

COOLING SOLUTIONS

For Citizen CITILED LED Modules & COB's
CLL020/022/030/032/040/042/050/052

- Validated Thermal Designs
- Adaptable to your Needs
- Functional & Aesthetic



MTx
MechaTronix

MechaTronix LED Cooling solutions

For Citizen CITELED LED Modules & COB's
CLL020/022/030/032/040/042/050/052

MechaTronix offers a wide range of LED coolers, specifically developed and thermally validated for Citizen's CITELED CLL LED modules. Citizen CITELED LED cooler details and specs can be found on www.led-heatsink.com. These standard LED coolers can be tailored to your specific needs, when mechanical modifications are required. MechaTronix designs, using the latest SolidWorks software and has the advantage of its dedicated thermal lab for in-depth thermal validation of LED-fixtures and components.



LPF6050-ZHC



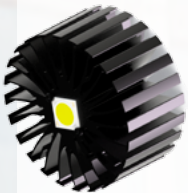
LED Pin Fin heat sink
For Citizen CITELED
CLL020 & CLL022 COB
ø60mm - h50mm
Zhaga book 3 & Tyco
LED holder compatible

LPF8050-ZHC



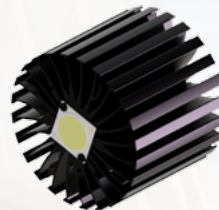
LED Pin Fin heat sink
For Citizen CITELED
CLL030 & CLL032 COB
ø80mm - h50mm
Zhaga book 3, Tyco & BJB
LED holder compatible

ModuLED 9950



Modular LED Star heat sink
for Citizen CITELED
CLL030 & CLL032 COB
CLL040 & CLL042 COB
ø99mm - h50mm
Zhaga book 3 & Tyco
LED holder compatible

ModuLED 9980



Modular LED Star heat sink
for Citizen CITELED
CLL030 & CLL032 COB
CLL040 & CLL042 COB
ø99mm - h80mm
Zhaga book 3 & Tyco
LED holder compatible

IceLED 450



Modular Active LED Cooler
for Citizen CITELED
CLL030 & CLL032 COB
CLL040 & CLL042 COB
CLL050 & CLL052 COB
ø99mm - h45mm
Zhaga book 3 & Tyco
LED holder compatible

IceLED 550



Modular Active LED Cooler
for Citizen CITELED
CLL030 & CLL032 COB
CLL040 & CLL042 COB
CLL050 & CLL052 COB
ø99mm - h55mm
Zhaga book 3 & Tyco
LED holder compatible

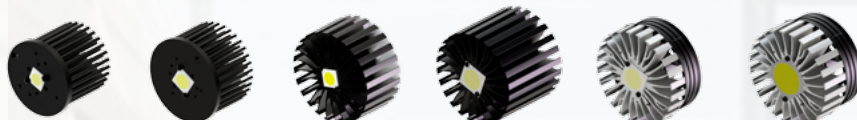
Thermal Validation Matrix

For Citizen CITELED LED Modules & COB's
CLL020/022/030/032/040/042/050/052

Citizen CITELED CLL020 & CLL022 COB LED Modules

*Citizen CiteLED recommended $T_p/T_c < 85^{\circ}\text{C}$

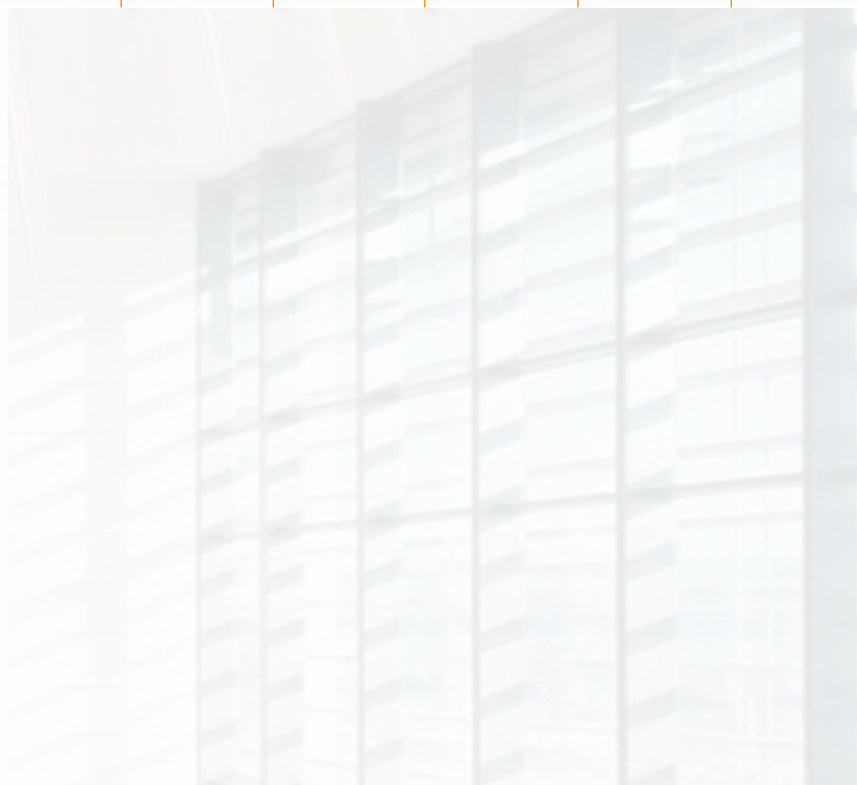
Ambient temperature $T_a (^{\circ}\text{C})$	Reference temperature $T_p/T_c (^{\circ}\text{C})$	Forward Current $I_f (\text{mA})$	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured
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Citizen CITELED CLL020 & CLL022 - 1202			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	120	42					
40	85	120	57					
50	85	120	67					
25	85	240	56					
40	85	240	71					
50	85	240	81					

Citizen CITELED CLL020 & CLL022 - 1203			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	180	47					
40	85	180	62					
50	85	180	72					
25	85	360	65					
40	85	360	80					
50	85	360	-					

Citizen CITELED CLL020 & CLL022 - 1204			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	240	52					
40	85	240	67					
50	85	480	77					
25	85	480	76					
40	85	480	-					
50	85	480	-					



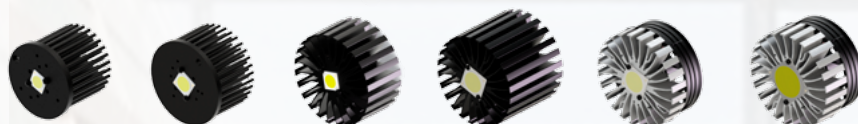
Thermal Validation Matrix

For Citizen CITELED LED Modules & COB's
CLL020/022/030/032/040/042/050/052

Citizen CITELED CLL030 & CLL032 COB LED Modules

*Citizen CiteLED recommended $T_p/T_c < 85^{\circ}\text{C}$

Ambient temperature $T_a (^{\circ}\text{C})$	Reference temperature $T_p/T_c (^{\circ}\text{C})$	Forward Current $I_f (\text{mA})$	LED Cooler type / $T_p/T_c (^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c (^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c (^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c (^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c (^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c (^{\circ}\text{C})$ measured
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Citizen CITELED CLL030 & CLL032 - 1205			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	300		48	41	36		
40	85	300		63	56	51		
50	85	300		73	66	61		
25	85	600		69	57	52		
40	85	600		84	72	67		
50	85	600		-	82	77		

Citizen CITELED CLL030 & CLL032 - 1206			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	360		50	41	39		
40	85	360		65	56	54		
50	85	360		75	66	64		
25	85	720		76	60	56		
40	85	720		-	75	71		
50	85	720		-	85	81		

Citizen CITELED CLL030 & CLL032 - 1208			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	480		59	45	42		
40	85	480		74	60	57		
50	85	480		84	70	67		
25	85	960		-	69	62		
40	85	960		-	84	77		
50	85	960		-	-	-		

Citizen CITELED CLL030 & CLL032 - 1212			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	720		79	58	47	38	
40	85	720		-	73	62	53	
50	85	720		-	83	72	63	
25	85	1440		-	-	66	56	
40	85	1440		-	-	-	71	
50	85	1440		-	-	-	81	

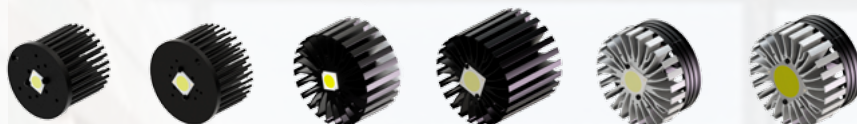
Thermal Validation Matrix

For Citizen CITELED LED Modules & COB's
CLL020/022/030/032/040/042/050/052

Citizen CITELED CLL040 & CLL042 COB LED Modules

*Citizen CitiLED recommended $T_p/T_c < 85^{\circ}\text{C}$

Ambient temperature $T_a (^{\circ}\text{C})$	Reference temperature $T_p/T_c (^{\circ}\text{C})$	Forward Current I_f (mA)	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured
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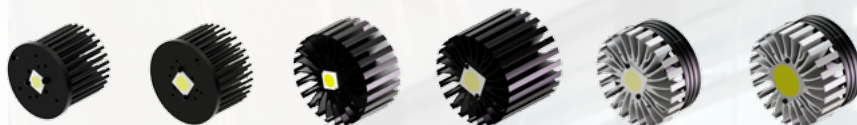
Citizen CITELED CLL040 & CLL042 - 1218			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	1080			73	51	44	
40	85	1080			-	66	59	
50	85	1080			83	76	69	
25	85	2160			-	-	70	
40	85	2160			-	-	85	
50	85	2160			-	-	-	

Citizen CITELED CLL040 & CLL042 - 1818			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	1080				66	48	47
40	85	1080				81	63	62
50	85	1080				76	73	72
25	85	2160				-	80	78
40	85	2160				-	-	-
50	85	2160				-	-	-

Citizen CITELED CLL050 & CLL052 COB LED Modules

*Citizen CitiLED recommended $T_p/T_c < 85^{\circ}\text{C}$

Ambient temperature $T_a (^{\circ}\text{C})$	Reference temperature $T_p/T_c (^{\circ}\text{C})$	Forward Current I_f (mA)	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured	LED Cooler type / $T_p/T_c(^{\circ}\text{C})$ measured
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Citizen CITELED CLL050 & CLL052 - 1825			LPF6050-ZHC	LPF8050-ZHC	ModuLED 9950	ModuLED 9980	IceLED 450	IceLED 550
25	85	1500					61	53
40	85	1500					76	68
50	85	1500					-	78
25	85	1750					67	-
40	85	1750					82	-
50	85	1750					-	-
25	85	2000					76	66
40	85	2000					-	81
50	85	2000					-	-
25	85	2500					-	80
40	85	2500					-	-
50	85	2500					-	-
25	85	2750					-	-
40	85	2750					-	-
50	85	2750					-	-
25	85	3000					-	-
40	85	3000					-	-
50	85	3000					-	-

About Citizen

Citizen Electronics Co., Ltd. is a precision electronics manufacturer with headquarters in Fujiyoshida City, Yamanashi Prefecture and a subsidiary of Citizen Holdings Co., Ltd.

Citizen Electronics is a leader in LED light sources for electronic devices and high power white LED lamps

Established in 1970 as a manufacturer of watch movements, Citizen Electronics has capitalized on the precision assembly expertise and micro-processing skills gained in its production of watch components to develop a unique range of products outside the watch market.

Surface-mount LEDs, for which Citizen Electronics commands the world's largest production share, are but one example.

Thanks to Citizen Electronics' growing global network of manufacturing and sales bases, the performance and quality of Citizen Electronics products are now widely recognized in both its home base of Japan and throughout the world.

Please visit http://ce.citizen.co.jp/lighting_led/en/index.html for more information.

About MechaTronix

MechaTronix was founded as a creative designer & manufacturer of high end mechanical plastic & metal parts. With its Asia-based headquarters in Kaohsiung Taiwan, MechaTronix became a powerhouse at designing and manufacturing heat sinks and thermal solutions for OEM and LED lighting applications. Strategic partnerships with major LED manufacturers and sharing our thermal knowledge with their luminaire designers are our core missions. Simple passive cooling, advanced heat pipe technology or active cooling solutions? MechaTronix offers of the shelf and tailored solutions to its worldwide professional customer base. For more information about the company, please visit www.mechatronix-asia.com

