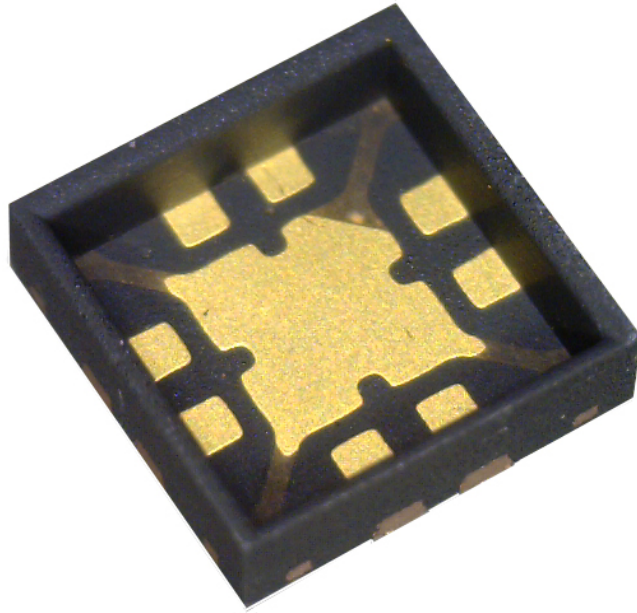
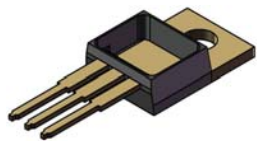


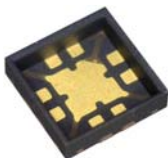


Open (Air) Cavity QFN Plastic Packages 2026-A

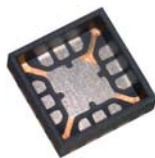




3L TO220-Page 4



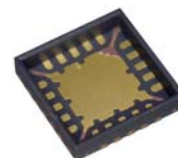
8L QFN-Page 5



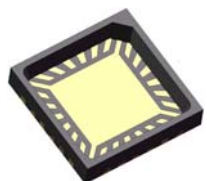
12L QFN-Page 6



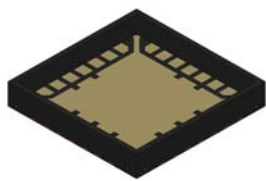
16L QFN-Page 7



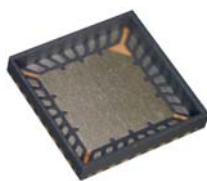
20L QFN-Page 8



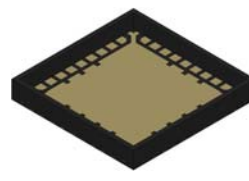
24L QFN-Page 9



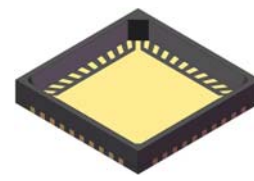
28L QFN-Page 10



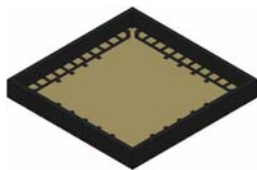
32L QFN-Page 11



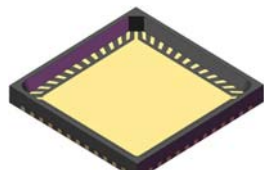
36L QFN-Page 12



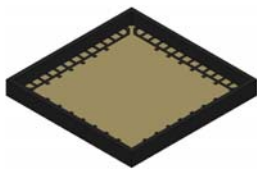
40L QFN-Page 13



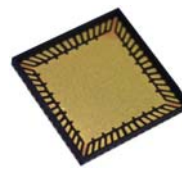
44L QFN-Page 14



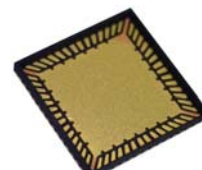
48L QFN-Page 15



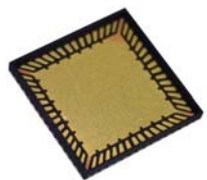
52L QFN-Page 16



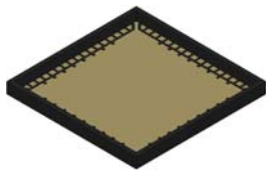
56L QFN-Page 17



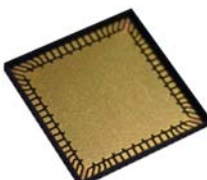
60L QFN-Page 18



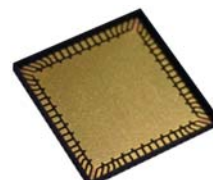
64L QFN-Page 19



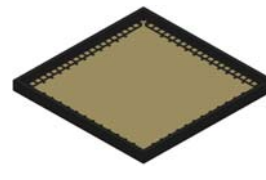
68L QFN-Page 20



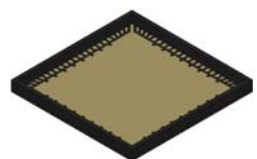
72L QFN-Page 21



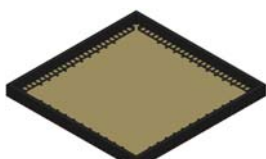
76L QFN-Page 22



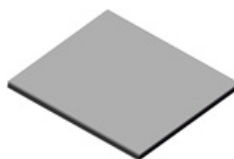
80L QFN-Page 23



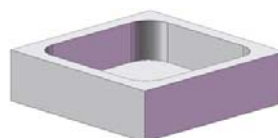
88L QFN-Page 24



100L QFN-Page 25



Flat Lids
Page 26 ~ 34



DOME Cavity Lids
Page 26 ~ 34

**Lid
Material
Properties**

Page 35

**Package
Part Number
System**

Page 36

**Lid
Part Number
System**

Page 37

**Tray
Packing**

Page 38

**International
Distributors**

Page 39

About MirrorSemi:

MirrorSemi is our brand name for open (air) cavity plastic packages. We are tooled to make plastic QFN packages for microelectronics labs, universities and volume users. Easy to Order. Contact us today.

What are Open Cavity (Air) Packages:

Open Cavity packages (also known as Air Cavity) are made for die bonding and wire bonding semiconductor die, RF chips and sensors. These packages are useful for all prototyping and production needs. They are perfect for sensors and RF circuitry. We make packages in two cavity depths: 0.6mm (standard) and 1.0mm for tall die.

Cavity Packages for Tall Die :

M-QFN Series: Cavity Depth 0.6mm

H-QFN Series: Cavity Depth 1.0mm

Even taller die >1.0mm can fit by adding our Dome CAP lid series to cover the package.

Plating Choice: Ni / Au or Ni-Pd-Au:

Ni / Au (thick gold) has a long history of success for wire-bonding. However, there is a concern that thick gold is not preferred for soldering on ENIG PCB boards, with the potential for Black Pad phenomena, resulting in weak solder joints.

Ni-Pd-Au (thin gold) is optimum for both wire-bonding and soldering to PCB boards. A thin layer of gold covers palladium (Pd) on the lead-frame for a strong wire bond. The thin gold eliminates concern about Black Pad phenomena when soldering the package onto ENIG PC Boards.

How To Order:

Contact TopLine for all of your open-cavity plastic packaging needs. We look forward to discussing your technical needs. Packages are in stock and will be on the way to you immediately.

Flat Lid:

We offer a full range of flat lids (covers) to seal your cavity packages. Sizes are standard 3x3mm to 12x12mm. We also make custom sizes. We offer a variety of materials including: Semiconductor Grade EMC, BT, Rogers RO4003C and glass. Lids are available with and without B-Stage adhesive.

Dome Lid:

We offer a full range of dome cavity lids (covers) to seal packages with tall (thick) die. Sizes are standard 3x3mm to 12x12mm. We make custom sizes too. We offer a variety of materials including: Semiconductor Grade EMC, BT, Rogers RO4003C and glass. Lids are available with and without B-Stage adhesive.

Customized Packages & Lids:

We welcome your inquiries for customized packages and lids.

Contact:

TopLine Corporation

95 Highway 22 W.
Milledgeville, GA 31061 USA

Tel: +1-800-776-9888

Email: info @TopLine.tv

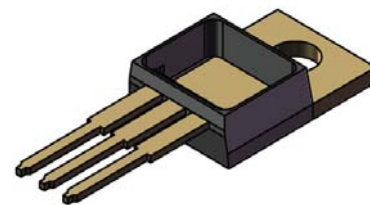
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We accept credit cards:



Ready to assist you.

3L TO220 Open (Air) Cavity Plastic Package



Nbr Pins	Size D x E	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
3L	10x16mm	2.54mm	Ni-Au	4.5x8.6mm	3.0mm	10	M-TO220-G3	122203	OT

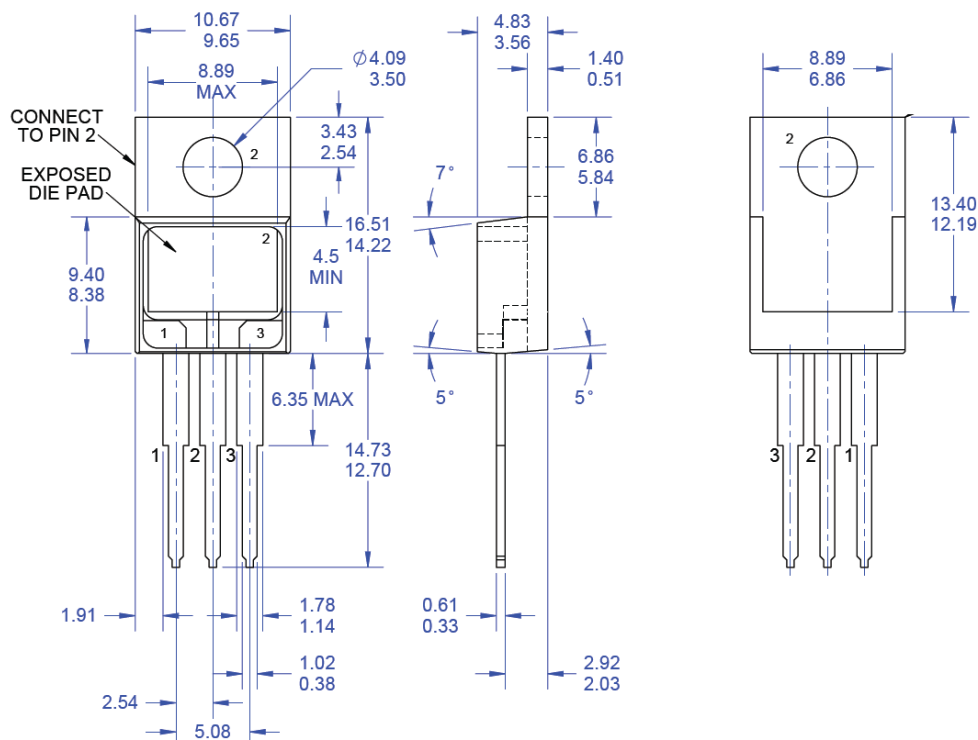
Road Map Notes: OT=Open Tool

Pad Plating		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6 Au 1.0~2.0	Ni 100~300 Au 40~80

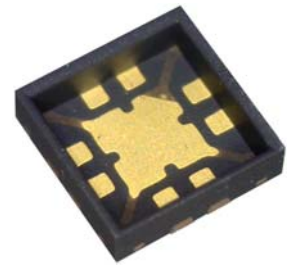
Package Specification	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID T-LID	Black Black	G770H BT	No
U-LID B-LID	Black Black	G770H BT	Yes

Lids: 9.7 x 8.2mm



8L QFN Open (Air) Cavity Plastic Package



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Nbr Pins	Size (D / E)	Pitch (P)	Pad Plating	Die Pad (D2 / E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
8L	3x3mm	0.65mm	Ni-Au	1.4mm	0.6mm	25	M-QFN8M.65-G3	460833	OT
						100	M-QFN8W.65-G3	460830	OT
						256	M-QFN8T.65-G3	460834	OT
			Ni-Pd-Au	1.2mm	0.6mm	100	M-QFN8W.65-G6	460860	2026
						256	M-QFN8T.65-G6	460864	2026
					1.0mm	100	H-QFN8W.65-G6	460862	2026
						256	H-QFN8T.65-G6	460861	2026

Road Map Notes: OT=Open Tool

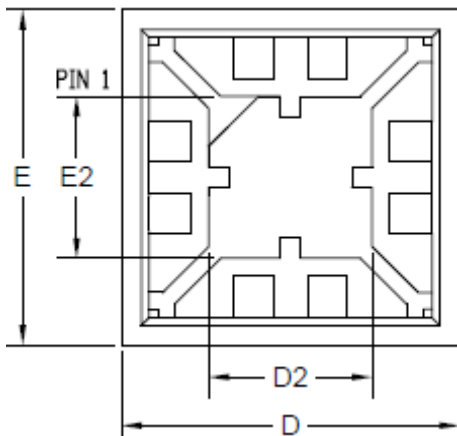
Pad Plating		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6 Au 1.0~2.0	Ni 100~300 Au 40~80
G6	Ni 0.50~2.0 Pd 0.02~0.15 Au 0.003~0.01	Ni 20~80 Pd 0.8~6.0 Au 0.12~0.40

Package Specification	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: Pages 26

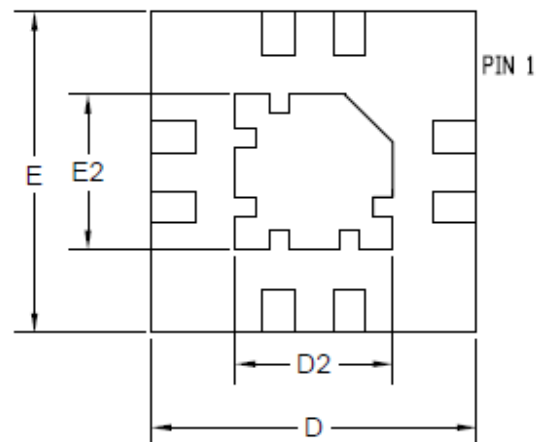
TOP VIEW



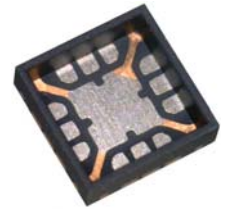
SIDE VIEW

Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm

BOTTOM VIEW



12L QFN Open (Air) Cavity Plastic Package



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Nbr Pins	Size (D / E)	Pitch (P)	Pad Plating	Die Pad (D2 / E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
12L	3x3mm	0.5mm	Ni-Au	1.4mm	0.6mm	25	M-QFN12M.5-G3	451233	OT
						100	M-QFN12W.5-G3	451230	OT
						256	M-QFN12T.5-G3	451234	OT
			Ni-Pd-Au	1.2mm	0.6mm	100	M-QFN12W.5-G6	451260	OT
						256	M-QFN12T.5-G6	451264	OT
					1.0mm	100	H-QFN12W.5-G6	451262	OT
						256	H-QFN12T.5-G6	451261	OT
12L	3x3mm	0.65mm	Ni-Au	1.4mm	0.6mm	25	M-QFN12M.65-G3	461333	OT
						100	M-QFN12W.65-G3	461330	OT
						256	M-QFN12T.65-G3	461234	OT
			Ni-Pd-Au	1.2mm	0.6mm	100	M-QFN12W.65-G6	461360	2026
						256	M-QFN12T.65-G6	461364	2026
					1.0mm	100	H-QFN12W.65-G6	461362	2026
						256	H-QFN12T.65-G6	461361	2026
12L	4x4mm	0.65mm	Ni-Pd-Au	1.2mm	0.6mm	64	M-QFN12W.65-G6	461260	2026
						196	M-QFN12T.65-G6	461264	2026
					1.0mm	64	H-QFN12W.65-G6	461262	2026
						196	H-QFN12T.65-G6	461261	2026
12L	4x4mm	0.8mm	Ni-Pd-Au	2.0mm	0.6mm	64	M-QFN12W.8-G6	481260	2026
						196	M-QFN12T.8-G6	481264	2026
					1.0mm	64	H-QFN12W.8-G6	481262	2026
						196	H-QFN12T.8-G6	481261	2026

Road Map Notes: OT=Open Tool

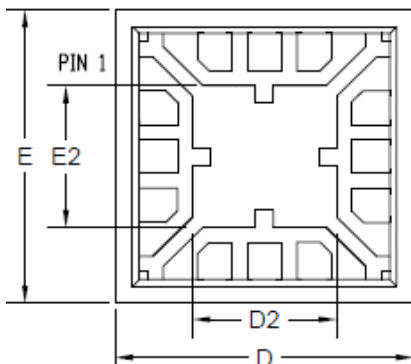
Surface Plating Specification		
Code	um	Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

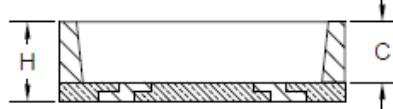
Lids: Page 26-27

TOP VIEW

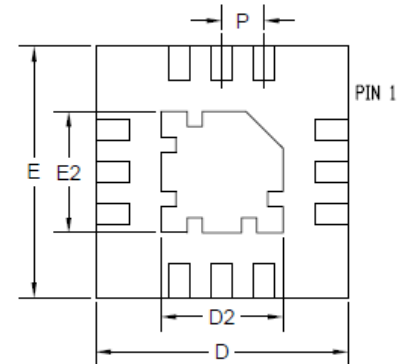


SIDE VIEW

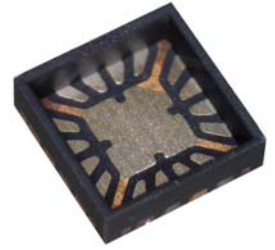
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



16L QFN Open (Air) Cavity Plastic Package



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Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
16L	3x3mm	0.5mm	Ni-Au	1.4mm	0.6mm	25	M-QFN16M.5-G3	451633	OT
						100	M-QFN16W.5-G3	451630	OT
						256	M-QFN16T.5-G3	451634	OT
			Ni-Pd-Au	1.2mm	0.6mm	100	M-QFN16W.5-G6	451660	OT
						256	M-QFN16T.5-G6	451664	OT
					1.0mm	100	H-QFN16W.5-G6	451662	OT
						256	H-QFN16T.5-G6	451661	OT
16L	4x4mm	0.65mm	Ni-Au	2.4mm	0.6mm	25	M-QFN16M.65-G3	461633	OT
						64	M-QFN16W.65-G3	461630	OT
						196	M-QFN16T.65-G3	461634	OT
			Ni-Pd-Au	2.0mm	0.6mm	64	M-QFN16W.65-G6	461660	2026
						196	M-QFN16T.65-G6	461664	2026
					1.0mm	64	H-QFN16W.65-G6	461662	2026
						196	H-QFN16T.65-G6	461661	2026
16L	5x5mm	0.8mm	Ni-Au	3.4mm	0.6mm	36	M-QFN16W.8-G3	481630	OT
						144	M-QFN16T.8-G3	481634	OT
			Ni-Pd-Au	3.0mm	1.0mm	36	M-QFN16W.8-G6	481660	2026
						144	M-QFN16T.8-G6	481660	2026
						36	H-QFN16W.8-G6	481662	2026
						144	H-QFN16T.8-G6	481661	2026

Road Map Notes: OT=Open Tool

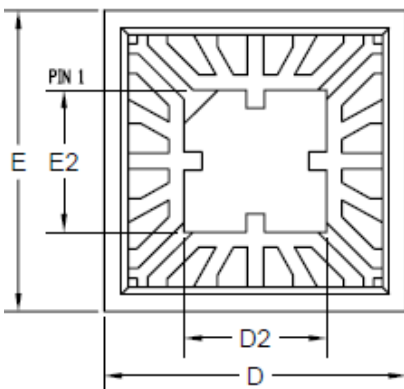
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15 Au 0.003~0.01	Pd 0.8~6.0 Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: Page 26-38

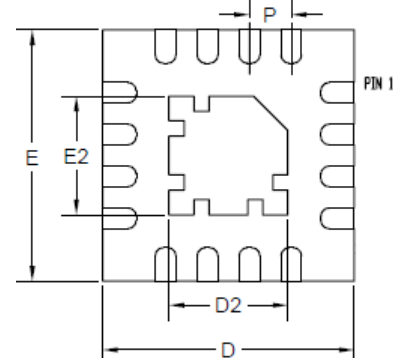
TOP VIEW



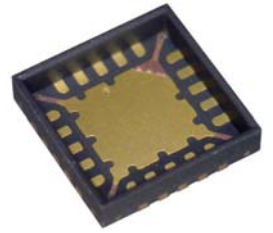
SIDE VIEW

Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm

BOTTOM VIEW



20L QFN Open (Air) Cavity Plastic Package



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Nbr Pins	Size (D / E)	Pitch (P)	Pad Plating	Die Pad (D2 / E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
20L	3x3mm	0.4mm	Ni-Pd-Au	1.2mm	0.6mm	100	M-QFN20W.4-G6	442060	2026
					1.0mm	256	M-QFN20T.4-G6	442064	2026
						100	H-QFN20W.4-G6	442062	2026
						256	H-QFN20T.4-G6	442061	2026
20L	4x4mm	0.5mm	Ni-Au	2.4mm	0.6mm	25	M-QFN20M.5-G3	452033	OT
					0.6mm	64	M-QFN20W.5-G3	452030	OT
						196	M-QFN20T.5-G3	452034	OT
			Ni-Pd-Au	2.0mm	0.6mm	64	M-QFN20W.5-G6	452060	2026
						196	M-QFN20T.5-G6	452064	2026
						64	H-QFN20W.5-G6	452062	2026
					1.0mm	196	H-QFN20T.5-G6	452061	2026
20L	5x5mm	0.65mm	Ni-Au	3.4mm	0.6mm	25	M-QFN20M.65-G3	462033	OT
					0.6mm	36	M-QFN20W.65-G3	462030	OT
						144	M-QFN20T.65-G3	462034	OT
			Ni-Pd-Au	3.0mm	0.6mm	36	M-QFN20W.65-G6	462060	2026
						144	M-QFN20T.65-G6	462064	2026
						36	H-QFN20W.65-G6	462062	2026
					1.0mm	144	H-QFN20T.65-G6	462061	2026
20L	5x5mm	0.8mm	Ni-Pd-Au	3.0mm	0.6mm	36	M-QFN20W.8-G6	482060	2026
					1.0mm	144	M-QFN20T.8-G6	482064	2026
						36	H-QFN20W.8-G6	482062	2026
						144	H-QFN20T.8-G6	482061	2026

Road Map Notes: OT=Open Tool

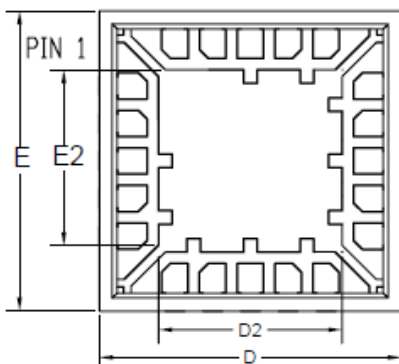
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

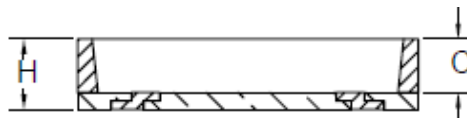
Lids: Page 26-28

TOP VIEW

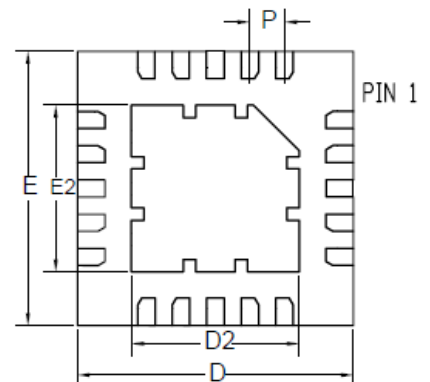


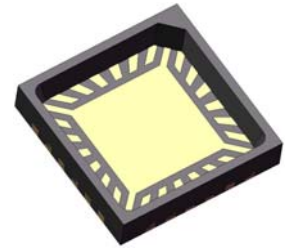
SIDE VIEW

Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW





Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
24L	4x4mm	0.5mm	Ni-Au	2.4mm	0.6mm	25	M-QFN24M.5-G3	452433	OT
						64	M-QFN24W.5-G3	452430	OT
						196	M-QFN24T.5-G3	452434	OT
			Ni-Pd-Au	2.0mm	0.6mm	64	M-QFN24W.5-G6	452460	OT
						196	M-QFN24T.5-G6	452464	OT
					1.0mm	64	H-QFN24W.5-G6	452462	OT
						196	H-QFN24T.5-G6	452461	OT
24L	5x5mm	0.65mm	Ni-Au	3.4mm	0.6mm	25	M-QFN24M.65-G3	462433	OT
						36	M-QFN24W.65-G3	462430	OT
						144	M-QFN24T.65-G3	462434	OT
			Ni-Pd-Au	3.0mm	0.6mm	36	M-QFN24W.65-G6	462460	2026
						144	M-QFN24T.65-G6	462464	2026
					1.0mm	36	H-QFN24W.65-G6	462462	2026
						144	H-QFN24T.65-G6	462461	2026
24L	6x6mm	0.8mm	Ni-Pd-Au	4.0mm	0.6mm	25	M-QFN24W.8-G6	482460	2026
						121	M-QFN24T.8-G6	482464	2026
					1.0mm	25	H-QFN24W.8-G6	482462	2026
						121	H-QFN24T.8-G6	482461	2026

Road Map Notes: OT=Open Tool

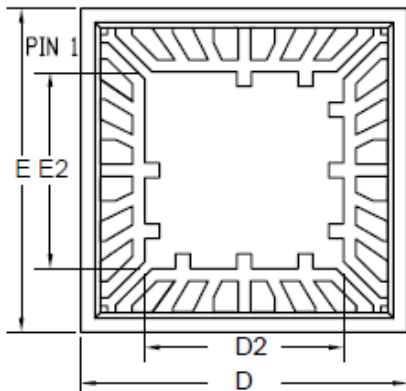
Surface Plating Specification		
Code	um	Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: Page 27-29

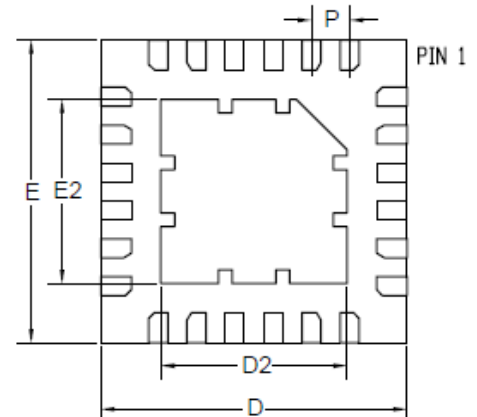
TOP VIEW



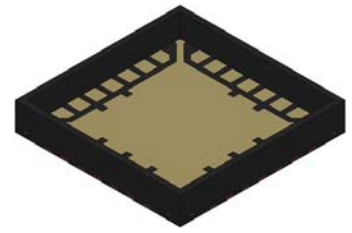
SIDE VIEW

Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm

BOTTOM VIEW



28L QFN Open (Air) Cavity Plastic Package



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Tel 1-800-776-9888
www.MirrorSemi.com

Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
28L	4x4mm	0.4mm	Ni-Au	2.4mm	0.6mm	25	M-QFN28M.4-G3	442833	OT
						64	M-QFN28W.4-G3	442830	OT
						196	M-QFN28T.4-G3	442834	OT
			Ni-Pd-Au	2.0mm	0.6mm	64	M-QFN28W.4-G6	442860	2026
						196	M-QFN28T.4-G6	442864	2026
					1.0mm	64	H-QFN28W.4-G6	442862	2026
						196	H-QFN28T.4-G6	442861	2026
28L	5x5mm	0.5mm	Ni-Au	3.4mm	0.6mm	25	M-QFN28M.5-G3	452833	OT
						36	M-QFN28W.5-G3	452830	OT
						144	M-QFN28T.5-G3	452834	OT
			Ni-Pd-Au	3.0mm	0.6mm	36	M-QFN28W.5-G6	452860	2026
						144	M-QFN28T.5-G6	452864	2026
					1.0mm	36	H-QFN28W.5-G6	452862	2026
						144	H-QFN28T.5-G6	452861	2026
28L	6x6mm	0.65mm	Ni-Au	4.3mm	0.6mm	25	M-QFN28M.65-G3	462833	OT
						121	M-QFN28T.65-G3	462834	OT
						25	M-QFN28W.65-G6	462860	2026
			Ni-Pd-Au	4.0mm	0.6mm	121	M-QFN28T.65-G6	462864	2026
						25	H-QFN28W.65-G6	462862	2026
					1.0mm	121	H-QFN28T.65-G6	462861	2026
28L	7x7mm	0.8mm	Ni-Pd-Au	5.0mm	0.6mm	81	M-QFN28T.8-G6	482864	2026
					1.0mm	81	H-QFN28T.8-G6	482861	2026

Road Map Notes: OT=Open Tool

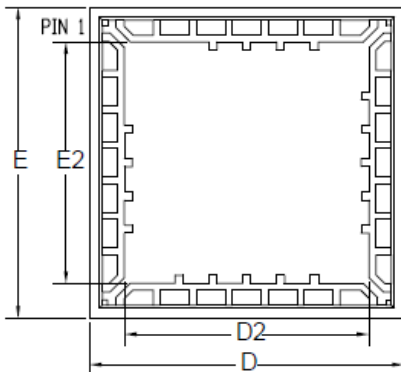
Surface Plating Specification		
Code	um	Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

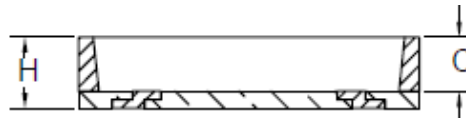
Lids: Page 27-30

TOP VIEW

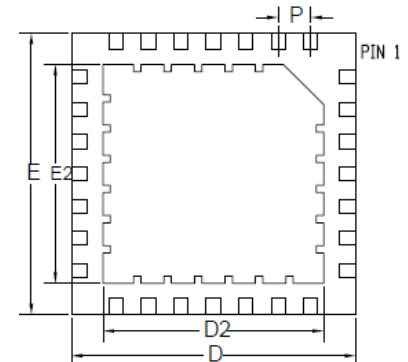


SIDE VIEW

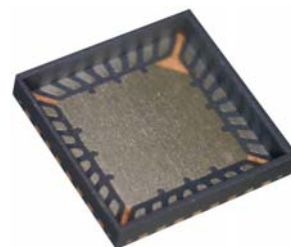
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



32L QFN Open (Air) Cavity Plastic Package



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Tel 1-800-776-9888
www.MirrorSemi.com

Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
32L	4x4mm	0.4mm	Ni-Pd-Au	2.0mm	0.6mm	64	M-QFN32W.4-G6	443260	2026
						196	M-QFN32T.4-G6	443264	2026
					1.0mm	64	H-QFN32W.4-G6	443262	2026
						196	H-QFN32T.4-G6	443261	2026
32L	5x5mm	0.5mm	Ni-Au	3.4mm	0.6mm	25	M-QFN32M.5-G3	453233	OT
						36	M-QFN32W.5-G3	453230	OT
						144	M-QFN32T.5-G3	453234	OT
			Ni-Pd-Au	3.0mm	0.6mm	36	M-QFN32W.5-G6	453260	OT
						144	M-QFN32T.5-G6	453264	OT
					1.0mm	36	H-QFN32W.5-G6	453262	OT
						144	H-QFN32T.5-G6	453261	OT
32L	7x7mm	0.65mm	Ni-Au	5.3mm	0.6mm	25	M-QFN32M.65-G3	463233	OT
						121	M-QFN32T.65-G3	463234	OT
			Ni-Pd-Au	5.0mm	0.6mm	25	M-QFN32W.65-G6	463260	2026
						121	M-QFN32T.65-G6	463264	2026
					1.0mm	25	H-QFN32W.65-G6	463262	2026
						121	H-QFN32T.65-G6	463261	2026
32L	8x8mm	0.8mm	Ni-Pd-Au	6.0mm	0.6mm	16	M-QFN32W.8-G6	483260	2026
						64	M-QFN32T.8-G6	483264	2026
					1.0mm	16	H-QFN32W.8-G6	483262	2026
						64	H-QFN32T.8-G6	483261	2026

Road Map Notes: OT=Open Tool

Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec		
Molding Compound	MSL	G770H 3
Lead Frame	JEDEC	194FH MO-220
RoHS Lead Free	Yes	
Die Attach	Adhesive	
Wire Bonding Temp	180°C max	
Peak Reflow Temp	260°C max	

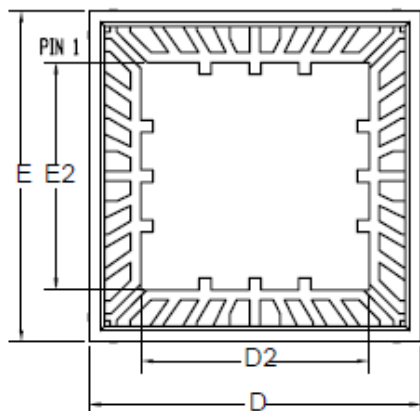
Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: Page 27-31

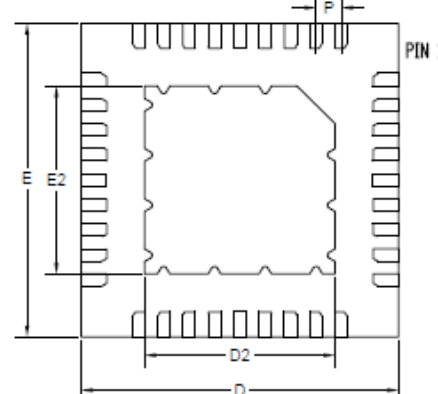
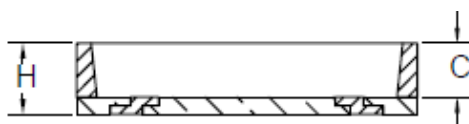
TOP VIEW

SIDE VIEW

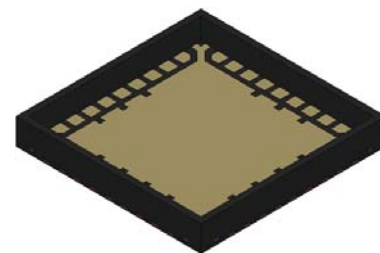
BOTTOM VIEW



Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



36L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D / E)	Pitch (P)	Pad Plating	Die Pad (D2 / E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
36L	5x5mm	0.4mm	Ni-Pd-Au	3.0mm	0.6mm	36	M-QFN36W.4-G6	443660	2026
						144	M-QFN36T.4-G6	443664	2026
					1.0mm	36	H-QFN36W.4-G6	443662	2026
						144	H-QFN36T.4-G6	443661	2026
36L	6x6mm	0.5mm	Ni-Au	4.3mm	0.6mm	25	M-QFN36M.5-G3	453633	OT
			Ni-Pd-Au	4.0mm	0.6mm	121	M-QFN36T.5-G3	453634	OT
						25	M-QFN36W.5-G6	453660	OT
					1.0mm	121	M-QFN36T.5-G6	453664	OT
						25	H-QFN36W.5-G6	453662	OT
						121	H-QFN36T.5-G6	453661	OT

Road Map Notes: OT=Open Tool

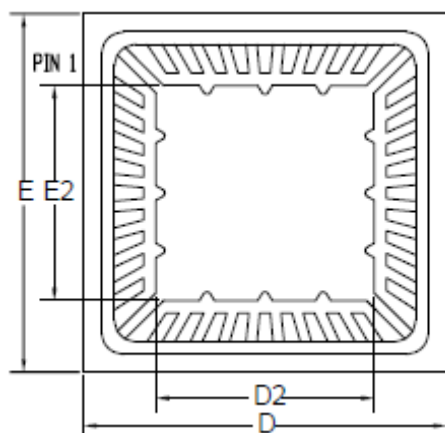
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6 Au 1.0 ~2.0	Ni 100~300 Au 40~80
G6	Ni 0.50~2.0 Pd 0.02~0.15 Au 0.003~0.01	Ni 20~80 Pd 0.8~6.0 Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID T-LID T-LID	Black Black White	G770H BT RO-4003C	No
U-LID B-LID	Black Black	G770H BT	Yes

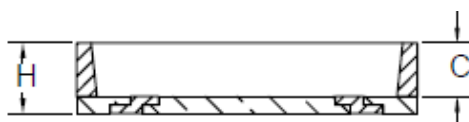
Lids: Page 28-29

TOP VIEW

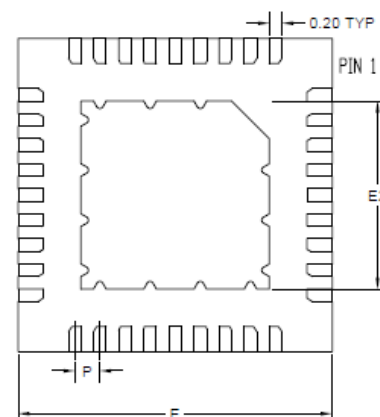


SIDE VIEW

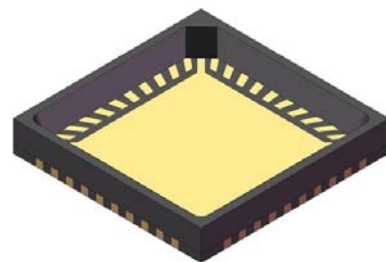
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



40L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
40L	5x5mm	0.4mm	Ni-Au	3.4mm	0.6mm	25	M-QFN40M.4-G3	444033	OT
						36	M-QFN40W.4-G3	444030	OT
						144	M-QFN40T.4-G3	444034	OT
			Ni-Pd-Au	3.0mm	0.6mm	36	M-QFN40W.4-G6	444060	2026
						144	M-QFN40T.4-G6	444064	2026
					1.0mm	36	H-QFN40W.4-G6	444062	2026
						144	H-QFN40T.4-G6	444061	2026
40L	6x6mm	0.5mm	Ni-Au	4.3mm	0.6mm	25	M-QFN40M.5-G3	454033	OT
						121	M-QFN40T.5-G3	454034	OT
			Ni-Pd-Au	4.0mm	0.6mm	25	M-QFN40W.5-G6	454060	OT
						121	M-QFN40T.5-G6	454064	OT
					1.0mm	25	H-QFN40W.5-G6	454062	OT
						121	H-QFN40T.5-G6	454061	OT

Road Map Notes: OT=Open Tool

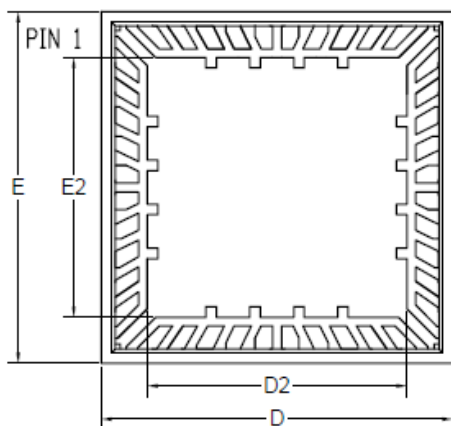
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15 Au 0.003~0.01	Pd 0.8~6.0 Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID T-LID T-LID	Black Black White	G770H BT RO-4003C	No
U-LID B-LID	Black Black	G770H BT	Yes

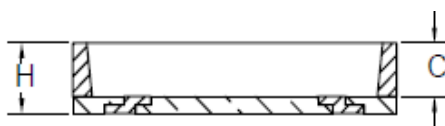
Lids: Page 28-29

TOP VIEW

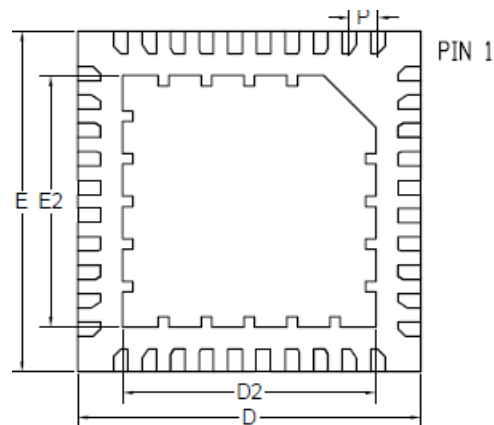


SIDE VIEW

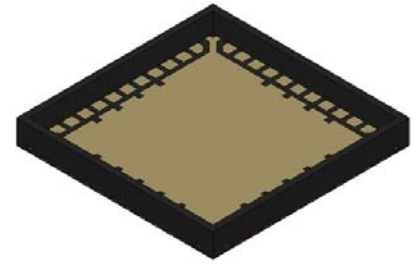
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



44L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D / E)	Pitch (P)	Pad Plating	Die Pad (D2 / E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
44L	7x7mm	0.5mm	Ni-Au	5.3mm	0.6mm	25	M-QFN44M.5-G3	454433	OT
						25	M-QFN44W.5-G3	454430	OT
						81	M-QFN44T.5-G3	454434	OT
			Ni-Pd-Au	5.0mm	0.6mm	25	M-QFN44W.5-G6	454460	2026
						81	M-QFN44T.5-G6	454464	2026
					1.0mm	25	H-QFN44W.5-G6	454462	2026
						81	H-QFN44T.5-G6	454461	2026
44L	8x8mm	0.65mm	Ni-Pd-Au	6.0mm	0.6mm	16	M-QFN44W.65-G6	464460	2026
						64	M-QFN44T.65-G6	464464	2026
					1.0mm	16	H-QFN44W.65-G6	464462	2026
						64	H-QFN44T.65-G6	464461	2026

Road Map Notes: OT=Open Tool

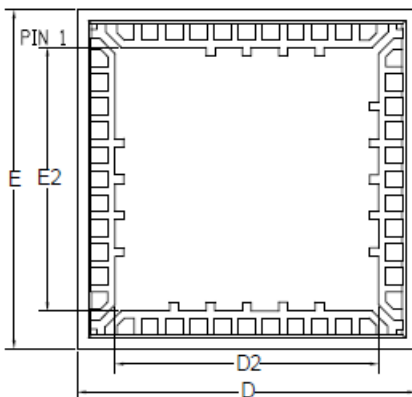
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15 Au 0.003~0.01	Pd 0.8~6.0 Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

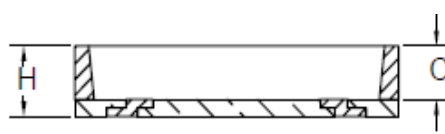
Lids: Page 30-31

TOP VIEW

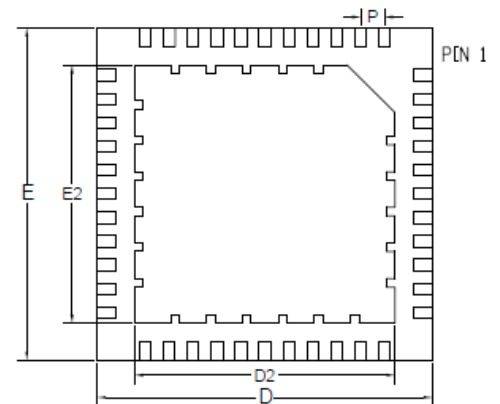


SIDE VIEW

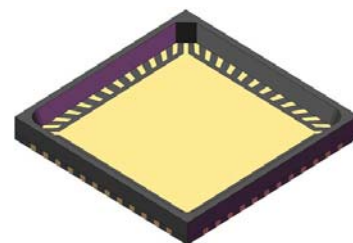
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



48L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
48L	6x6mm	0.4mm	Ni-Au	4.3mm	0.6mm	25	M-QFN48M.4-G3	444833	OT
						25	M-QFN48W.4-G3	444830	OT
						121	M-QFN48T.4-G3	444834	OT
			Ni-Pd-Au	4.0mm	0.6mm	25	M-QFN48W.4-G6	444860	OT
						121	M-QFN48T.4-G6	444864	OT
					1.0mm	25	H-QFN48W.4-G6	444862	OT
						121	H-QFN48T.4-G6	444861	OT
48L	7x7mm	0.5mm	Ni-Au	5.3mm	0.6mm	25	M-QFN48M.5-G3	454833	OT
						25	M-QFN48W.5-G3	454830	OT
						81	M-QFN48T.5-G3	454834	OT
			Ni-Pd-Au	5.0mm	0.6mm	25	M-QFN48W.5-G6	454860	2026
						81	M-QFN48T.5-G6	454864	2026
					1.0mm	25	H-QFN48W.5-G6	454862	2026
						81	H-QFN48T.5-G6	454861	2026

Road Map Notes: OT=Open Tool

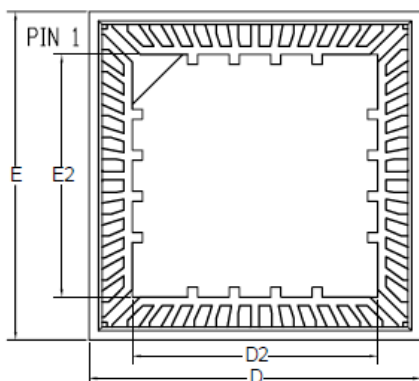
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

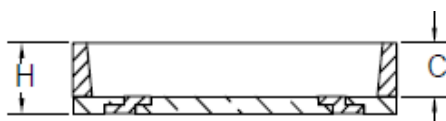
Lids: See Page 29~30

TOP VIEW

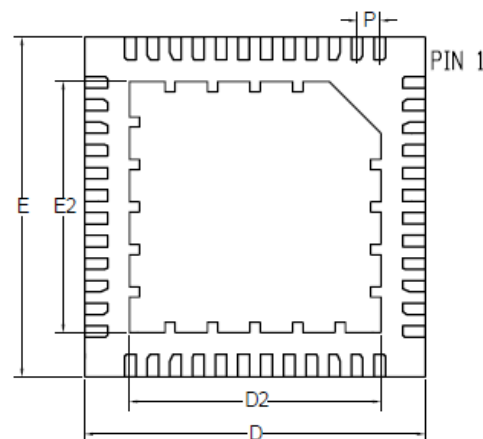


SIDE VIEW

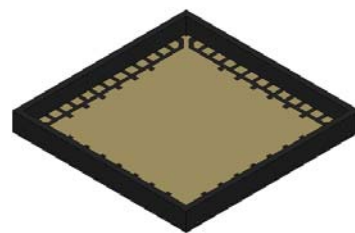
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



52L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
52L	8x8mm	0.5mm	Ni-Pd-Au	6.0mm	0.6mm	16	M-QFN52W.5-G6	455260	2026
						64	M-QFN52T.5-G6	455264	2026
					1.0mm	16	H-QFN52W.5-G6	455262	2026
						64	H-QFN52T.5-G6	455261	2026

Road Map Notes: OT=Open Tool

Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

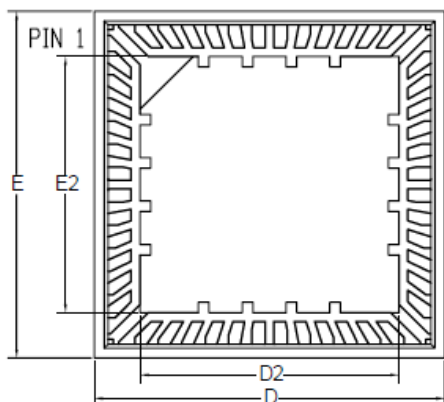
Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: See Page 31

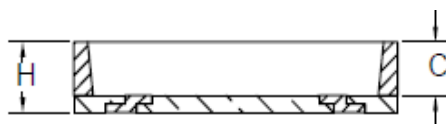
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TOP VIEW

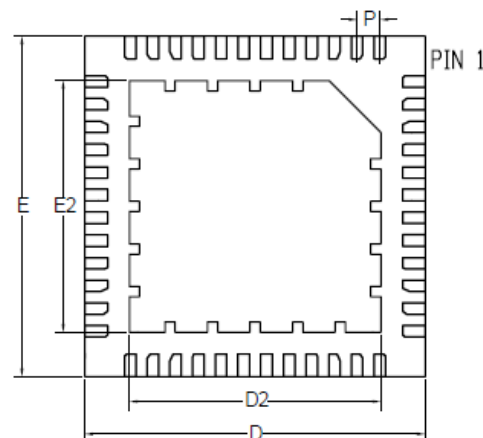


SIDE VIEW

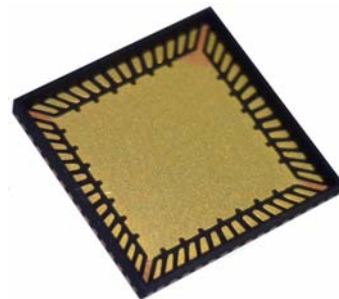
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



56L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D / E)	Pitch (P)	Pad Plating	Die Pad (D2 / E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
56L	8x8mm	0.5mm	Ni-Pd-Au	6.0mm	0.6mm	16	M-QFN56W.5-G6	455660	OT
						64	M-QFN56T.5-G6	455664	OT
					1.0mm	16	H-QFN56W.5-G6	455662	OT
						64	H-QFN56T.5-G6	455661	OT

Road Map Notes: OT=Open Tool

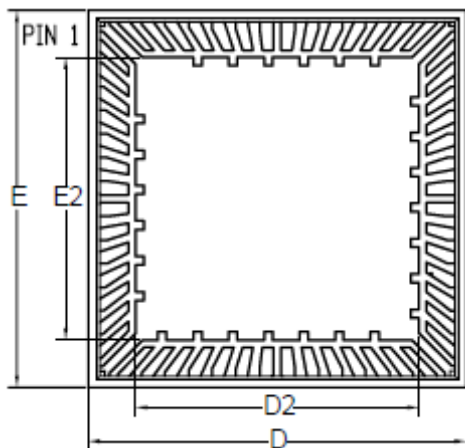
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

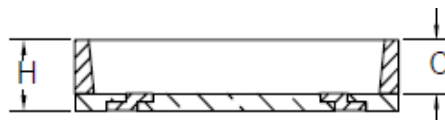
Lids: See Page 31

TOP VIEW

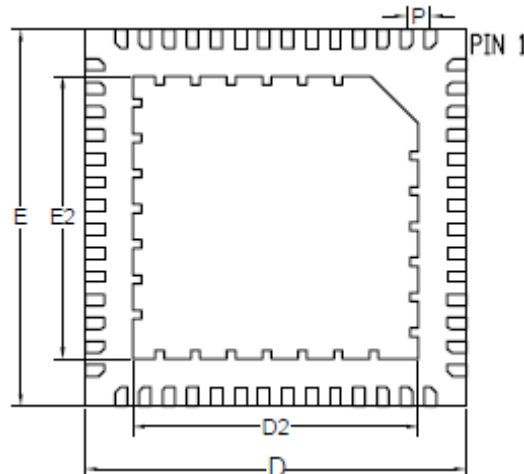


SIDE VIEW

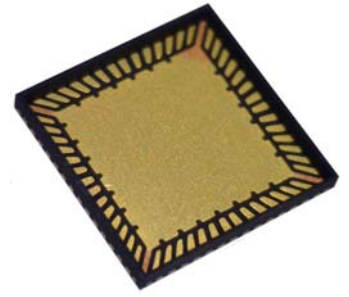
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



60L QFN Open (Air) Cavity Plastic Package



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Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
60L	7x7mm	0.4mm	Ni-Au	5.3mm	0.6mm	25	M-QFN60M.4-G3	446033	OT
						25	M-QFN60W.4-G3	446030	OT
						81	M-QFN60T.4-G3	446034	OT
			Ni-Pd-Au	5.0mm	0.6mm	25	M-QFN60W.4-G6	446060	2026
						81	M-QFN60T.4-G6	446064	2026
					1.0mm	25	H-QFN60W.4-G6	446062	2026
					1.0mm	81	H-QFN60T.4-G6	446061	2026

Road Map Notes: OT=Open Tool

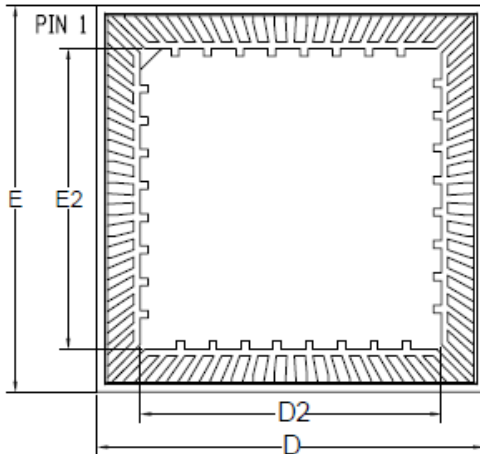
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: See Page 30

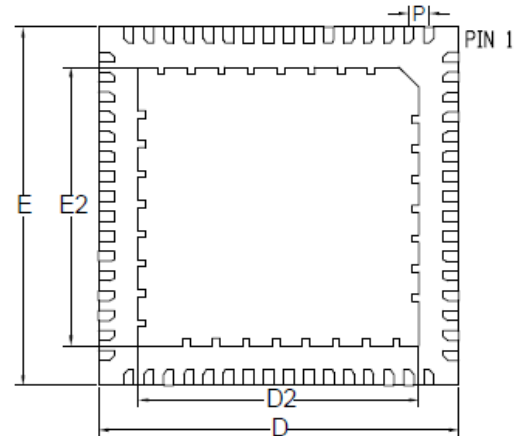
TOP VIEW



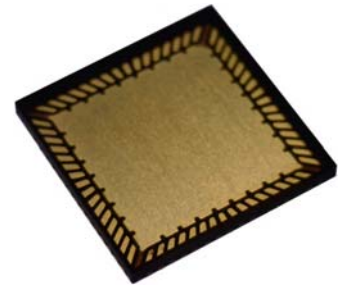
SIDE VIEW

Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm

BOTTOM VIEW



64L QFN Open (Air) Cavity Plastic Package



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64L QFN Open (Air) Cavity

Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
64L	8x8mm	0.4mm	Ni-Pd-Au	6.0mm	0.6mm	16	M-QFN64W.4-G6	446460	2026
						64	M-QFN64T.4-G6	446464	2026
					1.0mm	16	H-QFN64W.4-G6	446462	2026
						64	H-QFN64T.4-G6	446461	2026
64L	9x9mm	0.5mm	Ni-Au	7.1mm	0.6mm	25	M-QFN64M.5-G3	456433	OT
						16	M-QFN64W.5-G3	456430	OT
						49	M-QFN64T.5-G3	456434	OT
			Ni-Pd-Au	7.0mm	0.6mm	16	M-QFN64W.5-G6	456460	2026
						49	M-QFN64T.5-G6	456464	2026
					1.0mm	16	H-QFN64W.5-G6	456462	2026
						49	H-QFN64T.5-G6	456461	2026

Road Map Notes: OT=Open Tool

Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

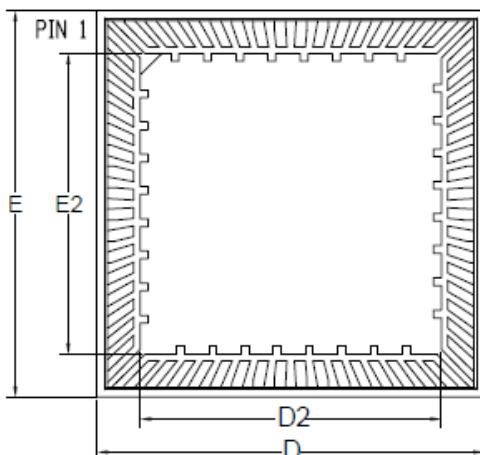
Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: See Page 31~32

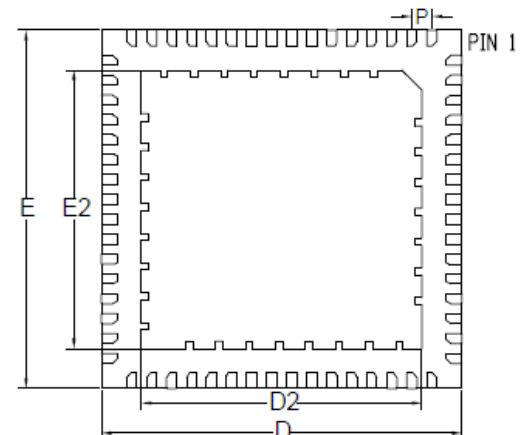
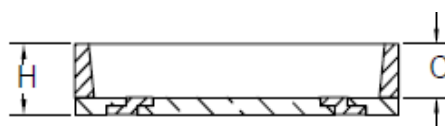
TOP VIEW

SIDE VIEW

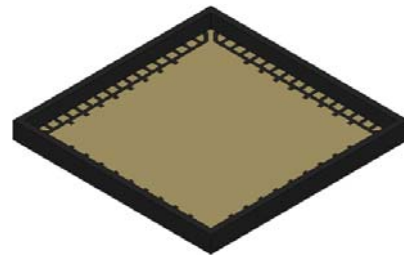
BOTTOM VIEW



Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



68L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
68L	8x8mm	0.4mm	Ni-Au	6.1mm	0.6mm	25	M-QFN68M.4-G3	446833	OT
						16	M-QFN68W.4-G3	446830	OT
						64	M-QFN68T.4-G3	446834	OT
			Ni-Pd-Au	6.0mm	0.6mm	16	M-QFN68W.4-G6	446860	2026
						64	M-QFN68T.4-G6	446864	2026
					1.0mm	16	H-QFN68W.4-G6	446862	2026
68L	10x10mm	0.5mm	Ni-Pd-Au	8.0mm	0.6mm	9	M-QFN68W.5-G6	456860	2026
						49	M-QFN68T.5-G6	456864	2026
					1.0mm	9	H-QFN68W.5-G6	456862	2026
						49	H-QFN68T.5-G6	456861	2026

Road Map Notes: OT=Open Tool

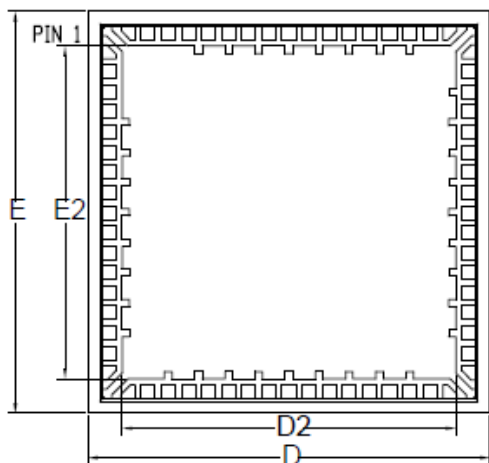
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

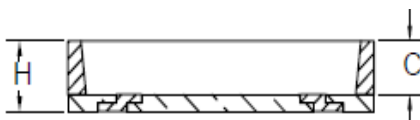
Lids: See Page 31~33

TOP VIEW

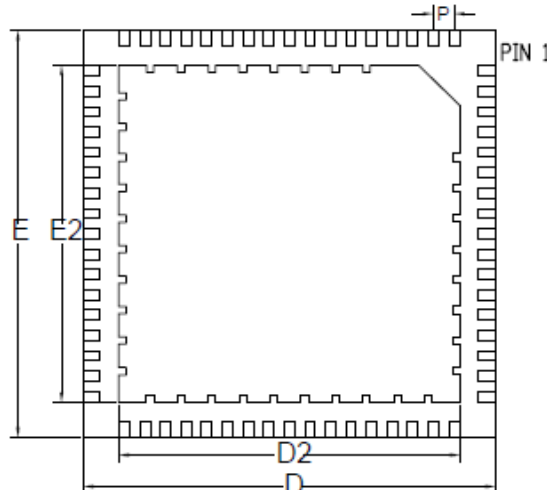


SIDE VIEW

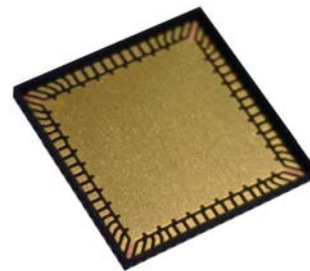
Cavity Depth and Height		
Part #	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



72L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
72L	9x9mm	0.4mm	Ni-Pd-Au	7.0mm	0.6mm	16	M-QFN72W.4-G6	447260	2026
						49	M-QFN72T.4-G6	447264	2026
					1.0mm	16	H-QFN72W.4-G6	447262	2026
						49	H-QFN72T.4-G6	447261	2026
72L	10x10mm	0.5mm	Ni- Au	7.8mm	0.6mm	25	M-QFN72M.5-G3	457233	OT
						9	M-QFN72W.5-G3	457230	OT
						49	M-QFN72T.5-G3	457234	OT
			Ni-Pd-Au	8.0mm	0.6mm	9	M-QFN72W.5-G6	457260	2026
						49	M-QFN72T.5-G6	457264	2026
					1.0mm	9	H-QFN72W.5-G6	457262	2026
						49	H-QFN72T.5-G6	457261	2026

Road Map Notes: OT=Open Tool

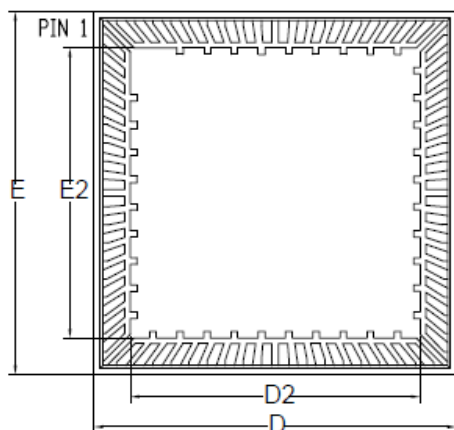
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

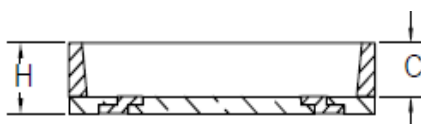
Lids: See Page 32~33

TOP VIEW

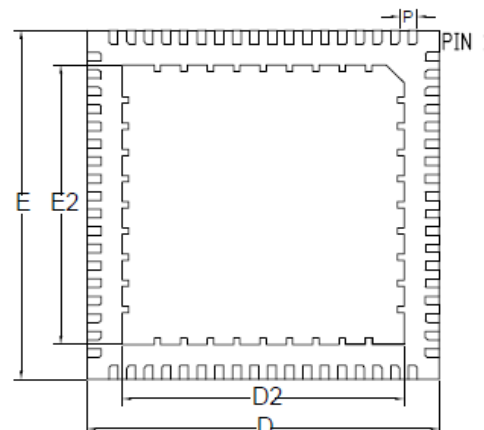


SIDE VIEW

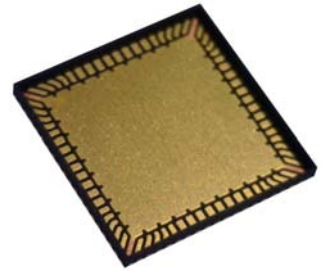
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



76L QFN Open (Air) Cavity Plastic Package



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Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
76L	9x9mm	0.4mm	Ni-Pd-Au	7.0mm	0.6mm	16	M-QFN76W.4-G6	447660	2026
						49	M-QFN76T.4-G6	447664	2026
					1.0mm	16	H-QFN76W.4-G6	447662	2026
						49	H-QFN76T.4-G6	447661	2026

Road Map Notes: OT=Open Tool

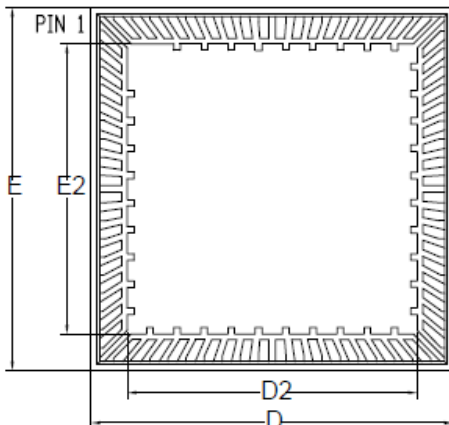
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6 Au 1.0 ~2.0	Ni 100~300 Au 40~80
G6	Ni 0.50~2.0 Pd 0.02~0.15 Au 0.003~0.01	Ni 20~80 Pd 0.8~6.0 Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID T-LID T-LID	Black Black White	G770H BT RO-4003C	No
U-LID B-LID	Black Black	G770H BT	Yes

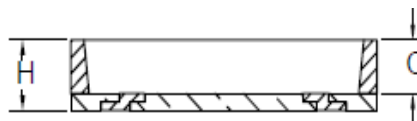
Lids: See Page 32

TOP VIEW

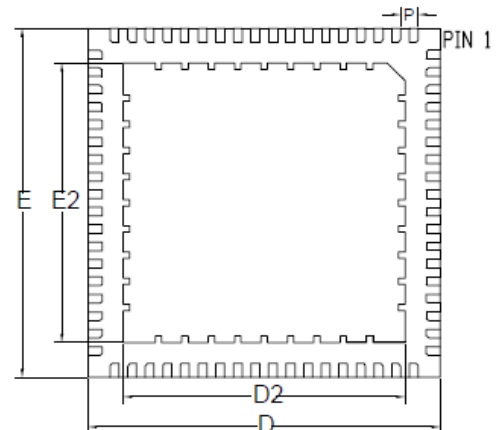


SIDE VIEW

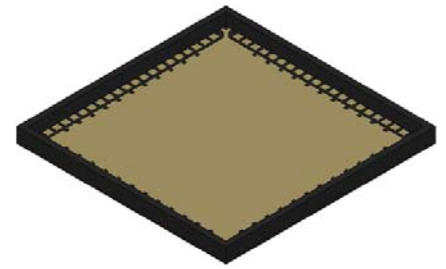
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



80L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D / E)	Pitch (P)	Pad Plating	Die Pad (D2 / E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
80L	12x12mm	0.5mm	Ni- Au	9.3mm	0.6mm	25	M-QFN80M.5-G3	458033	OT
						9	M-QFN80W.5-G3	458030	OT
						36	M-QFN80T.5-G3	458034	OT
			Ni-Pd-Au	10mm	0.6mm	9	M-QFN80W.5-G6	458060	2026
						36	M-QFN80T.5-G6	458064	2026
					1.0mm	9	H-QFN80W.5-G6	458062	2026
						36	H-QFN80T.5-G6	458061	2026

Road Map Notes: OT=Open Tool

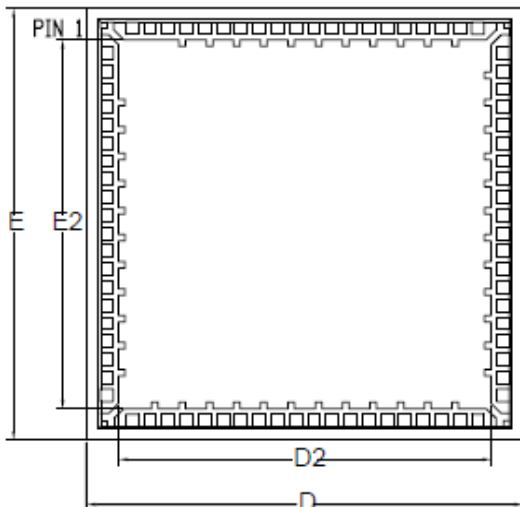
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: See Page 34

TOP VIEW

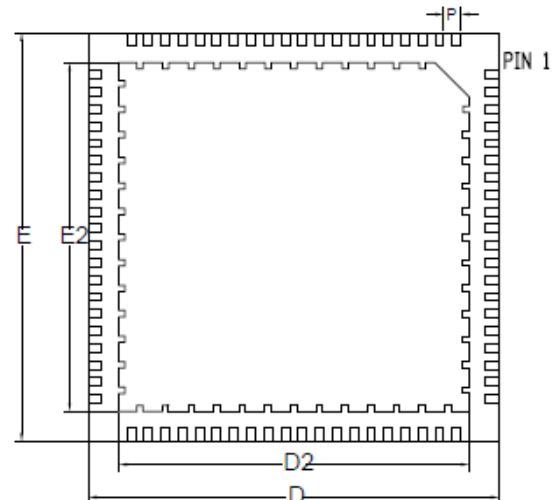


SIDE VIEW

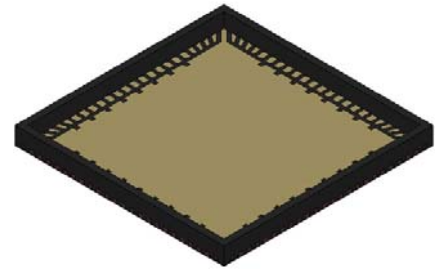
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



88L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
88L	10x10mm	0.4mm	Ni- Au	7.8mm	0.6mm	25	M-QFN88M.4-G3	448833	OT
						9	M-QFN88W.4-G3	448830	OT
						49	M-QFN88T.4-G3	448834	OT
			Ni-Pd-Au	10mm	0.6mm	9	M-QFN88W.4-G6	448860	OT
						49	M-QFN88T.4-G6	448864	OT
					1.0mm	9	H-QFN88W.4-G6	448862	OT
						49	H-QFN88T.4-G6	448861	OT

Road Map Notes: OT=Open Tool

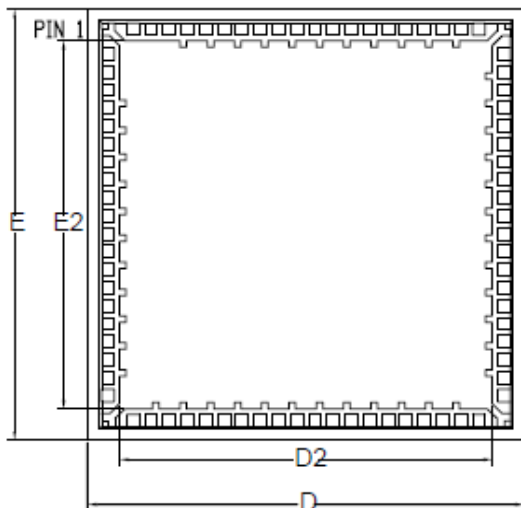
Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

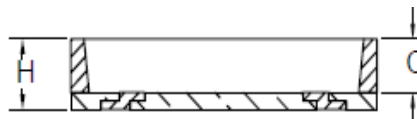
Lids: See Page 33

TOP VIEW

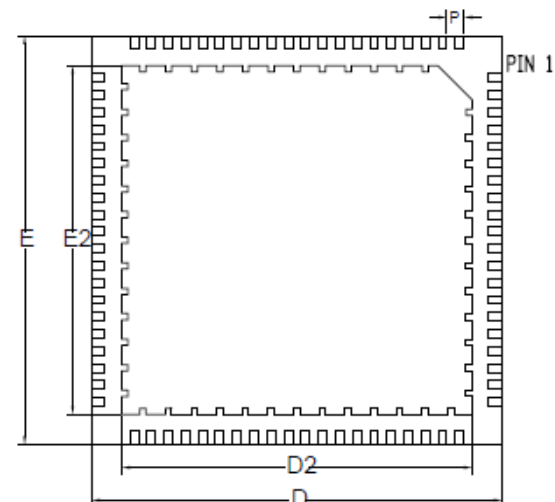


SIDE VIEW

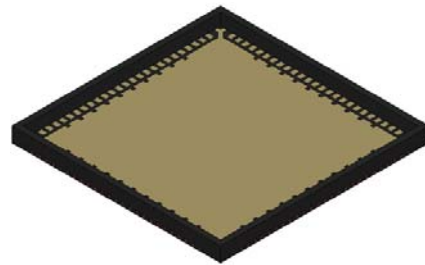
Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm



BOTTOM VIEW



100L QFN Open (Air) Cavity Plastic Package



Nbr Pins	Size (D/E)	Pitch (P)	Pad Plating	Die Pad (D2/E2)	Cavity Depth (C)	QTY	Part Number	DWG Nbr	Road Map
100L	12x12mm	0.4mm	Ni- Au	9.3mm	0.6mm	25	M-QFN100M.4-G3	449933	OT
						9	M-QFN100W.4-G3	449930	OT
						36	M-QFN100T.4-G3	449934	OT
			Ni-Pd-Au	10mm	0.6mm	9	M-QFN100W.4-G6	449960	OT
						36	M-QFN100T.4-G6	449964	OT
					1.0mm	9	H-QFN100W.4-G6	449962	OT
						36	H-QFN100T.4-G6	449961	OT

Road Map Notes: OT=Open Tool

Surface Plating Specification		
Code	Metric um	Inch Micro-inch
G3	Ni 2.5~7.6	Ni 100~300
	Au 1.0 ~2.0	Au 40~80
G6	Ni 0.50~2.0	Ni 20~80
	Pd 0.02~0.15	Pd 0.8~6.0
	Au 0.003~0.01	Au 0.12~0.40

Package Spec	
Molding Compound	G770H
MSL	3
Lead Frame	194FH
JEDEC	MO-220
RoHS Lead Free	Yes
Die Attach	Adhesive
Wire Bonding Temp	180°C max
Peak Reflow Temp	260°C max

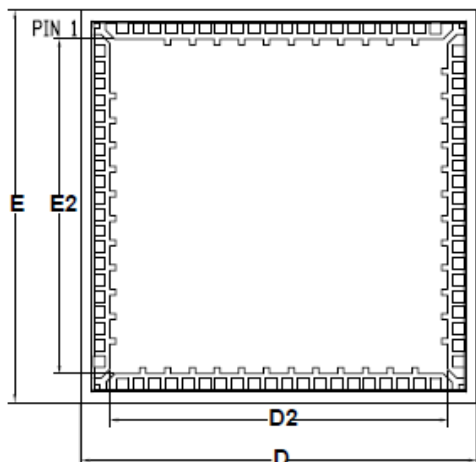
Optional Flat Lids			
Lid Series	Color	Material	Epoxy Preform
M-LID	Black	G770H	No
T-LID	Black	BT	
T-LID	White	RO-4003C	
U-LID	Black	G770H	Yes
B-LID	Black	BT	

Lids: See Page 34

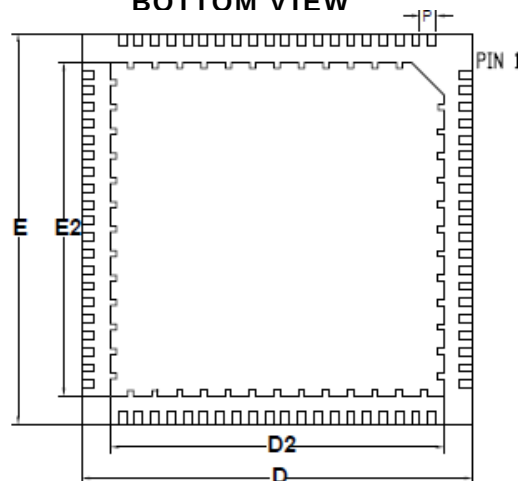
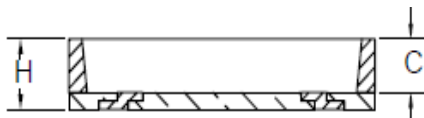
TOP VIEW

SIDE VIEW

BOTTOM VIEW



Cavity Depth and Height		
Part#	C	H
M-QFN	0.6mm	0.8mm
H-QFN	1.0mm	1.2mm





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3x3mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
3x3mm	None	BLACK	BT	0.2mm	2" Waffle	100	T-LID3W-BLACK	203102
					4" Waffle	256	T-LID3T-BLACK	203402
		BLACK	EMC	0.25mm	2" Waffle	100	M-LID3W-BLACK	203152
					4" Waffle	256	M-LID3T-BLACK	203452
		WHITE	RO4003	0.2mm	2" Waffle	100	T-LID3W-WHITE	203942
					4" Waffle	256	T-LID3T-WHITE	203442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	100	G-LID3W-GLASS	203022
					4" Waffle	256	G-LID3T-GLASS	203422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	100	B-LID3W-BLACK	203103
					4" Waffle	256	B-LID3T-BLACK	203403
		BLACK	EMC	0.35mm	2" Waffle	100	U-LID3W-BLACK	203153
					4" Waffle	256	U-LID3T-BLACK	203453

3x3mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
3x3mm	None	BLACK	BT	0.8mm	0.5mm	2"	100	R-CAP3W-BLACK	203100
						4"	256	R-CAP3T-BLACK	203400
		BLACK	EMC	1.2mm	0.7mm	4"	256	M-CAP3T-BLACK	203450
						4"	256	M-CAP3T-BLACK	203450
		WHITE	RO4003	0.8mm	0.5mm	2"	100	R-CAP3W-WHITE	203940
						4"	256	R-CAP3T-WHITE	203440
3x3mm	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	2"	100	P-CAP3W.8K-BLACK	203107
						4"	256	P-CAP3T.8K-BLACK	203407
		BLACK	EMC	1.2mm	0.7mm	4"	256	U-CAP3T1.2K-BLACK	203457
						4"	256	U-CAP3T1.2K-BLACK	203457
		BLACK	LCP	1.0mm	0.7mm	Bulk		B-CAP3B1.0K-BLACK	-
						4"	256	B-CAP3T1.0K-BLACK	-

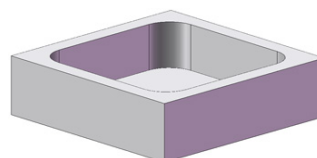
See page 35 for Lid Materials Properties



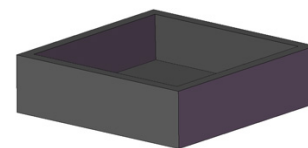
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids
Without Adhesive



B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids
With Adhesive



L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids
Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids
With Adhesive



4x4mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
4x4mm	None	BLACK	BT	0.2mm	2" Waffle	64	T-LID4W-BLACK	204102
					4" Waffle	196	T-LID4T-BLACK	204402
		BLACK	EMC	0.25mm	2" Waffle	64	M-LID4W-BLACK	204152
					4" Waffle	196	M-LID4T-BLACK	204452
		WHITE	RO4003	0.2mm	2" Waffle	64	T-LID4W-WHITE	204942
					4" Waffle	196	T-LID4T-WHITE	204442
		Clear	Borosilicate Glass	0.5~0.7 mm	2" Waffle	64	G-LID4W-GLASS	204022
					4" Waffle	196	G-LID4T-GLASS	204422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	64	B-LID4W-BLACK	204103
					4" Waffle	196	B-LID4T-BLACK	204403
		BLACK	EMC	0.35mm	2" Waffle	64	U-LID4W-BLACK	204153
					4" Waffle	196	U-LID4T-BLACK	204453

4x4mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
4x4mm	None	BLACK	BT	0.8mm	0.5mm	2"	64	R-CAP4W-BLACK	204100
						4"	196	R-CAP4T-BLACK	204400
		BLACK	EMC	1.2mm	0.7mm	4"	196	M-CAP4T-BLACK	204450
						4"	196	M-CAP4T-BLACK	204450
		WHITE	RO4003	0.8mm	0.5mm	2"	64	R-CAP4W-WHITE	204940
						4"	196	R-CAP4T-WHITE	204440
		BLACK	LCP	1.0mm	0.7mm	Bulk	1	L-CAP4.1B1.0-BLACK	241780
						4"	196	L-CAP4.1T1.0-BLACK	241480
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	2"	64	P-CAP4W.8K-BLACK	204107
						4"	196	P-CAP4T.8K-BLACK	204407
		BLACK	EMC	1.2mm	0.7mm	4"	196	U-CAP4T1.2K-BLACK	204457
						4"	196	U-CAP4T1.2K-BLACK	204457

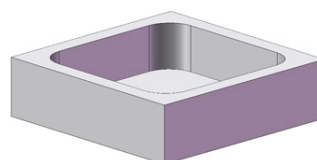
See page 35 for Lid Materials Properties



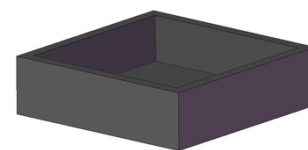
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids Without Adhesive



B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids With Adhesive



L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids With Adhesive



5x5mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
5x5mm	None	BLACK	BT	0.2mm	2" Waffle	36	T-LID5W-BLACK	205102
					4" Waffle	144	T-LID5T-BLACK	205402
		BLACK	EMC	0.25mm	2" Waffle	36	M-LID5W-BLACK	205152
					4" Waffle	144	M-LID5T-BLACK	205452
		WHITE	RO4003	0.2mm	2" Waffle	36	T-LID5W-WHITE	205942
					4" Waffle	144	T-LID5T-WHITE	205442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	36	G-LID5W-GLASS	205022
					4" Waffle	144	G-LID5T-GLASS	205422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	36	B-LID5W-BLACK	205103
					4" Waffle	144	B-LID5T-BLACK	205403
		BLACK	EMC	0.35mm	2" Waffle	36	U-LID5W-BLACK	205153
					4" Waffle	144	U-LID5T-BLACK	205453

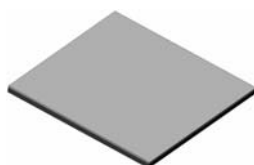
5x5mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
5x5mm	None	BLACK	BT	0.8mm	0.5mm	2"	36	R-CAP5W-BLACK	205100
						4"	144	R-CAP5T-BLACK	205400
		BLACK	EMC	1.2mm	0.7mm	4"	144	M-CAP5T-BLACK	205450
						4"	144	M-CAP5T-BLACK	205450
		WHITE	RO4003	0.8mm	0.5mm	2"	36	R-CAP5W-WHITE	205940
						4"	144	R-CAP5T-WHITE	205440
		BLACK	LCP	1.3mm	0.7mm	Bulk	1	L-CAP5.1B1.3-BLACK	250780
						4"	121	L-CAP5.1T1.3-BLACK	250480
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	2"	36	P-CAP5W.8K-BLACK	205107
						4"	144	P-CAP5T.8K-BLACK	205407
		BLACK	EMC	1.2mm	0.7mm	4"	144	U-CAP5T1.2K-BLACK	205457
						4"	121	B-CAP5.1T1.3K-BLACK	250487

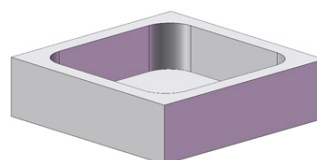
See page 35 for Lid Materials Properties



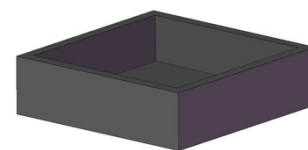
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids Without Adhesive



B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids With Adhesive



L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids With Adhesive



6x6mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
6x6mm	None	BLACK	BT	0.2mm	2" Waffle	25	T-LID6W-BLACK	206102
					4" Waffle	121	T-LID6T-BLACK	206402
		BLACK	EMC	0.25mm	2" Waffle	25	M-LID6W-BLACK	206152
					4" Waffle	121	M-LID6T-BLACK	206452
		WHITE	RO4003	0.2mm	2" Waffle	25	T-LID6W-WHITE	206942
					4" Waffle	121	T-LID6T-WHITE	206442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	25	G-LID6W-GLASS	206022
					4" Waffle	121	G-LID6T-GLASS	206422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	25	B-LID6W-BLACK	206103
					4" Waffle	121	B-LID6T-BLACK	206403
		BLACK	EMC	0.35mm	2" Waffle	25	U-LID6W-BLACK	206153
					4" Waffle	121	U-LID6T-BLACK	206453

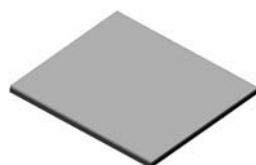
6x6mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
6x6mm	None	BLACK	BT	0.8mm	0.5mm	2"	25	R-CAP6W-BLACK	206100
						4"	121	R-CAP6T-BLACK	206400
		BLACK	EMC	1.2mm	0.7mm	4"	121	M-CAP6T-BLACK	206450
						2"	25	R-CAP6W-WHITE	206940
		WHITE	RO4003	0.8mm	0.5mm	4"	121	R-CAP6T-WHITE	206440
						Bulk	1	L-CAP6B1.3-BLACK	-
		BLACK	LCP	1.3mm	0.7mm	4"	121	L-CAP6T1.3-BLACK	-
						2"	25	P-CAP6W.8K-BLACK	206107
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	4"	121	P-CAP6T.8K-BLACK	206407
						4"	121	U-CAP6T1.2K-BLACK	206457
		BLACK	LCP	1.3mm	1.0mm	4"	121	B-CAP6T1.3K-BLACK	-
						4"	121	B-CAP6T1.3K-BLACK	-

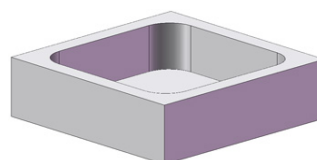
See page 35 for Lid Materials Properties



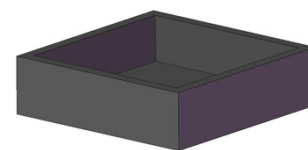
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids Without Adhesive



B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids With Adhesive



L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids With Adhesive



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7x7mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
7x7mm	None	BLACK	BT	0.2mm	2" Waffle	25	T-LID7W-BLACK	207102
					4" Waffle	81	T-LID7T-BLACK	207402
		BLACK	EMC	0.25mm	2" Waffle	25	M-LID7W-BLACK	207152
					4" Waffle	81	M-LID7T-BLACK	207452
		WHITE	RO4003	0.2mm	2" Waffle	25	T-LID7W-WHITE	207942
					4" Waffle	81	T-LID7T-WHITE	207442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	25	G-LID7W-GLASS	207022
					4" Waffle	81	G-LID7T-GLASS	207422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	25	B-LID7W-BLACK	207103
					4" Waffle	81	B-LID7T-BLACK	207403
		BLACK	EMC	0.35mm	2" Waffle	25	U-LID7W-BLACK	207153
					4" Waffle	81	U-LID7T-BLACK	207453

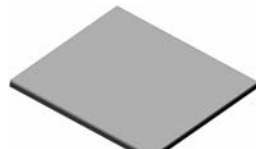
7x7mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
7x7mm	None	BLACK	BT	0.8mm	0.5mm	2"	25	R-CAP7W-BLACK	207100
						4"	81	R-CAP7T-BLACK	207400
		BLACK	EMC	1.2mm	0.7mm	4"	81	M-CAP7T-BLACK	207450
						2"	25	R-CAP7W-WHITE	207940
		WHITE	RO4003	0.8mm	0.5mm	4"	81	R-CAP7T-WHITE	207440
						Bulk	1	L-CAP7B1.3-BLACK	272780
		BLACK	LCP	1.3mm	0.7mm	4"	64	L-CAP7T1.3-BLACK	272480
						2"	25	P-CAP7W.8K-BLACK	207107
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	4"	144	P-CAP7T.8K-BLACK	207407
						4"	144	U-CAP7T1.2K-BLACK	207457
		BLACK	EMC	1.2mm	0.7mm	4"	144	U-CAP7T1.2K-BLACK	207457
						4"	64	B-CAP7T1.3K-BLACK	272487

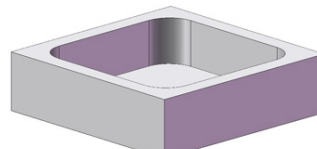
See page 35 for Lid Materials Properties



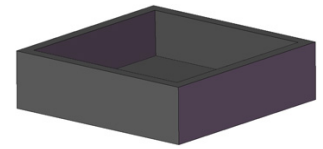
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids
Without Adhesive



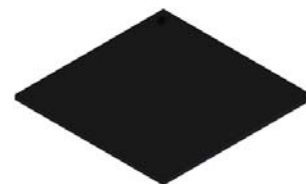
B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids
With Adhesive



L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids
Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids
With Adhesive



8x8mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
8x8mm	None	BLACK	BT	0.2mm	2" Waffle	16	T-LID8W-BLACK	208102
					4" Waffle	64	T-LID8T-BLACK	208402
		BLACK	EMC	0.25mm	2" Waffle	16	M-LID8W-BLACK	208152
					4" Waffle	64	M-LID8T-BLACK	208452
		WHITE	RO4003	0.2mm	2" Waffle	16	T-LID8W-WHITE	208942
					4" Waffle	64	T-LID8T-WHITE	208442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	16	G-LID8W-GLASS	208022
					4" Waffle	64	G-LID8T-GLASS	208422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	16	B-LID8W-BLACK	208103
					4" Waffle	64	B-LID8T-BLACK	208403
		BLACK	EMC	0.35mm	2" Waffle	16	U-LID8W-BLACK	208153
					4" Waffle	64	U-LID8T-BLACK	208453

8x8mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
8x8mm	None	BLACK	BT	0.8mm	0.5mm	2"	16	R-CAP8W-BLACK	208100
						4"	64	R-CAP8T-BLACK	208400
		BLACK	EMC	1.2mm	0.7mm	4"	16	M-CAP8T-BLACK	208450
						4"	16	M-CAP8T-BLACK	208450
		WHITE	RO4003	0.8mm	0.5mm	2"	16	R-CAP8W-WHITE	208940
						4"	64	R-CAP8T-WHITE	208440
		BLACK	LCP	1.3mm	1.0mm	Bulk	1	L-CAP8B1.3-BLACK	-
						4"	64	L-CAP8T1.3-BLACK	-
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	2"	16	P-CAP8W.8K-BLACK	208107
						4"	64	P-CAP8T.8K-BLACK	208407
		BLACK	EMC	1.2mm	0.7mm	4"	64	U-CAP8T1.2K-BLACK	208457
						4"	49	B-CAP8T1.3K-BLACK	-

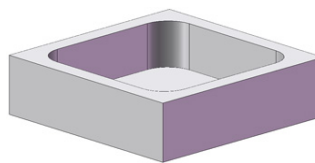
See page 35 for Lid Materials Properties



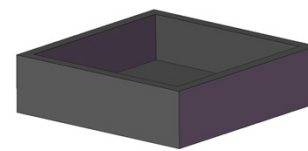
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids
Without Adhesive



B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids
With Adhesive

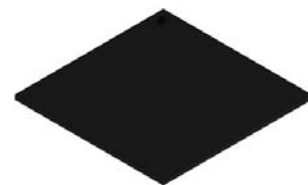


L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids
Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids
With Adhesive

9x9mm Lids



9x9mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
9x9mm	None	BLACK	BT	0.2mm	2" Waffle	16	T-LID9W-BLACK	209102
					4" Waffle	49	T-LID9T-BLACK	209402
		BLACK	EMC	0.25mm	2" Waffle	16	M-LID9W-BLACK	209152
					4" Waffle	49	M-LID9T-BLACK	209452
		WHITE	RO4003	0.2mm	2" Waffle	16	T-LID9W-WHITE	209942
					4" Waffle	49	T-LID9T-WHITE	209442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	16	G-LID9W-GLASS	209022
					4" Waffle	49	G-LID9T-GLASS	209422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	16	B-LID9W-BLACK	209103
					4" Waffle	49	B-LID9T-BLACK	209403
		BLACK	EMC	0.35mm	2" Waffle	16	U-LID9W-BLACK	209153
					4" Waffle	49	U-LID9T-BLACK	209453

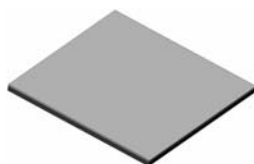
9x9mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
9x9mm	None	BLACK	BT	0.8mm	0.5mm	2"	16	R-CAP9W-BLACK	209100
						4"	49	R-CAP9T-BLACK	209400
		BLACK	EMC	1.2mm	0.7mm	4"	16	M-CAP9T-BLACK	209450
		WHITE	RO4003	0.8mm	0.5mm	2"	16	R-CAP9W-WHITE	209940
						4"	49	R-CAP9T-WHITE	209440
		BLACK	LCP	1.9mm	1.4mm	Bulk	1	L-CAP8.9B1.9-BLACK	289780
						4"	49	L-CAP8.9T1.9-BLACK	289480
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	2"	16	P-CAP9W.8K-BLACK	209107
						4"	49	P-CAP9T.8K-BLACK	209407
		BLACK	EMC	1.2mm	0.7mm	4"	49	U-CAP9T1.2K-BLACK	209457
		BLACK	LCP	1.9mm	1.3mm	4"	49	B-CAP8.9T1.9K-BLACK	289487

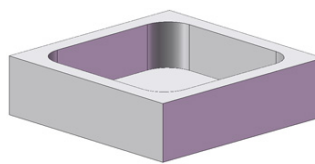
See page 35 for Lid Materials Properties



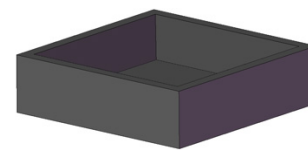
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids
Without Adhesive



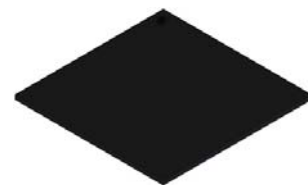
B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids
With Adhesive



L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids
Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids
With Adhesive



10x10mm FLAT Lids

Size (D/E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
10x10 mm	None	BLACK	BT	0.2mm	2" Waffle	9	T-LID10W-BLACK	210102
					4" Waffle	49	T-LID10T-BLACK	210402
		BLACK	EMC	0.25mm	2" Waffle	9	M-LID10W-BLACK	210152
					4" Waffle	49	M-LID10T-BLACK	210452
		WHITE	RO4003	0.2mm	2" Waffle	9	T-LID10W-WHITE	210942
					4" Waffle	49	T-LID10T-WHITE	210442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	9	G-LID10W-GLASS	210022
					4" Waffle	49	G-LID10T-GLASS	210422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	9	B-LID10W-BLACK	210103
					4" Waffle	49	B-LID10T-BLACK	210403
		BLACK	EMC	0.35mm	2" Waffle	9	U-LID10W-BLACK	210153
					4" Waffle	49	U-LID10T-BLACK	210453

10x10mm DOME Cavity CAP Lids

Size (D/E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
10x10 mm	None	BLACK	BT	0.8mm	0.5mm	2"	9	R-CAP910W-BLACK	210100
						4"	49	R-CAP910T-BLACK	210400
		BLACK	EMC	1.2mm	0.7mm	4"	9	M-CAP10T-BLACK	210450
						2"	9	R-CAP10W-WHITE	210940
		WHITE	RO4003	0.8mm	0.5mm	4"	49	R-CAP10T-WHITE	210440
						Bulk	1	L-CAP10.2B1.9-BLACK	297780
		BLACK	LCP	1.9mm	1.4mm	4"	49	L-CAP10.2T1.9-BLACK	297480
						2"	9	P-CAP10W.8K-BLACK	210107
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	4"	49	P-CAP10T.8K-BLACK	210407
						4"	49	U-CAP10T1.2K-BLACK	210457
		BLACK	EMC	1.2mm	0.7mm	4"	49	B-CAP10.2T1.9K-BLACK	297487
						4"	49	B-CAP10.2T1.9K-BLACK	297487

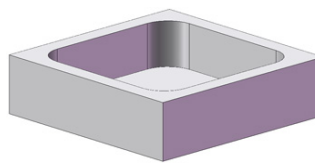
See page 35 for Lid Materials Properties



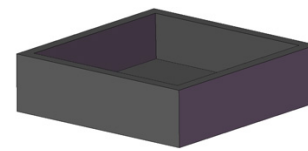
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids
Without Adhesive



B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids
With Adhesive

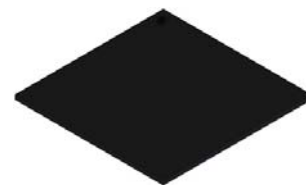


L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids
Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids
With Adhesive

12x12mm Lids



12x12mm FLAT Lids

Size (D / E)	Adhesive	Color	Material	Thick	Tray	QTY	Part Number	DWG Nbr
12x12 mm	None	BLACK	BT	0.2mm	2" Waffle	9	T-LID12W-BLACK	212102
					4" Waffle	36	T-LID12T-BLACK	212402
		BLACK	EMC	0.25mm	2" Waffle	9	M-LID12W-BLACK	212152
					4" Waffle	36	M-LID12T-BLACK	212452
		WHITE	RO4003	0.2mm	2" Waffle	9	T-LID12W-WHITE	212942
					4" Waffle	39	T-LID12T-WHITE	212442
		Clear	Borosilicate Glass	0.5~0.7mm	2" Waffle	9	G-LID12W-GLASS	212022
					4" Waffle	36	G-LID12T-GLASS	212422
	Adhesive B-Stage Preform	BLACK	BT	0.3mm	2" Waffle	9	B-LID12W-BLACK	212103
					4" Waffle	36	B-LID12T-BLACK	212403
		BLACK	EMC	0.35mm	2" Waffle	9	U-LID12W-BLACK	212153
					4" Waffle	36	U-LID12T-BLACK	212453

12x12mm DOME Cavity CAP Lids

Size (D / E)	Adhesive	Color	Mat'l	High (H)	Cavity (C)	Tray	QTY	Part Number	DWG Nbr
10x10 mm	None	BLACK	BT	0.8mm	0.5mm	2"	9	R-CAP910W-BLACK	212100
						4"	36	R-CAP910T-BLACK	212400
		BLACK	EMC	1.2mm	0.7mm	4"	9	M-CAP10T-BLACK	212450
		WHITE	RO4003	0.8mm	0.5mm	2"	9	R-CAP10W-WHITE	212940
						4"	36	R-CAP10T-WHITE	212440
		BLACK	LCP	1.9mm	1.4mm	Bulk	1	L-CAP12.2B1.5-BLACK	291780
						4"	36	L-CAP12.2T1.5-BLACK	291480
	Adhesive B-Stage Preform	BLACK	BT	0.8mm	0.5mm	2"	9	P-CAP10W.8K-BLACK	212107
						4"	36	P-CAP10T.8K-BLACK	212407
		BLACK	EMC	1.2mm	0.7mm	4"	36	U-CAP10T1.2K-BLACK	212457
		BLACK	LCP	1.9mm	1.4mm	4"	36	B-CAP12.2T1.5K-BLACK	291487

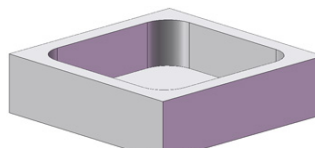
See page 35 for Lid Materials Properties



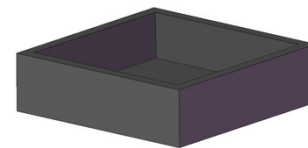
T-LID (BT-Black RO4003C-White)
M-LID (EMC) / **G-LID** (Glass)
Flat Lids
Without Adhesive



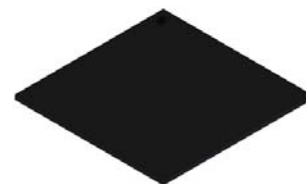
B-LID (BT-Black)
U-LID (EMC-Black)
Flat Lids
With Adhesive



L-CAP (LCP) / **M-CAP** (EMC)
R-CAP (BT-Black R4003C-White)
Dome Cavity Lids
Without Adhesive



B-CAP (LCP)
U-CAP (EMC) / **P-CAP** (BT)
Dome Cavity Lids
With Adhesive



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Lid Material Properties

Material	D _k	D _f	CTE X/Y < T _g	T _g	Volume Resistivity	Thermal Conductivity	Water Absorption
BT	4.3 ε _r @1 GHz	0.008 δ @1 GHz	10ppm/°C	240°C	10 ¹⁶ Ω·cm	0.4 W/m·K	0.30%
EMC	3.4 ε _r @ 1MHz	0.002 δ @ 1MHz	35ppm/°C	120°C	10 ¹¹ Ω·cm	0.7 W/m·K	0.15%
R4003C	3.55 ε _r @ 10 GHz	0.0027 δ @ 10GHz	17ppm/°C	280°C	1.7*10 ¹⁰ Ω·cm	0.7 W/m·K	0.06%
LPI	3.9 ε _r @1 MHz	0.036 δ @ 1 MHz	20ppm/°C	110°C	10 ¹³ Ω·cm	0.35 W/m·K	0.03%
Borosilicate Glass	4.6 ε _r @1 MHz	0.0037 δ @ 1 MHz	3.2ppm/°K	525°C	10 ¹⁴ Ω·cm	1.2 W/m·K	0%
Al ₂ O ₃ 90% BLACK	9.2 ε _r @1 GHz	0.0003 δ @1 GHz	6.6ppm/°K	2072°C	10 ¹⁴ Ω·cm	16.7 W/m·K	0%
Al ₂ O ₃ 96% White	9.0 ε _r @1 GHz	0.0002 δ @1 GHz	8.2ppm/°K	1600°C	10 ¹⁴ Ω·cm	21 W/m·K	0%
Aluminum	~0	0.0001 δ @1 MHz	24ppm/°K		2.6*10 ⁻⁸ Ω·cm	237 W/m·K	0%

D_f= Dissipation Factor D_k= Dielectric Constant T_g= Glass Transition Temperature

Adhesive Preform Material Properties

Material	D _k	D _f	Curing Temp	Curing Pressure		Spike Temp Max	Recommended Storage
LCA3000X	3.5 @1 KHz	0.085 @1 KHz	150°C @ 60 min	½ LBS Per Inch ²	0.345 N Per cm ²	285°C @ 3 min	< 5°C

Cavity Package Part Numbering

M	-	QFN	16	T	.5	-	G6
Cavity Depth		Package Type	Nbr Pins	Packaging Code	Pin Pitch		Pad Plating
QFN Plastic: M = 0.6mm H = 1.0mm		QFN = Quad Side DFN = Dual Side	3 ~ 100	W = 2" Waffle T = 4" Waffle M = Tube J = JEDEC	.4mm .5mm .65mm .8mm 1.0mm 1.27mm		G3 = NiAu Thick Gold G6 = NiPdAu Thin Gold
Ceramic: C = Ceramic		Other TO220 Transistor SO = Small Outline SOL=Wide Outline DIP = Dual Inline					

Cavity Package Drawing Number

4	5	16	6	4
Package Type	Pin Pitch	Nbr Pins	Pad Plating	Package Cavity Depth
4 = QFN 5 = DFN 1 = SOIC 3 = DIP	<u>Standard:</u> 4 = 0.4mm 5 = 0.5mm 6 = 0.65mm 8 = 0.8mm 2 = 1.27mm	3 ~ 100	3 = NiAu Thick Gold 6 = NiPdAu Thin Gold	<u>M-QFN</u> <u>Cavity 0.6mm</u> 0 = 2" Waffle Tray (W) 4 = 4" Waffle Tray (T) 3 = Tube (M)
	<u>Special:</u> 0 = None 1 = 1.0mm 3 = 2.54mm 7 = Special 9 = Special		<u>Special:</u> 1 = NiPdAu Ceramic 5 = NiPdAu 7 = NiPdAu	<u>H-QFN</u> <u>Cavity 1.0mm</u> 2 = 2" Waffle Tray (W) 1 = 4" Waffle Tray (T) 8 = JEDEC Tray (J)

Lid Part Numbering

T	-	LID	12	T	-	BLACK
Model		Shape	Size	Packing Code	Options	Color
Flat Lids <u>Without Adhesive</u> M-LID = EMC G770H (Black) T-LID = BT (Black) T-LID = RO4003C (White) G-LID = Glass Borosilicate		LID = FLAT	3 ~ 12 mm	W = 2" Waffle Tray T = 4" Waffle Tray J = JEDEC Tray B = Bulk E = T&R	Blank Flat Lid <u>DOME CAP:</u> 1.0 ~ 2.5 O.D. Height mm K = 125um Thin Adhesive H = 250um Thick Adhesive	FLACK LID BLACK B-LID M-LID T-LID U-LID FLAT LID WHITE T-LID DOME CAP BLACK L-CAP B-CAP R-CAP U-CAP DOME CAP White R-CAP
Flat Lids <u>With Adhesive Preform</u> B-LID = BT (Black) U-LID = EMC G770H (Black) C-LID = Ceramic Al ₂ O ₃		CAP = Dome Cavity Cover	Other Sizes Available			
DOME CAP Lids <u>Without Adhesive</u> R-CAP = BT (Black) R-CAP = RO4003C (White) L-CAP = LCP (Black) M-CAP EMC (Black)						
DOME CAP Lids <u>With Adhesive Preform</u> B-CAP = LCP (Black) P-CAP = BT (Black) U-CAP = EMC (Black)						

Lid Drawing Number

2	05	4	0	2
Series	Body Size	Packing Code	Material	Lid Style
2 = LID	SQUARE LID 03 = 3mm 04 = 4mm 05 = 5mm 06 = 6mm 07 = 7mm 08 = 8mm 09 = 9mm 10 = 10mm 12 = 12mm RECTANGULAR & OTHER SIZES 51 ~ 99	T-LID / B-LID BLACK 1 = 2" Waffle Tray (W) 4 = 4" Waffle Tray (T) T-LID WHITE 9 = 2" Waffle Tray (W) 4 = 4" Waffle Tray (T) L-CAP / B-CAP M-CAP / R-CAP / U-CAP 1 = 2" Waffle Tray (W) 4 = 4" Waffle Tray (T) 7 = BULK (B) G-LID / C-LID / Z-CAP 0 = 2" Waffle Tray (W) 4 = 4" Waffle Tray (T)	Semiconductor Grade 0 = BT (T-LID/B-LID Black) 5 = EMC G770H Black (M-LID, M-CAP, U-LID & U-CAP) Metal 1 = Cu- Ni Plated (H-CAP) 3 = Aluminum (Z-CAP) 9 = Cu- Ni Plated (F-CAP) RF Microwave 2 = Borosilicate Glass (G-LID) 4 = RO4003C (T-LID White) 6 = Ceramic (C-LID White) 7 = Ceramic (C-LID Black) 8 = LCP (L-CAP, B-CAP Black)	Flat Lid: 1 = Perimeter Adhesive 2 = Without Adhesive 3 = Full Area Adhesive 4 = Solder Seal Au/Sn 5 = Glass Frit Seal DOME CAP: 0 = Without Adhesive 7 = Preform 5ml (K) 8 = Preform 10ml (H) 6 = Special 9 = Special

Tray Waffle Pack



Example of Waffle Pack

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Quantity Per Tray

D / E Package Size	2" Waffle Pack "W" Package Code		4" Waffle Pack "T" Package Code	
	M-QFN C=0.6mm H=1.05mm	H-QFN C=1.0mm H=1.45mm	M-QFN C=0.6mm H=1.05mm	H-QFN C=1.0mm H=1.45mm
3x3mm	100 pcs Part# 130003 H20-126-47-62C02 Pocket 3.2x3.2x1.2mm	100 pcs PART# 130035 H20-414-60-62C02 Pocket 3.5x3.5x1.5mm	256 pcs PART# 140003 H44-138-79-66C02 Pocket 3.5x3.5x2.0mm	256 pcs PART# 140003 H44-138-79-66C02 Pocket 3.5x3.5x2.0mm
4x4mm	64 pcs PART# 130004 H20-176-42 Pocket 4.3x4.3x1.07mm	64 pcs PART# 150004 H20-16171-66C02 Pocket 4.24x4.34x1.8mm	196 pcs PART# 140004 H44-N825602-66C02 Pocket 4.4x4.4x1.65mm	196 pcs PART# 140004 H44-N825602-66C02 Pocket 4.45x4.45x1.65mm
5x5mm	36 pcs PART# 130005 H20-225233-62C02 Pocket 5.7x5.9x1.07mm	36 pcs PART# 150005 H20-256-83-66C02 Pocket 6.5x6.5x2.1mm	144 pcs PART# 182268 H44-206-79-66C02 Pocket 5.2x5.2x2.0mm	144 pcs PART# 182268 H44-206-79-66C02 Pocket 5.23x5.23x2.0mm
6x6mm	25 pcs PART# 130007 H20-310-42-62C02 Pocket 7.8x7.8x1.07mm	25 pcs PART# 150006 H20-270-78-66C02 Pocket 6.8x6.8x2.0mm	121 pcs PART# 140006 H44-248-80-66C02 Pocket 6.3x6.3x2.0mm	121 pcs PART# 140006 H44-248-80-66C02 Pocket 6.3x6.3x2.0mm
7x7mm	25 pcs PART# 130007 H20-310-42-62C02 Pocket 7.8x7.8x1.07mm	25 pcs PART# 150007 H20-313-85-66C02 Pocket 7.95x7.95x2.2mm	81 pcs PART# 140007 H44-299-62C02 Pocket 7.6x7.6x1.27mm	81 pcs PART# 180007 H44-302-62C02 Pocket 7.6x7.6x3.7mm
8x8mm	16 pcs PART# 130009 H20-385-62C02 Pocket 9.8x9.8x1.14mm	16 pcs PART# 150091 H20-360-66C02 Pocket 9.1x9.1x1.4mm	64 pcs PART# 140008 H44-324-62-66C02 Pocket 8.28x8.28x1.6mm	64 pcs PART# 180008 H44-341-66C02 Pocket 8.66x8.66x2.54mm
9x9mm	16 pcs PART# 130009 H20-385-62C02 Pocket 9.8x9.8x1.14mm	16 pcs PART# 150091 H20-360-66C02 Pocket 9.1x9.1x1.4mm	49 pcs PART# 140009 H44-400-62C02 Pocket 10.2x10.2x2.5mm	49 pcs PART# 140009 H44-400-62C02 Pocket 10.2x10.2x2.54mm
10x10mm	9 pcs PART# 130010 H20-430-62C02 Pocket 10.9x10.9x1.4mm	9 pcs PART# 130010 H20-430-62C02 Pocket 10.9x10.9x1.4mm	49 pcs PART# 140010 H44-420-80-62C02 Pocket 10.6x10.6x2.0mm	49 pcs PART# 140010 H44-420-80-62C02 Pocket 10.6x10.6x2.0mm
12x12mm	9 pcs PART# 130012 H20-530-45-62C02 Pocket 13.4x13.4x1.1mm	9 pcs PART# 130013 H20-515-63-66C02 Pocket 13x13x1.6mm	36 pcs PART# 140012 H44-499-66C02 Pocket 12.7x12.7x2.5mm	36 pcs PART# 140012 H44-499-66C02 Pocket 12.7x12.7x2.5mm

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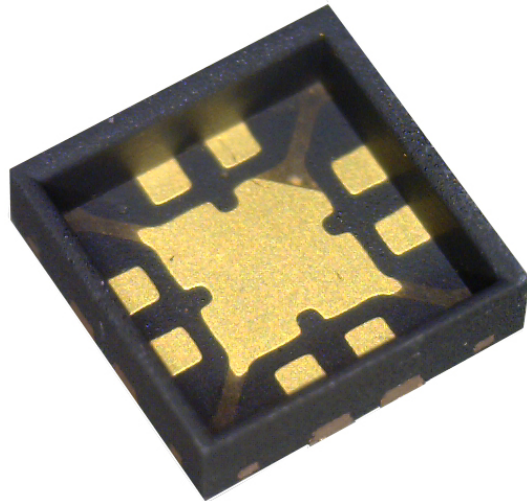
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