14.4	69	127	25	24	27	1.9
UT8-12-30-F2	69	7.9	14.4	69	127	30	30	34	2.6
UT11-12-30-F2	95	11	14.4	69	127	30	30	34	2.4
UT15-12-40-F2	126	14.6	14.4	69	127	40	40	44	2.8



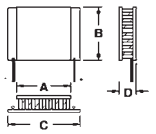


- High heat-pumping capacity within small surface area
- High efficiency
- Strong, porch style lead attachment
- Large hot side ceramic for extra heat dissipation

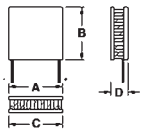
OptoTEC™



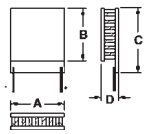
OptoTEC – F0



OptoTEC – F1, F1A, F1N



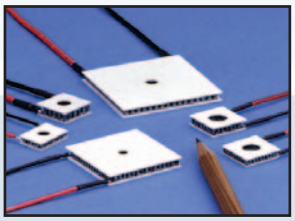
OptoTEC – F2, F2A



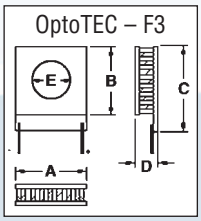
Internal Solder Temp.			Catalog Number	Th = 25˚C						N	Dimensions (mm)				
							ΔTmax								
138	232	271		Qmax[1]	Imax	Vmax	OT	ET	HOT		A	B	C	D[2]
OT	-	-	0.8-4-F0	0.22	0.8	0.5	67	-	-	4	1.8	3.4	3.4	2.4
OT	-	-	0.8-18-F2	0.97	0.8	2.2	67	-	-	18	5	5	6.7	2.4
OT	-	-	1.2-12-F0	0.97	1.2	1.5	67	-	-	12	4.2	6.2	6.2	2.7
OT	-	HOT	1.2-18-F2A	1.46	1.2	2.1	67	-	64	18	6	6.2	7.2	2.7
OT	-	-	2.0-12-F0	1.62	2.0	1.5	67	-	-	12	4.2	6.2	6.2	2.2
OT	-	-	0.8-32-F2	1.72	0.8	3.9	67	-	-	32	6.6	6.6	8.3	2.4
OT	-	-	1.2-31-F1A	2.5	1.2	3.7	67	-	-	31	8.8	8.8	8.8	2.7
OT	-	HOT	1.5-30-F2A	3.0	1.5	3.6	67	-	64	30	6.2	10.3	12.3	2.1
-	-	HOT	1.5-31-F2A	3.1	1.5	3.7	67	-	64	31	8.8	8.8	11	2.4
OT	-	HOT	2.0-30-F2A	4.0	2.0	3.6	67	-	64	30	6.2	10.3	12.3	1.8
OT	-	-	2.0-31-F1	4.2	2.0	3.7	67	-	-	31	8.1	8.1	8.1	2.2
-	ET	-	1.9-35-F1N	4.6	1.9	4.2	65	65	-	35	6	12.2	6	-
-	ET	HOT	1.2-65-F2A	5.3	1.2	7.8	67	67	64	65	13.2	12.1	13.2	2.7
OT	-	-	1.5-66-F2	6.7	1.5	8.0	67	-	-	66	12.3	11.3	14.4	2.4
-	-	HOT	2.0-65-F2A	8.8	2.0	7.8	67	-	64	65	13.2	12.1	13.2	2.2

- Pb-free construction solders up to 271˚C; pre-tinning available for packaging temperatures ranging from 93˚C to 232˚C
- Aluminum Nitride, Alumina or Beryllia
- Custom sizes, power densities and ceramic patterns
- Wire bondable posts, metallized pads and wires

Center Hole



OptoTEC – F3



- Features center hole for transmission of light, wires, probes or other hardware through the TEC
- Round or square configurations available

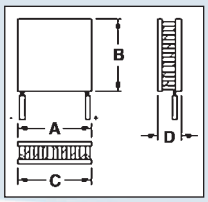
Catalog Number	Th = 25˚C				N	Dimensions (mm)				
	Qmax[1] (Watts)	Imax (Amps)	Vmax (Volts)	ΔTmax (˚C)		A	B	C	D[2]	E
OT 1.2-62-F3	5.0	1.2	7.5	67	62	12.3	11.3	13.4	2.7	2
SH 1.0-23-06	4.7	3.0	2.8	67	23	15	15	15	3.6	7.2
SH 0.8-28-05	4.9	2.6	3.9	67	28	14.7	10.3	14.7	3.1	4.4
SH 1.4-15-06	6.1	6.0	1.8	67	15	14	14	14	3.8	5.1
SH 1.0-95-06	19.3	3.0	11.5	67	95	30	30	30	3.6	14.5
SH 1.0-125-05	32.9	3.9	15.2	67	125	30	30	30	3.2	3.6
SH 1.4-125-06	50.7	6.0	15.2	67	125	40	40	40	3.8	4.7
SH 1.4-95-045L	56.4	9.9	11.4	65	95	9.5	62	9.5	3.3	3.2
RH 1.4-14-06	5.7	6.0	1.7	67	14	26	26	26	3.8	14
RH 1.4-32-06	12.9	6.0	3.9	67	32	44	55	55	3.8	27

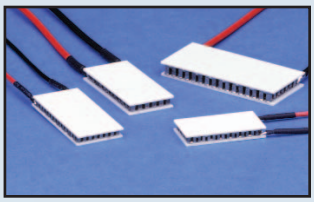
Notes:
1) Qmax rated value at ΔT = 0°, Imax and Vmax, Th = 25°C.
2) Thickness for non-metallized versions only.

All modules are lead-free.
For wiring options contact Melcor.

CP Series

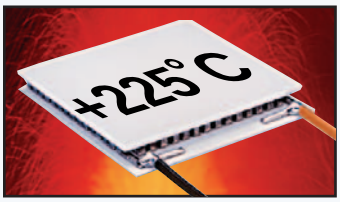
Catalog Number	Th = 25˚C Qmax(1) (Watts)	Imax (Amps)	Vmax (Volts)	ΔTmax (˚C)	N	Dimensions (mm) A	B	C	D(2)
CP1.4-7-10L	1.8	3.9	0.85	68	7	9.4	9.4	9.4	4.7
CP0.8-31-06L	4.4	2.1	3.8	67	31	12	12	12	3.4
CP1.0-31-05L	8.2	3.9	3.8	67	31	15	15	15	3.2
CP1.0-63-06L	12.7	3.0	7.6	67	63	15	30	15	3.6
CP1.0-71-06L	14.4	3.0	8.6	67	71	23	23	23	3.6
CP0.8-127-06L	18.1	2.1	15.4	67	127	25	25	25	3.4
CP2-31-10L	18.8	9.0	3.8	68	31	30	30	30	5.6
CP0.85-127-06L	20.2	2.7	15.3	66	127	30	30	30	3.6
CP1.0-127-06L	25.7	3.0	15.4	67	127	30	30	30	3.6
CP1.4-71-06L	28.7	6.0	8.6	67	71	30	30	30	3.8
CP1.0-127-05L	33.4	3.9	15.4	67	127	30	30	30	3.2
CP1.4-127-10L	33.4	3.9	15.4	68	127	40	40	40	4.7
CP1.4-127-06L	51.4	6.0	15.4	67	127	40	40	40	3.8
CP1.4-127-045L	72.0	8.5	15.4	65	127	40	40	40	3.3
CP2-127-06L	120.0	14.0	15.4	67	127	62	62	62	4.6

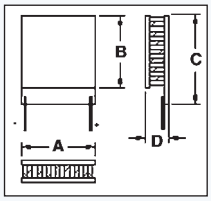




- For higher current, larger heat pumping applications
- Low-cost, high-performance
- Ideal for instrumentation, laboratory apparatus, consumer appliances

ThermaTEC™





High-Temperature Cooling:

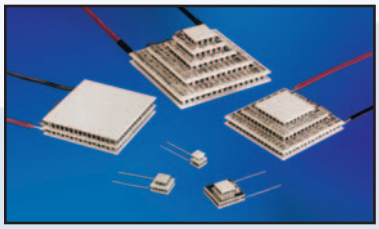
- Unique patented technology works at +225˚C
- Full range of size, power and cooling capacities
- Superior cycling capacity
- Strong, porch-style lead attachment
- Generate power from waste heat!

Catalog Number	Th = 25˚C Qmax(1) (Watts)	Imax (Amps)	Vmax (Volts)	ΔTmax (˚C)	N	Dimensions (mm) A	B	C	D(2)
HOT1.2-18-F2A	1.5	1.2	2.1	64	18	6	6.2	7.2	2.7
HOT1.5-31-F2A	3.1	1.5	3.7	64	31	8.8	8.8	11	2.4
HOT2.0-30-F2A	4.0	2.0	3.6	64	30	6.2	10.3	12.3	1.8
HOT1.5-65-F2A	6.6	1.5	7.8	64	65	13.2	12.1	13.2	2.4
HT4-6-21x43	16.0	3.7	7.2	64	63	21	38	43	4.1
HT9-3-25	20.0	9.6	3.6	66	31	25	25	29	4.9
HT4-12-30	33.0	3.9	14.4	63	127	30	30	34	3.2
HT8-7-30	39.0	8.5	8.1	63	71	30	30	34	3.3
HT6-12-40	51.0	6.0	14.4	63	127	40	40	44	3.6
HT8-12-40	72.0	8.5	14.4	63	127	40	40	44	3.3

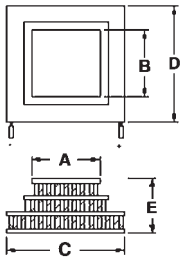
Multistage

Catalog Number	Th = 25˚C ΔTmax (˚C)	Qmax(1) (Watts)	Imax (Amps)	Vmax (Volts)	Dimensions (mm) A	B	C	D	E(2)
2 CP 040 065-31-17	81	3.1	2.1	3.8	11.5	11.5	15	15	6.6
2 SC 085 065-127-70	81	59.3	9.5	15.5	62	62	62	62	8.9
2 OT 1.4-24-F9	83	1.0	1.4	2.0	4.1	4.1	6.1	6.1	4.2
2 SC 040 050-127-63	83	16.1	2.8	15.5	30	30	30	30	6.5
2 OT 1.4-10-F9	86	0.4	1.5	0.8	3.2	3.2	3.9	3.9	3.8
2 OT 0.6-83-F9	92	1.2	0.7	8.0	4.9	4.9	9.8	9.8	4.2
3 CP 055 065-127-71-31	96	12.6	3.5	15.4	20	20	40	40	10.4
3 OT 1.3-26-F9	110	0.4	1.3	1.9	2.5	2.5	6.6	6.6	5.2
4 CP 055 065-127-71-31-17	107	6.8	3.1	14.6	15	15	40	40	13.8
5 CP 055 065-127-71-31-17-7	118	3.4	3.0	14.5	10	10	40	40	16.9
6 CP 055 065-127-71-31-17-7-2	131	1.2	3.0	14.5	5	5	40	40	20.1

- Ideal for requirements with large temperature differentials (ΔT) up to 131˚C
- Custom designs available to meet any multistage application



Typical Multistage (Cascade)



Notes:
1) Qmax rated value at ΔT = 0°, Imax and Vmax, Th = 25°C.
2) Thickness for non-metallized versions only.

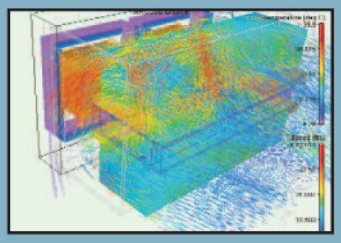
All modules are lead-free.
For wiring options contact Melcor.

Value Added Capabilities

1. CONCEPT

- Product Selection
- Thermal Design & Product Enhancements
- Design Tools to aid in your problem solving

2. DESIGN



- Customized heat sinks, cold plates, thermoelectric arrays and entire thermoelectric assemblies to meet your proprietary application.
- 3D Solid Modeling, which can import /export most CAD drawings.
- Computational Fluid Dynamics (CFD) Modeling is used to simulate unique thermal environments to maximize design efficiency.
- We design with high volume manufacturing and supply chain flexibility in mind.

3. PROTOTYPE

Have Melcor work with our world-class vendors and in-house prototype assembly team to supply parts and build prototype units for you.

4. TEST

- Melcor can test for temp cycling, high temp storage, power cycling, vibration testing and AC resistance, and more.
- Our in-house test capabilities that are in compliance with Military and Telcordia standards.

5. GLOBAL SOURCING

Have our global sourcing team work for you to make sure you have quality parts at world leading prices. Melcor's sourcing team is an expert in managing supply chains, logistics and reducing lead times on a global scale.

6. PRODUCTION

- With facilities in North America and China, Melcor is well positioned to manufacture and distribute your products from around the globe to your facility.
- Melcor manufactures to ISO 9001:2000 standards.
- Melcor's Total Quality Management program implements continuous improvement on all its customers' proprietary assemblies to ensure an increase in quality and manufacturing efficiency throughout your product development life cycle.

Use AZTEC to model the performance of any standard thermoelectric cooler in our inventory, using your operating conditions.

AZTEC™ Thermoelectric Design Software

Leave it to a world leading manufacturer of thermoelectric cooling products to provide a handy, Windows-based software program that takes the engineer through every step of thermoelectric design from A to Z.

AZTEC is an easy-to-use program that runs in most Windows versions. Available as a FREE download from our website, it includes thermal load estimating for both passive and active components, as well as for enclosures.

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1040 Spruce Street • Trenton, NJ 08648 USA
(609) 393-4178 • FAX (609) 393-9461
www.melcor.com • www.lairdtech.com

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