Technical Note

NEC

RF AND MICROWAVE DEVICES PACKAGES

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  "Standard": Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

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  (Note)

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  (2) "NEC semiconductor products" means any semiconductor product developed or manufactured by or for NEC (as defined above).

M8E 00.4-0110

Major Revisions in This Edition

Page	Description
p.7	<Package Dimensions> Addition of 3-Pin Super Lead-Less Minimold
p.10	<Package Dimensions> Addition of Flat-Lead 4-Pin Thin-Type Super Minimold (M05)
p.24	<Package Dimensions> Addition of T-91M
p.26	<Mouthing Pad Layout> Addition of 3-Pin Super Lead-Less Minimold
p.27	<Mouthing Pad Layout> Addition of Flat-Lead 4-Pin Thin-Type Super Minimold (M05)

The mark ★ shows major revised points.

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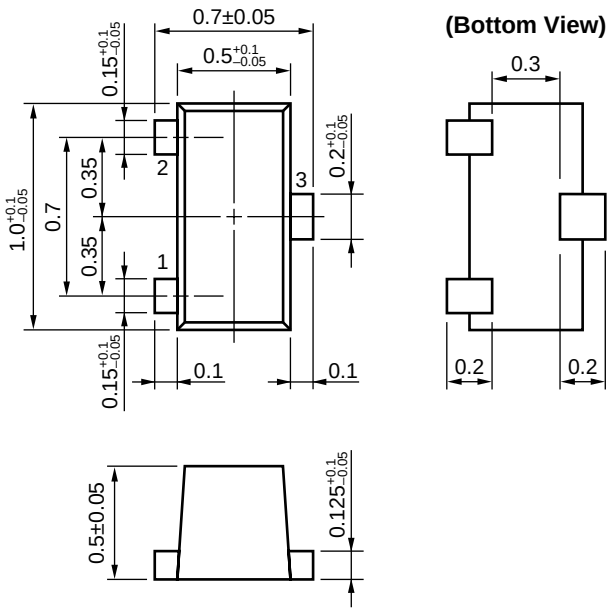
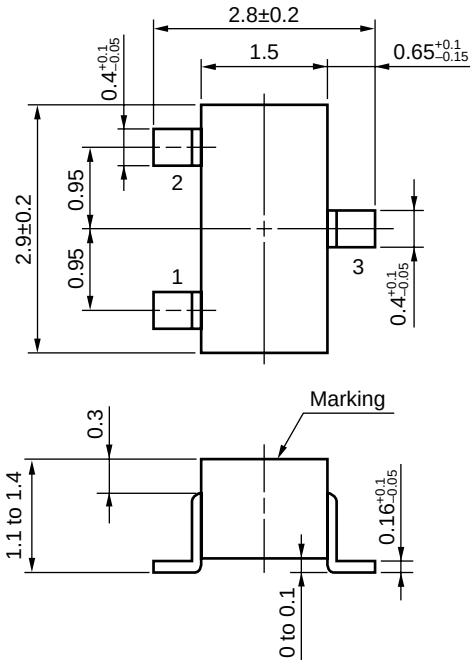
Package Dimensions (1/19)

(Unit : mm)

3-Pin Lead-Less Minimold	3-Pin Minimold
	

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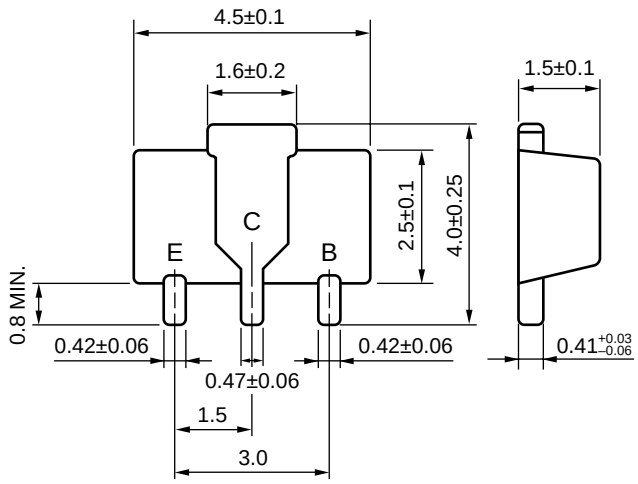
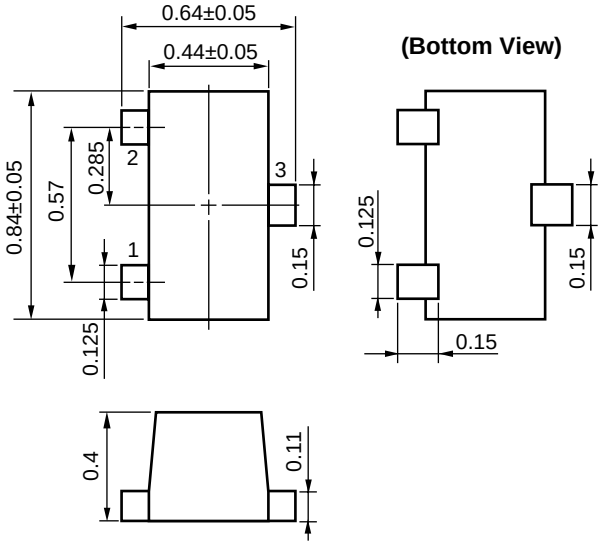
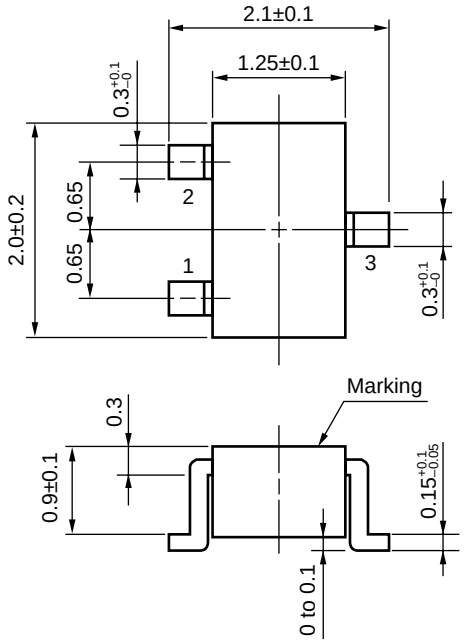
3-Pin Power Minimold	3-Pin Super Lead-Less Minimold
	

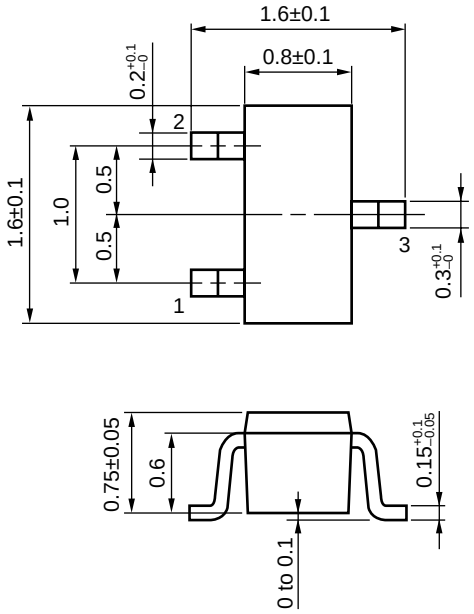
Package Dimensions (2/19)

(Unit : mm)

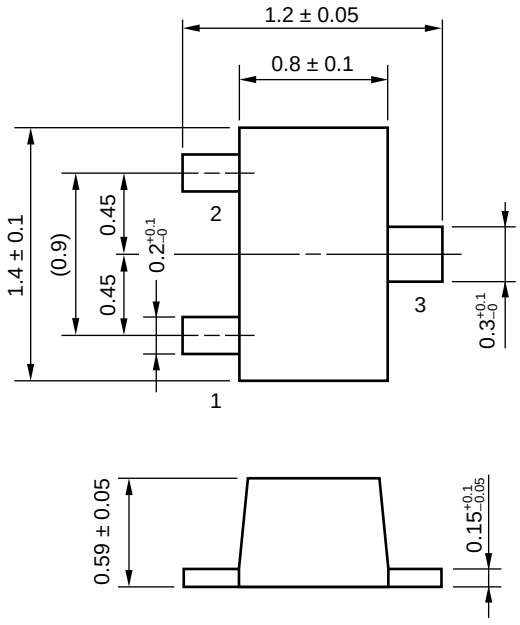
3-Pin Super Minimold



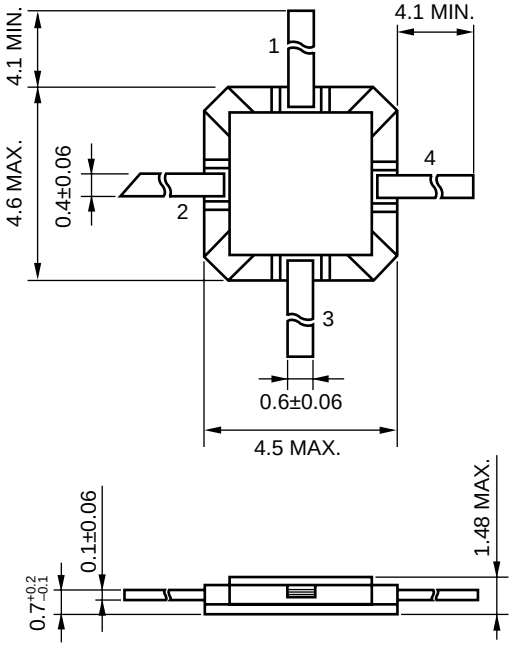
3-Pin Ultra Super Minimold



Flat-Lead 3-Pin Thin-Type Ultra Super Minimold



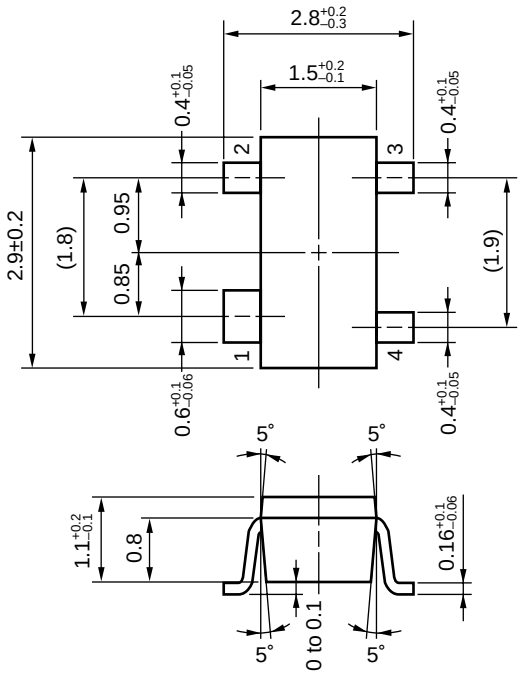
4-Pin Ceramic



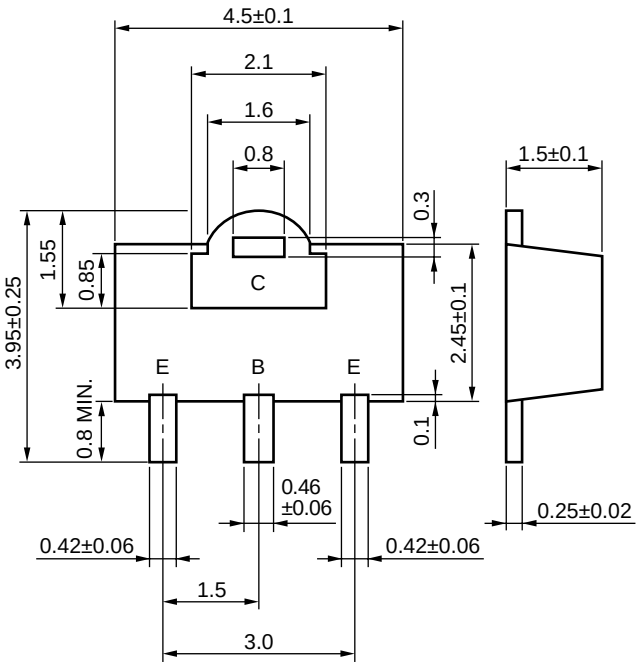
Package Dimensions (3/19)

(Unit : mm)

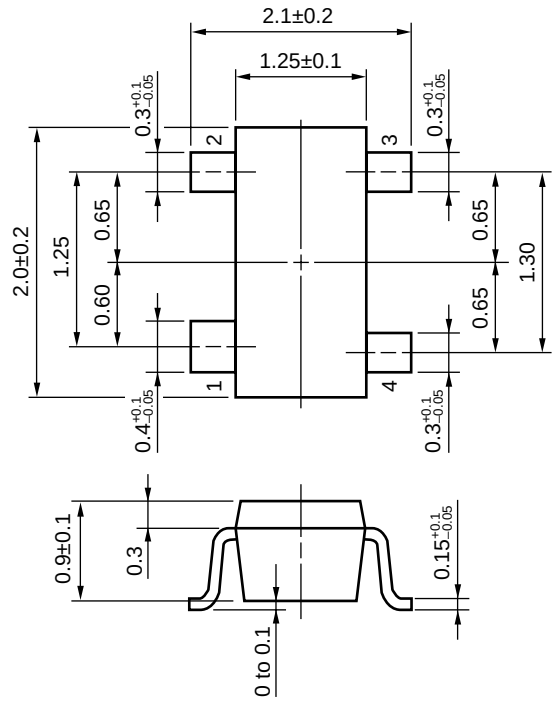
4-Pin Minimold (39)



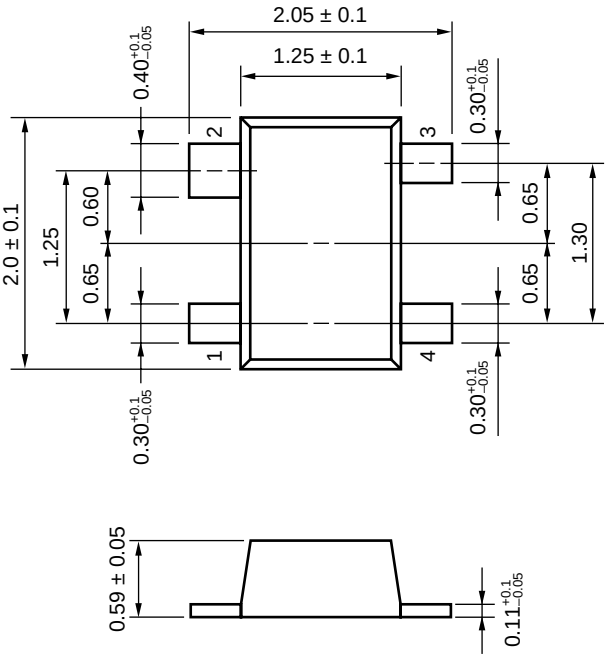
4-Pin Power Minimold



4-Pin Super Minimold (18)



Flat-Lead 4-Pin Thin-Type Super Minimold (M04)



Package Dimensions (4/19)

(Unit : mm)

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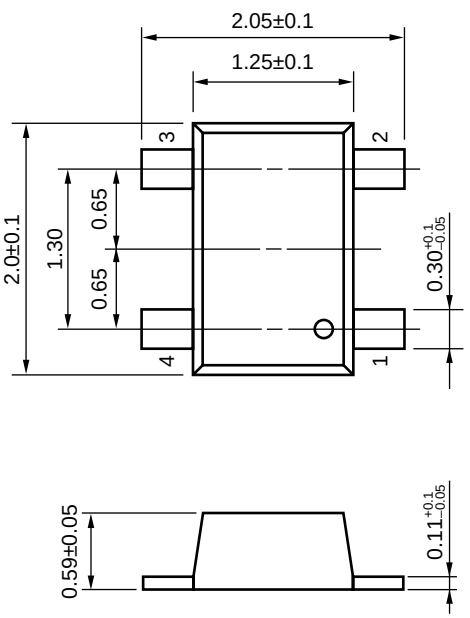
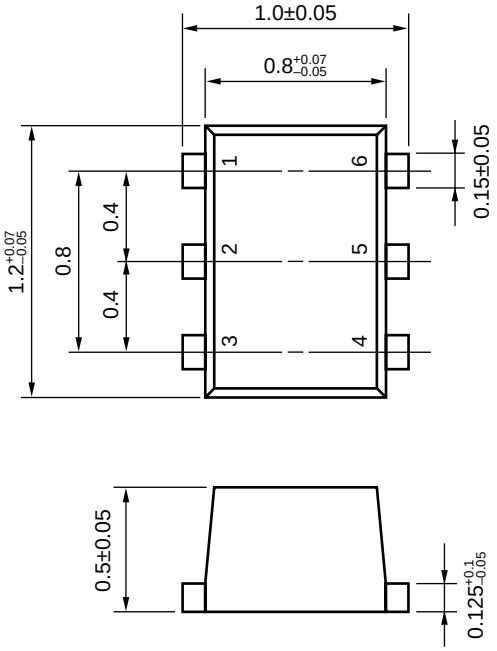
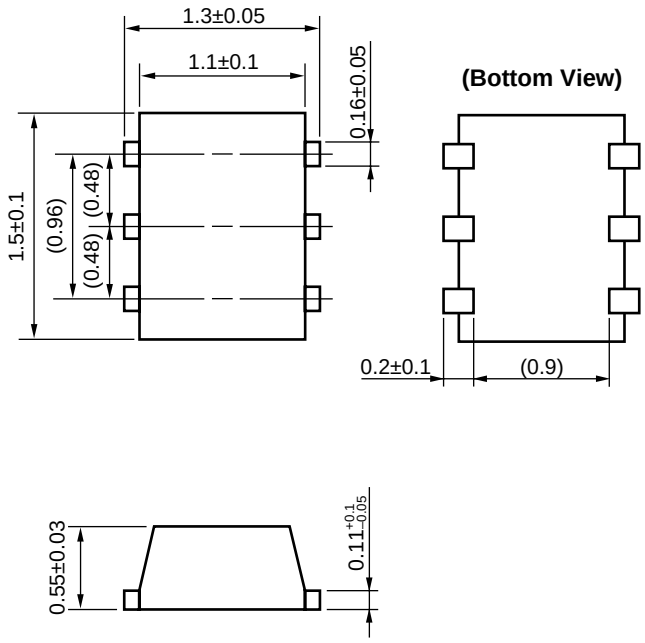
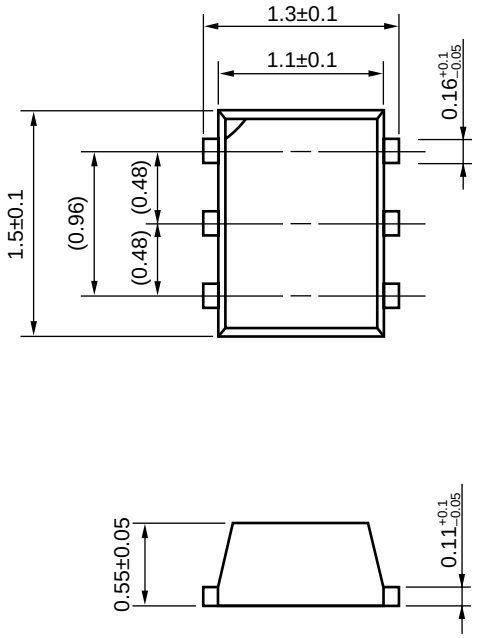
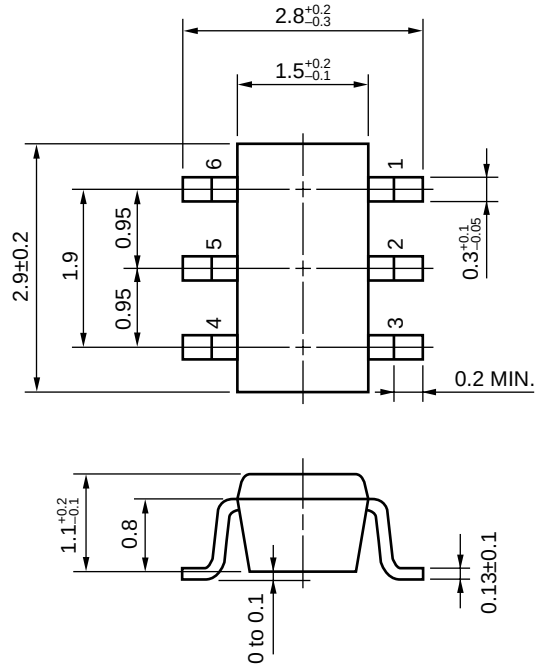
Flat-Lead 4-Pin Thin-Type Super Minimold (M05)	6-Pin Lead-Less Minimold (1208 PKG)
	
6-Pin Lead-Less Minimold (1511 PKG) for Silicon MMIC	6-Pin Lead-Less Minimold (1511 PKG) for GaAs MMIC
	

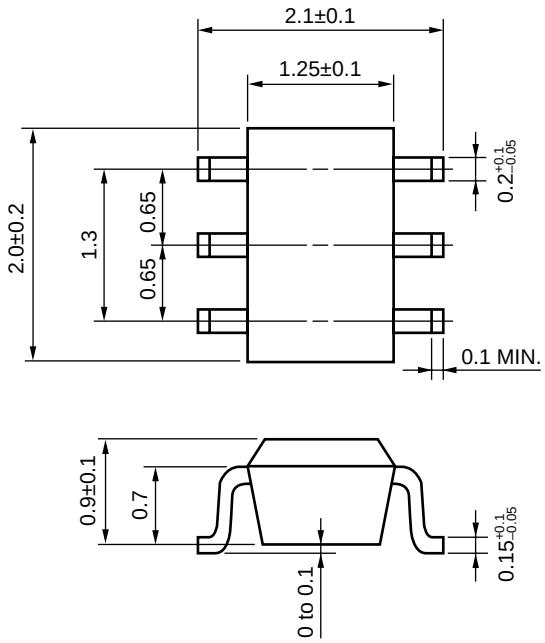
Package Dimensions (5/19)

(Unit : mm)

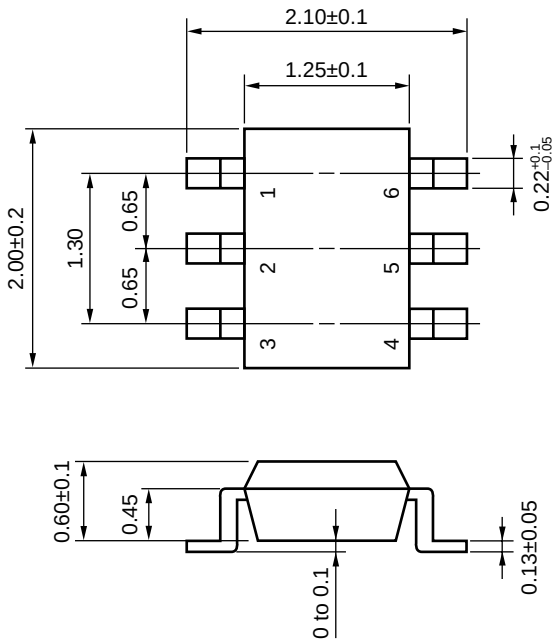
6-Pin Minimold



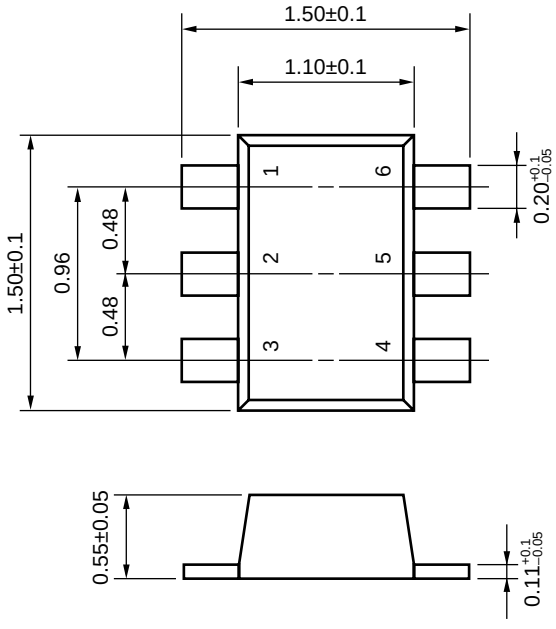
6-Pin Super Minimold (M01)



6-Pin Thin-Type Super Minimold

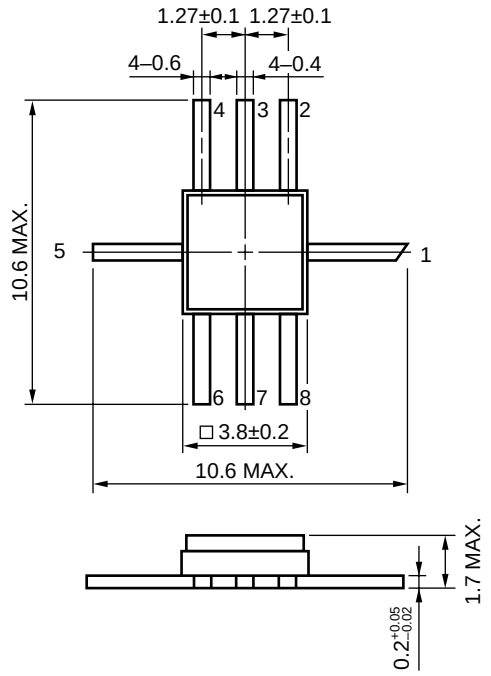


Flat-Lead 6-Pin Thin-Type Ultra Super Minimold



Package Dimensions (6/19)

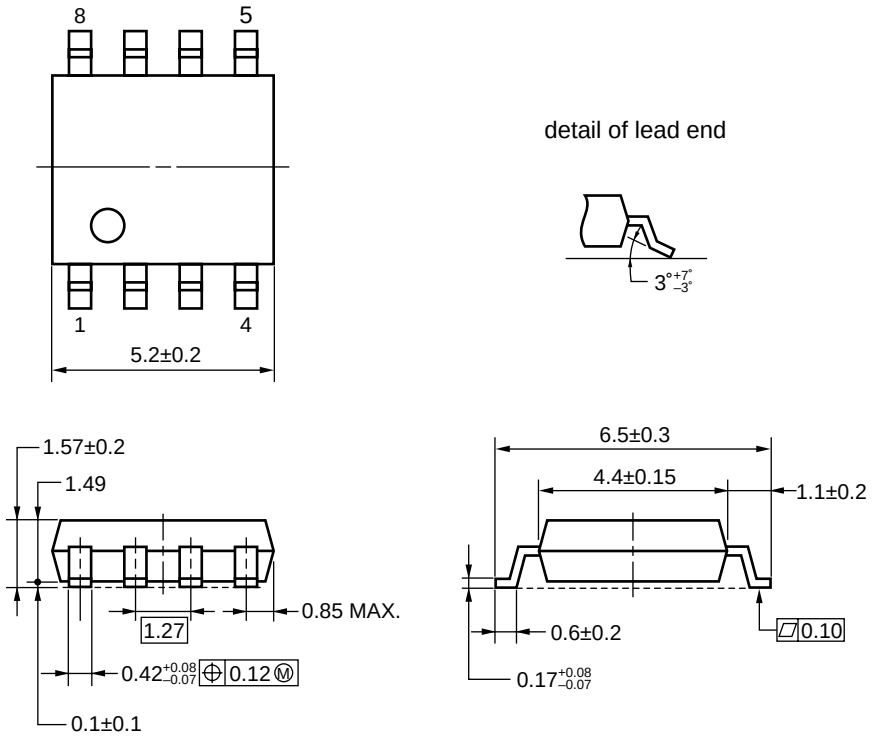
(Unit : mm)

8-Pin Ceramic (T-31)	
	

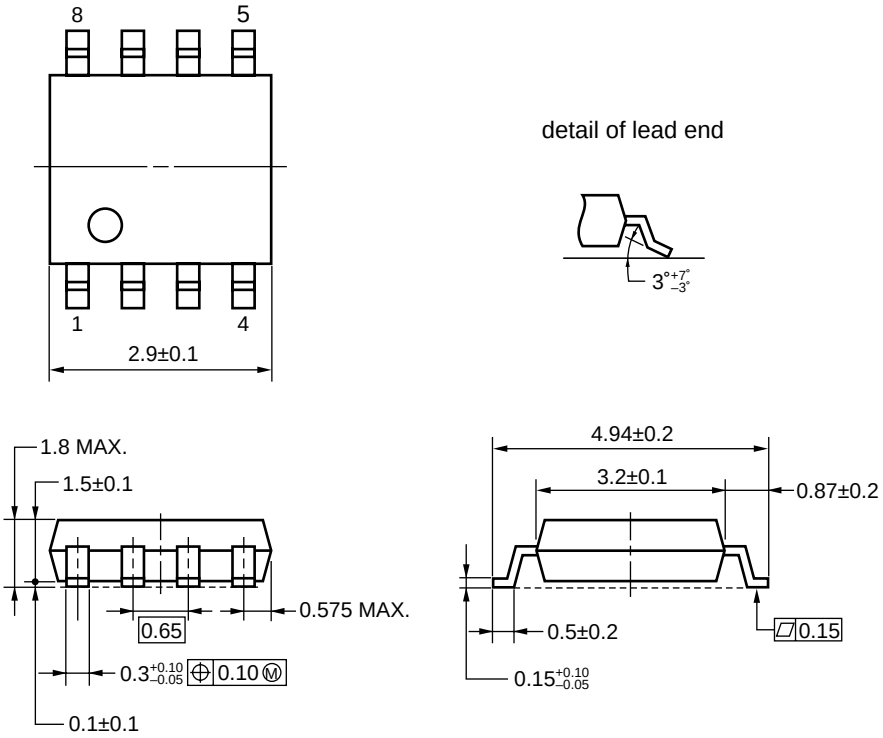
Package Dimensions (7/19)

(Unit : mm)

8-Pin Plastic SOP (5.72 mm (225))



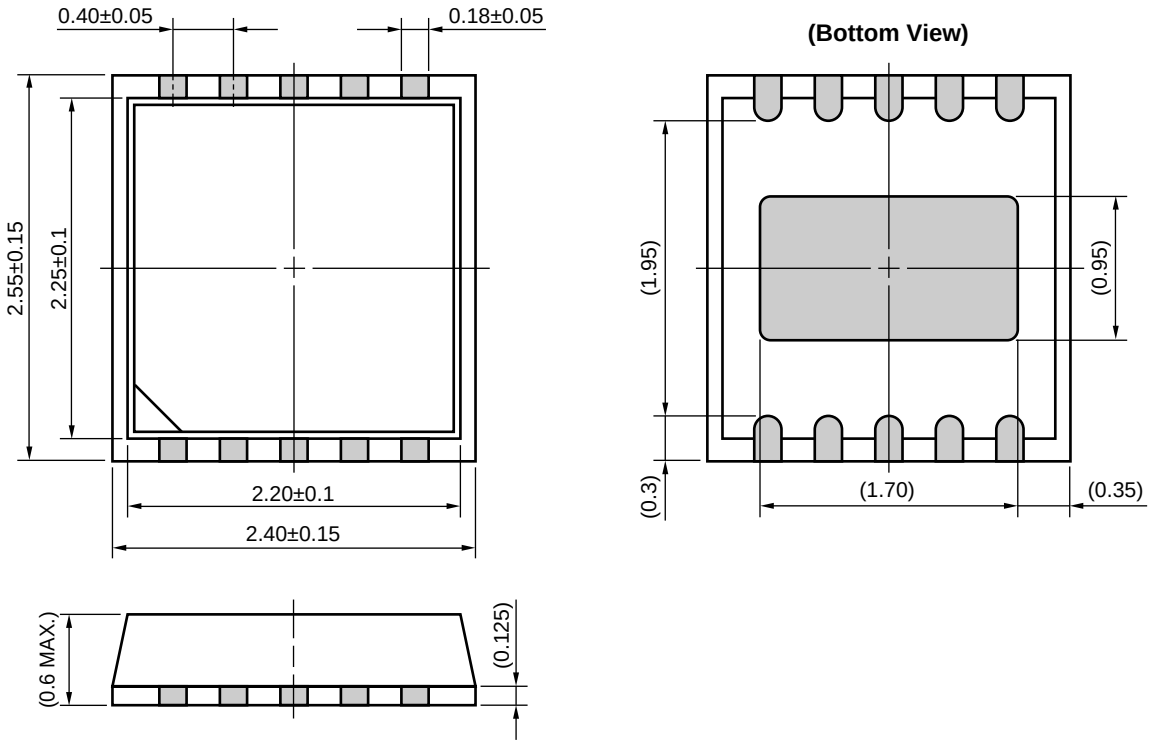
8-Pin Plastic SSOP (4.45 mm (175))



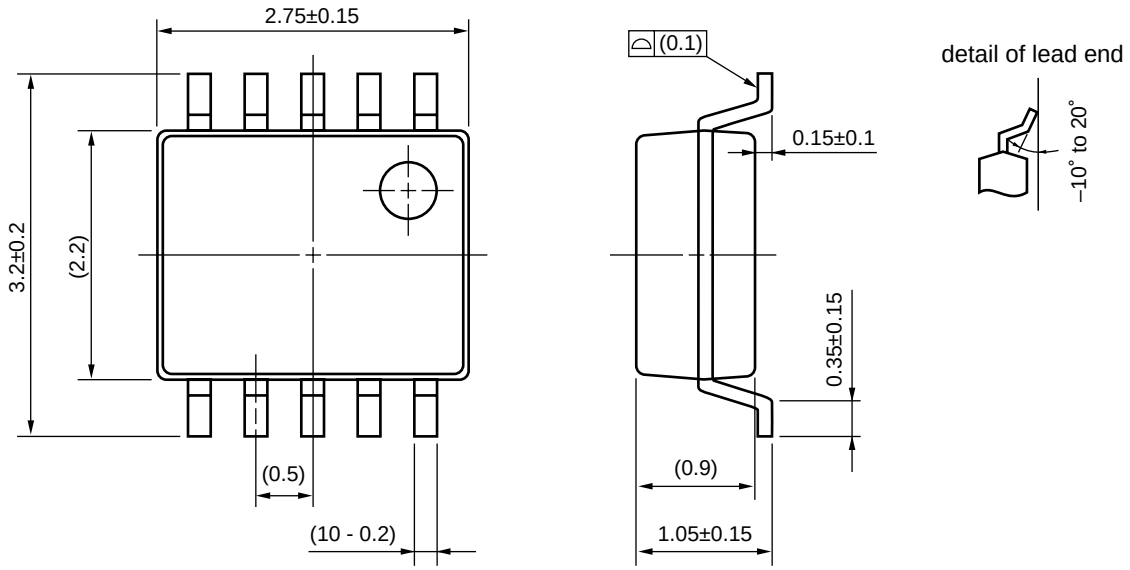
Package Dimensions (8/19)

(Unit : mm)

10-Pin Plastic TSON



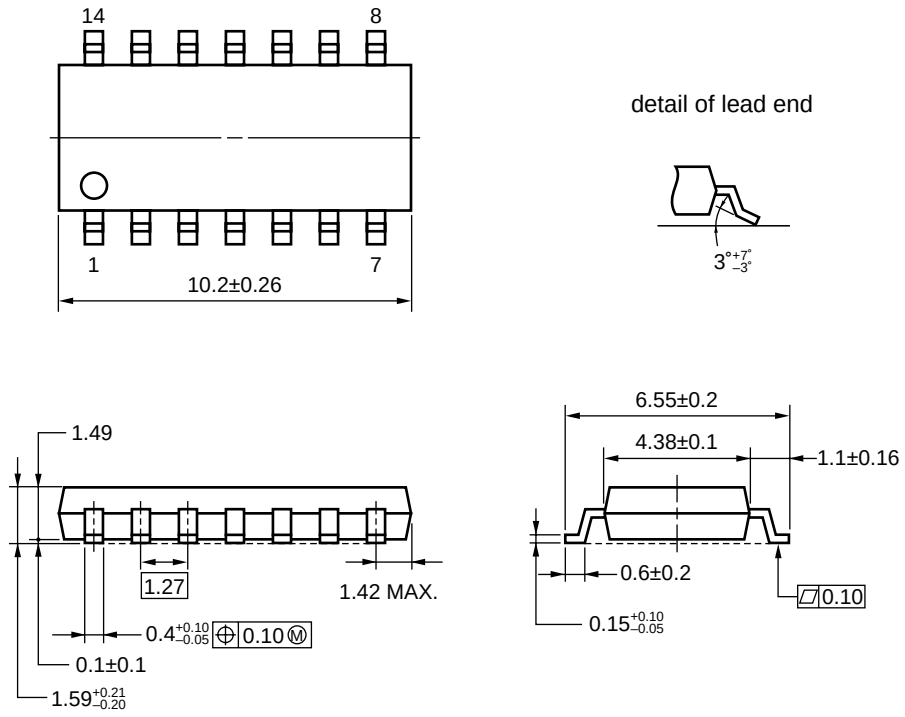
10-Pin Plastic TSSOP



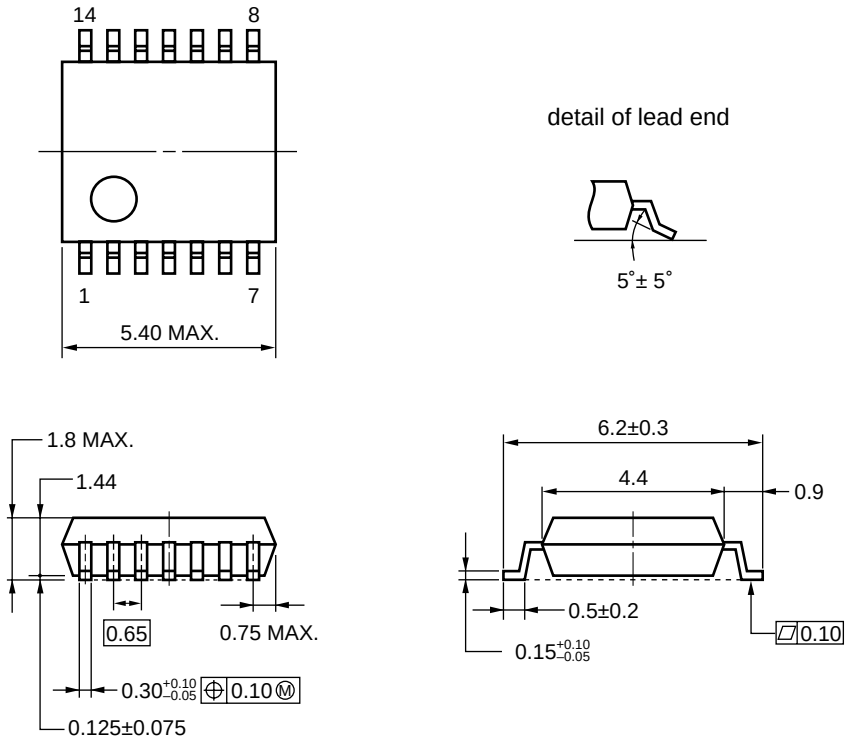
Package Dimensions (9/19)

(Unit : mm)

14-Pin Plastic SOP (5.72 mm (225))



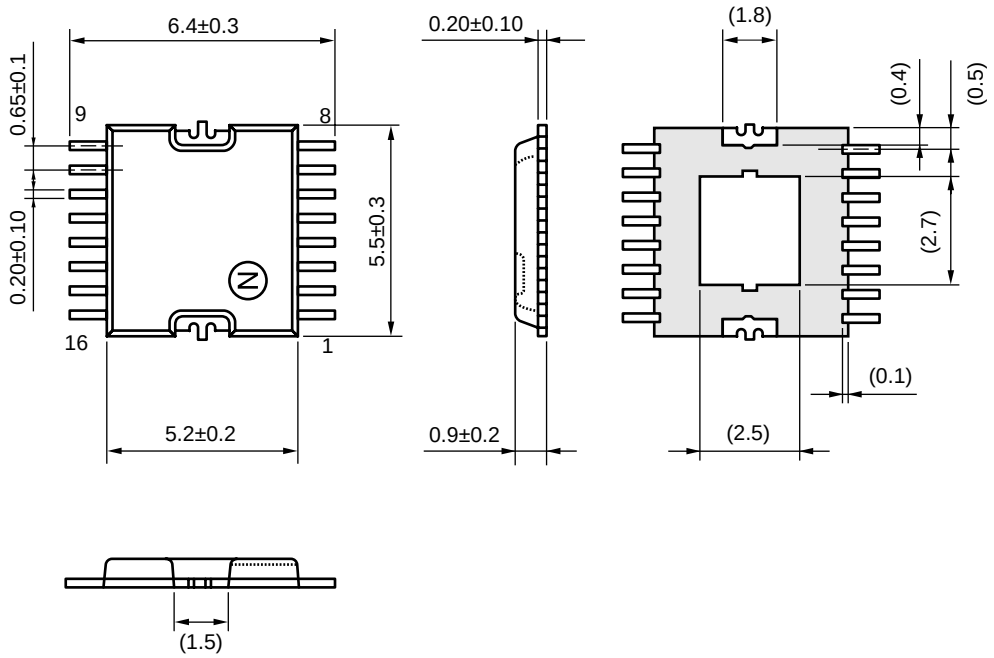
14-Pin Plastic SSOP (5.72 mm (225))



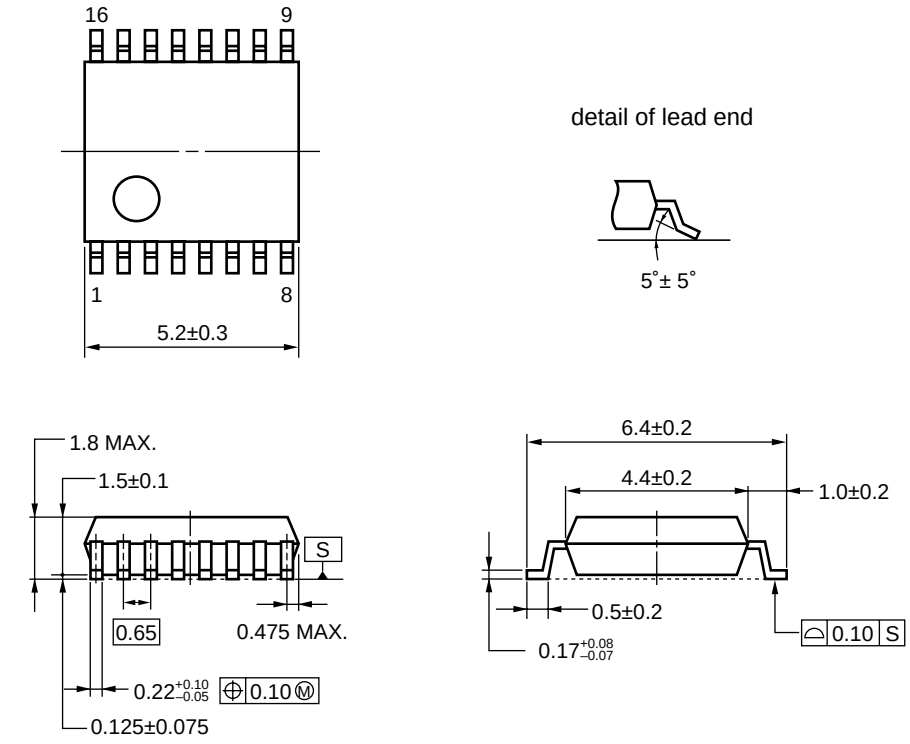
Package Dimensions (10/19)

(Unit : mm)

16-Pin Plastic HTSSOP



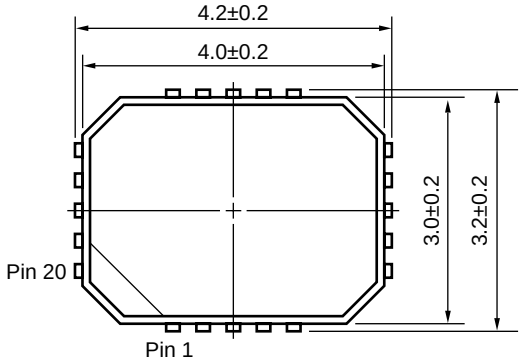
16-Pin Plastic SSOP (5.72 mm (225))

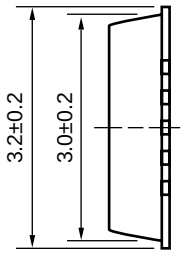


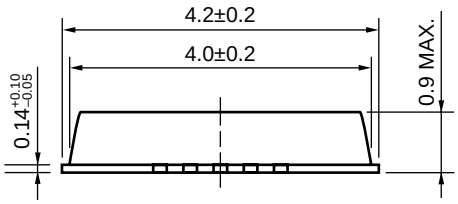
Package Dimensions (11/19)

(Unit : mm)

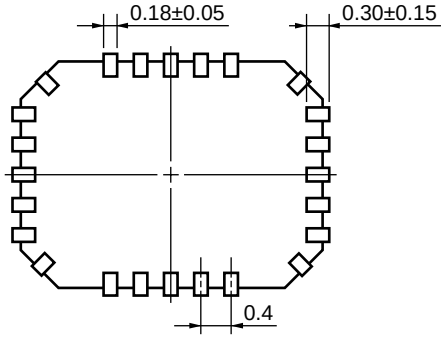
20-Pin Plastic QFN





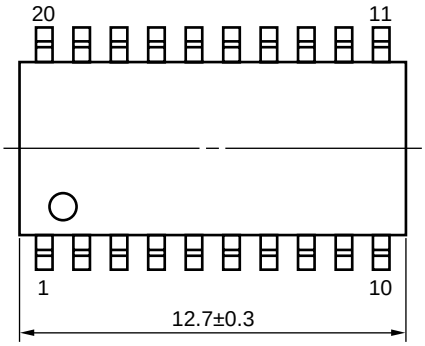


(Bottom View)

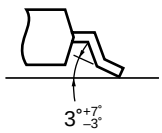


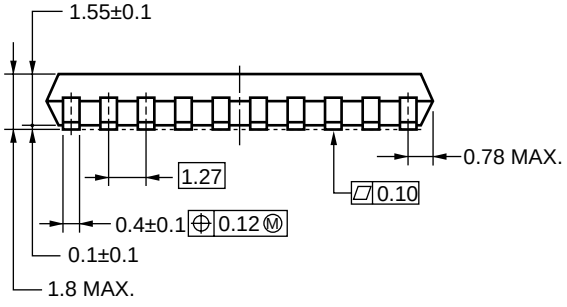
Caution The island pins located on the corners are needed to fabricate products in our plant, but do not serve any other function.
Consequently the island pins should not be soldered and should remain non-connection pins.

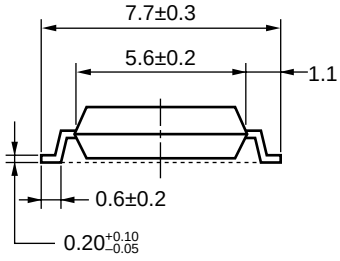
20-Pin Plastic SOP (7.62 mm (300))



detail of lead end



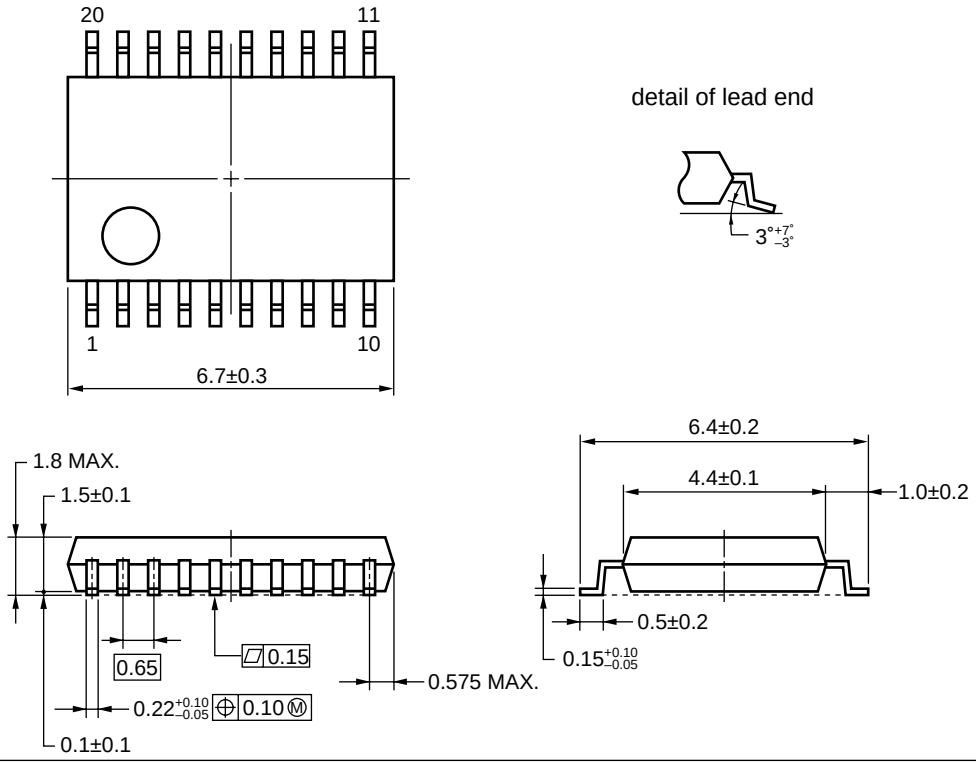




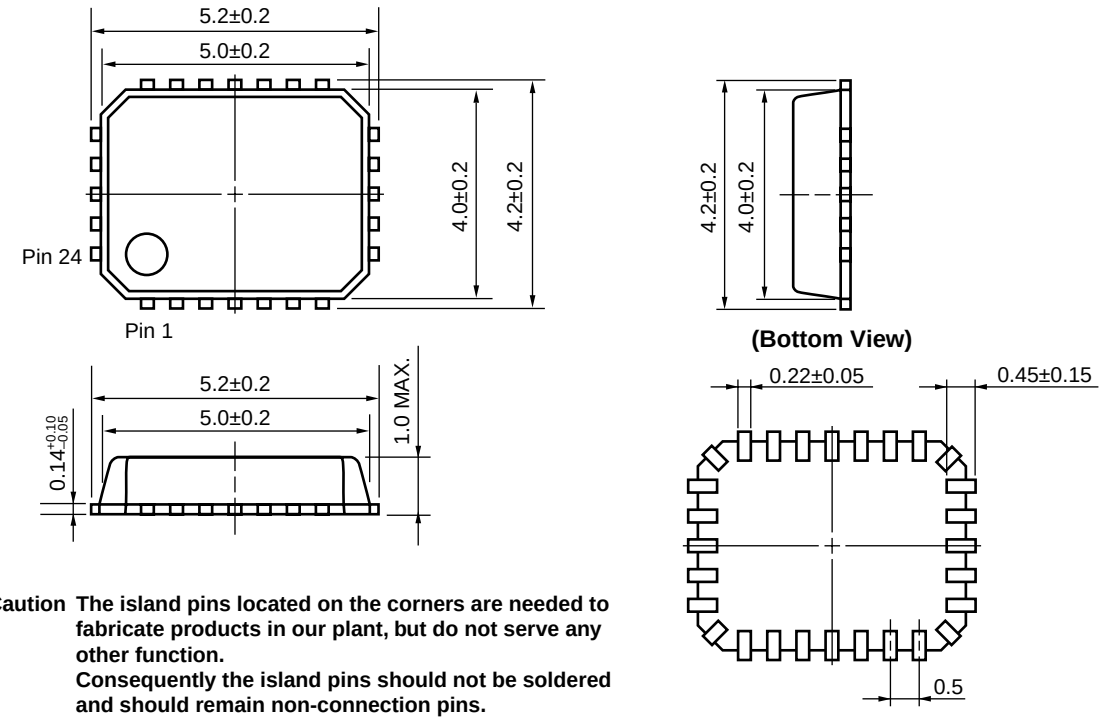
Package Dimensions (12/19)

(Unit : mm)

20-Pin Plastic SSOP (5.72 mm (225))



24-Pin Plastic QFN

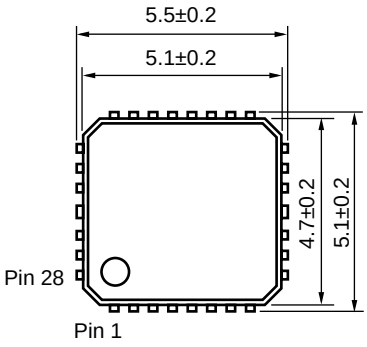


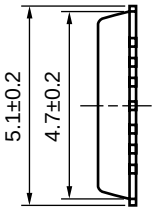
Caution The island pins located on the corners are needed to fabricate products in our plant, but do not serve any other function.
Consequently the island pins should not be soldered and should remain non-connection pins.

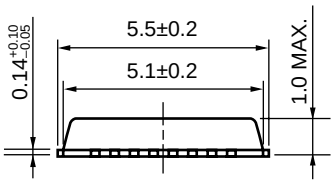
Package Dimensions (13/19)

(Unit : mm)

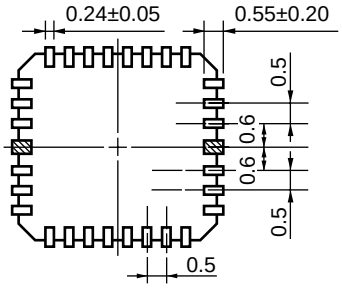
28-Pin Plastic QFN





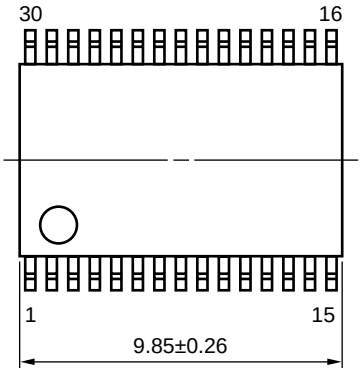


(Bottom View)

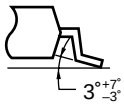


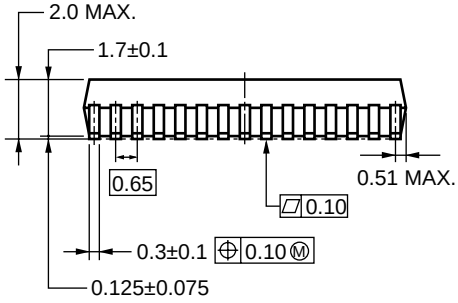
Caution The extra-wide pins (shaded portion) located between pins 11 and 12 and pins 25 and 26 in this package are needed to fabricate products in our plant, but do not serve any other function. Consequently the pins should not be soldered and should remain non-connection pins.

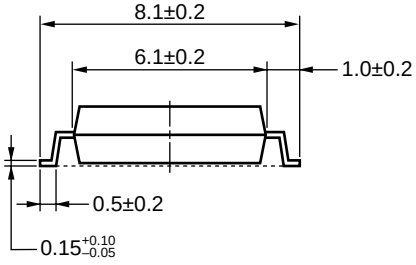
30-Pin Plastic SSOP (7.62 mm (300))



detail of lead end



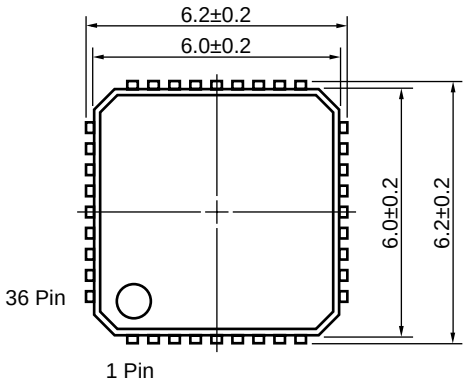


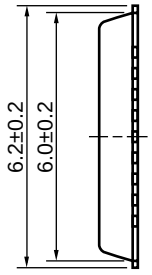


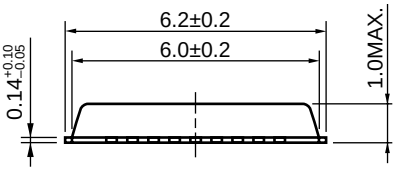
Package Dimensions (14/19)

(Unit : mm)

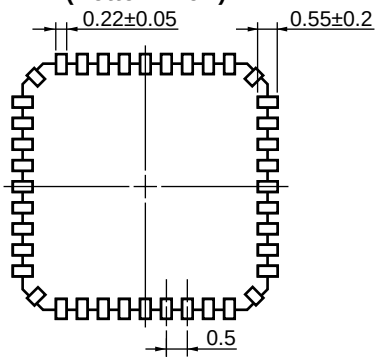
36-Pin Plastic QFN





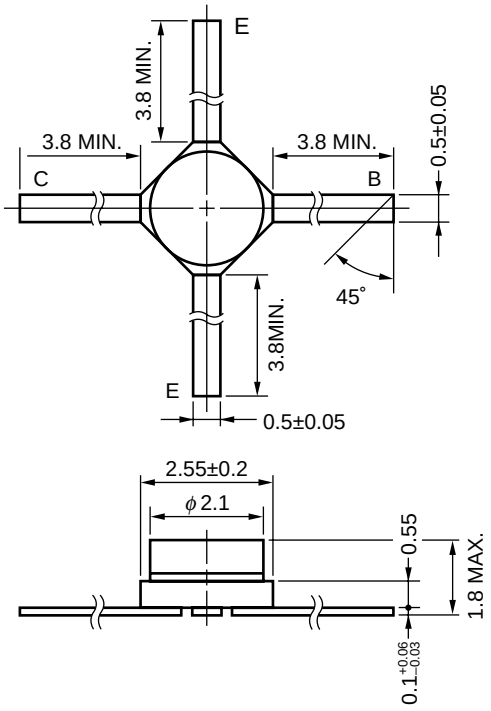


(Bottom View)

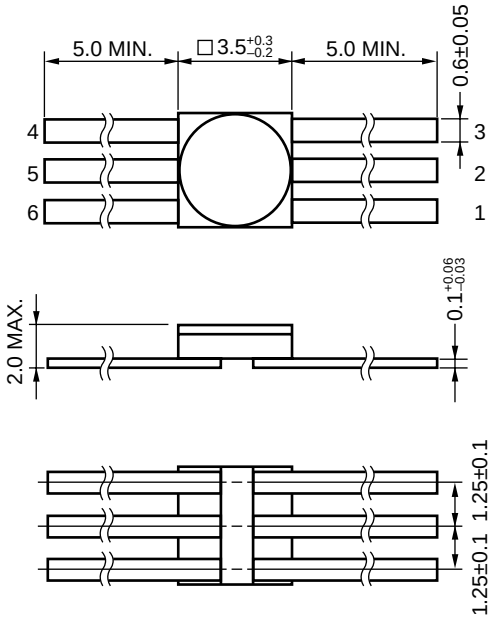


Caution The island pins located on the corners are needed to fabricate products in our plant, but do not serve any other function.
Consequently the island pins should not be soldered and should remain non-connection pins.

μ-X



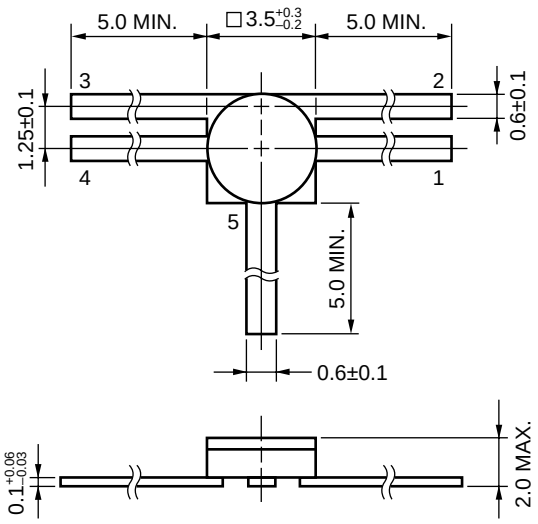
40 (Ceramic)



Package Dimensions (15/19)

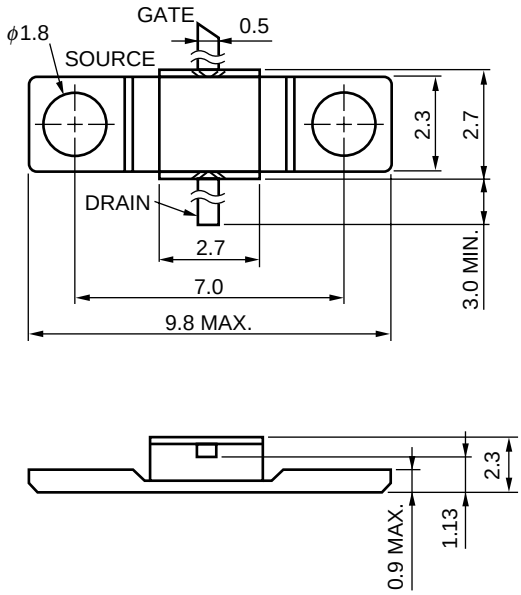
(Unit : mm)

41 (Ceramic)

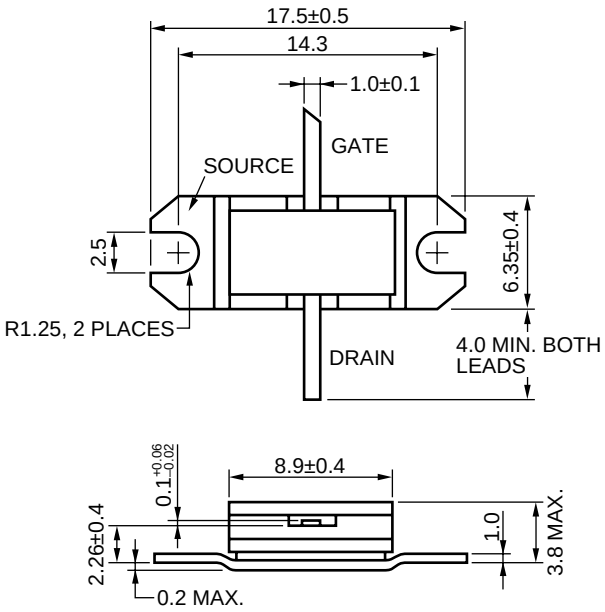


(#492C)

75



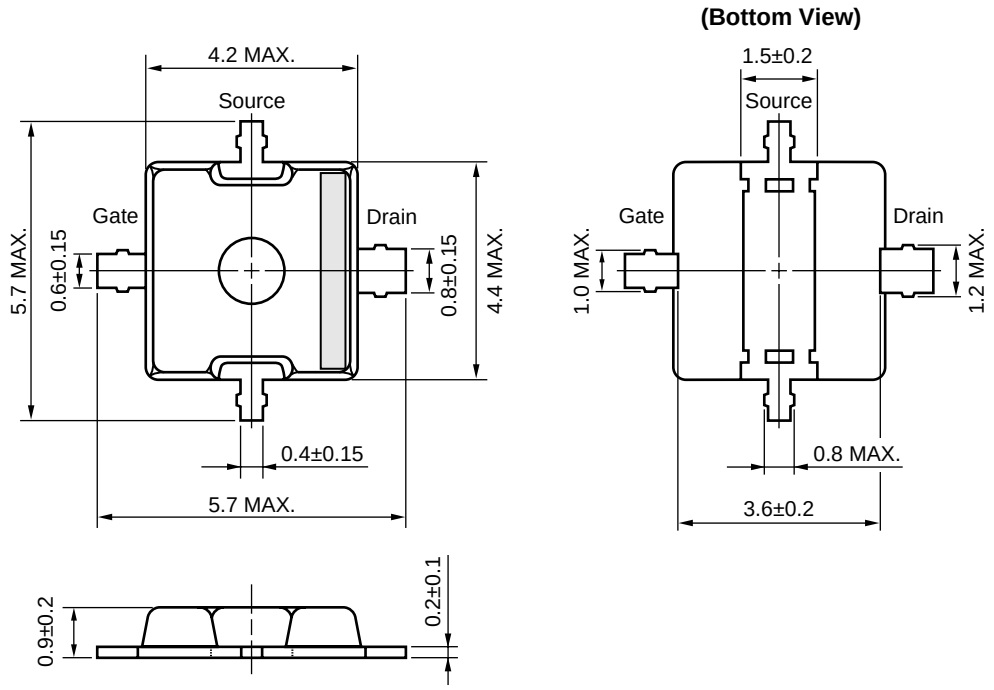
77



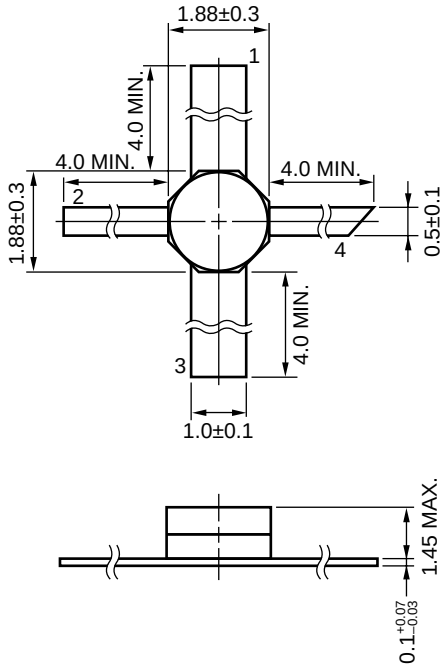
Package Dimensions (16/19)

(Unit : mm)

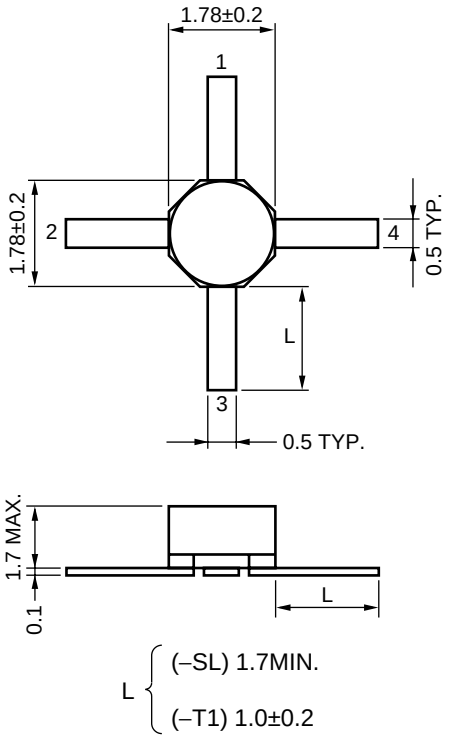
79A



83A, 83B



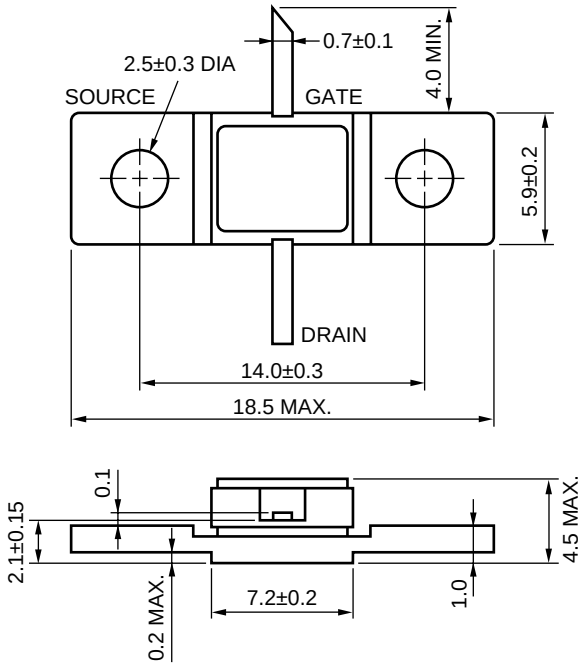
84, 84A, 84C



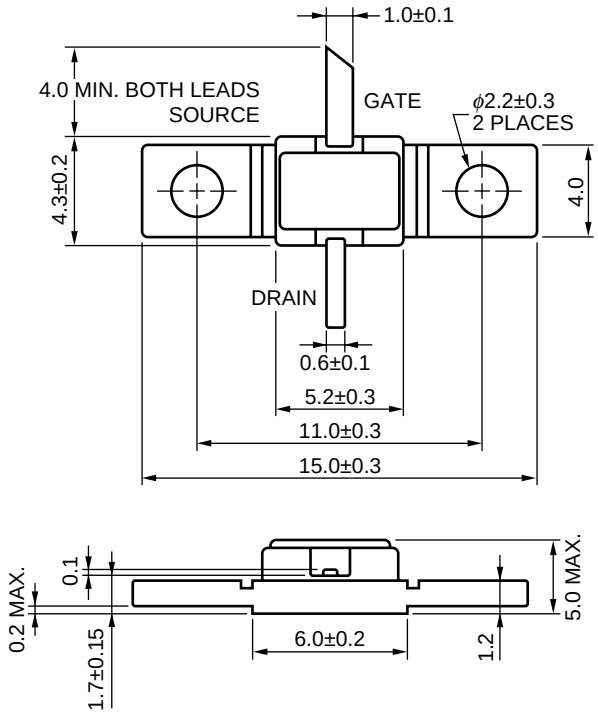
Package Dimensions (17/19)

(Unit : mm)

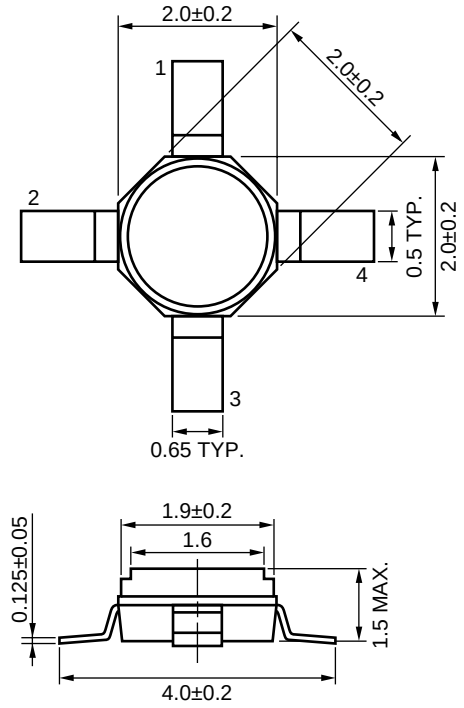
95



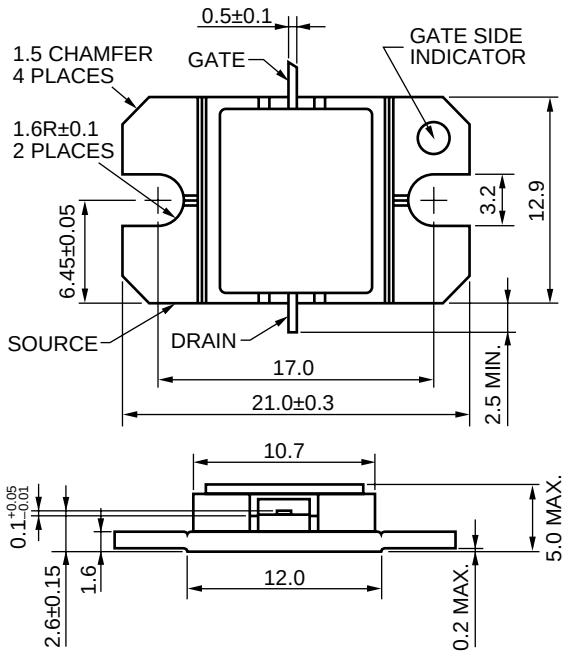
96/99



S01



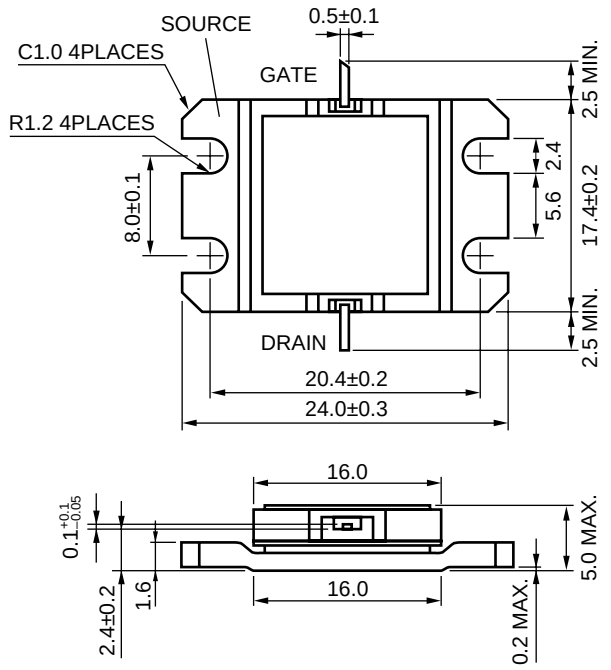
T-61



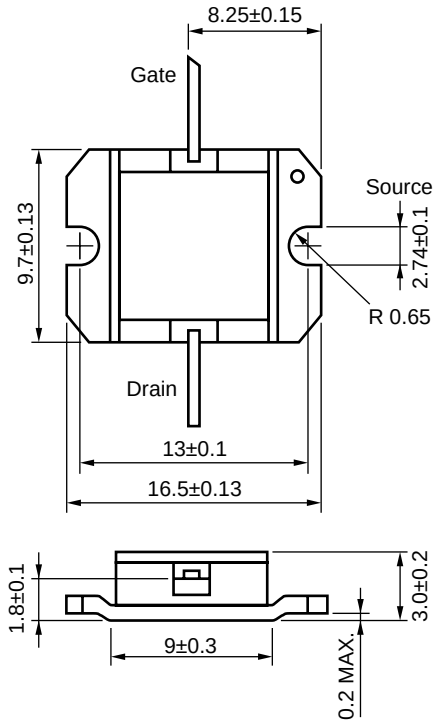
Package Dimensions (18/19)

(Unit : mm)

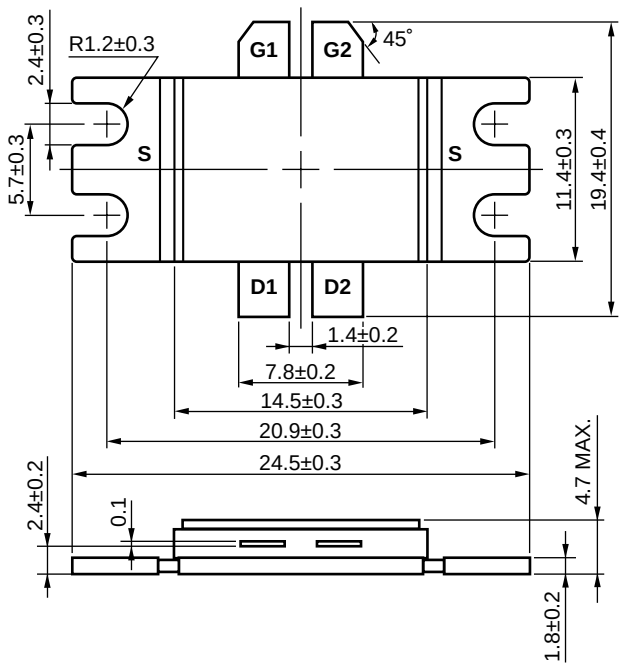
T-65



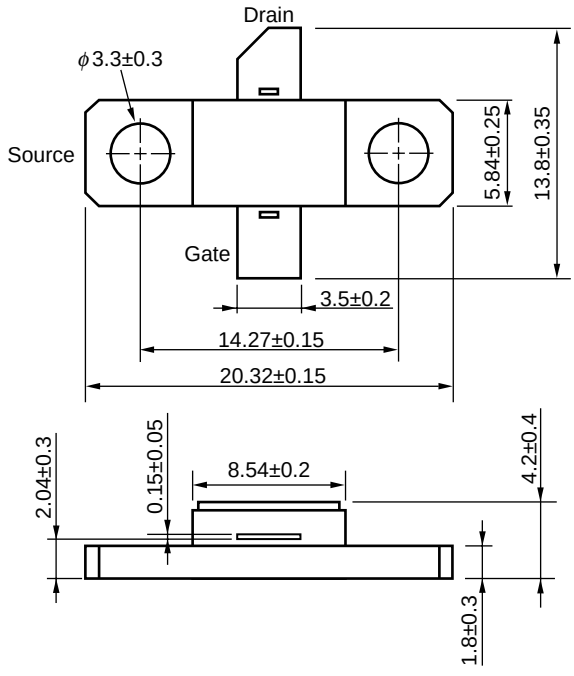
T-78



★ T-86



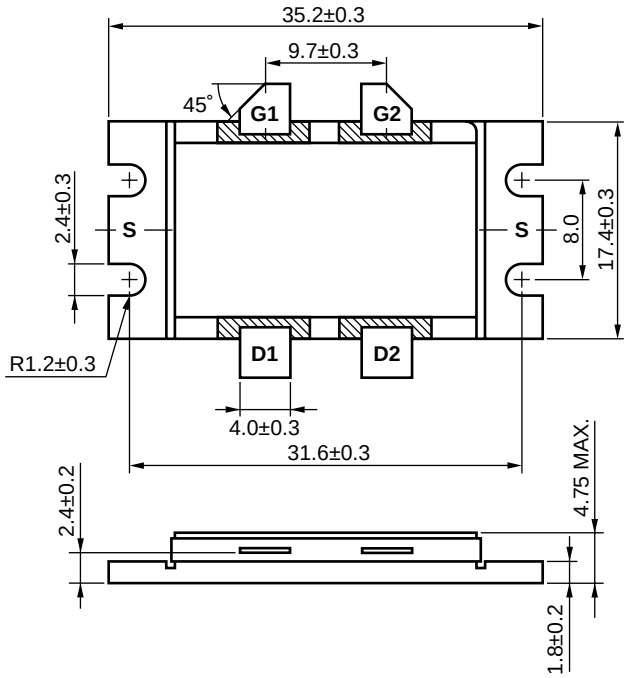
T-91M



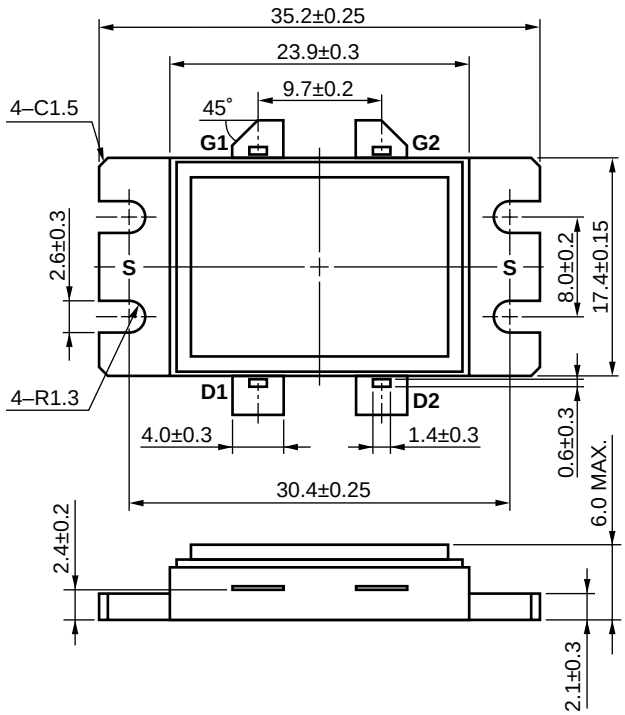
Package Dimensions (19/19)

(Unit : mm)

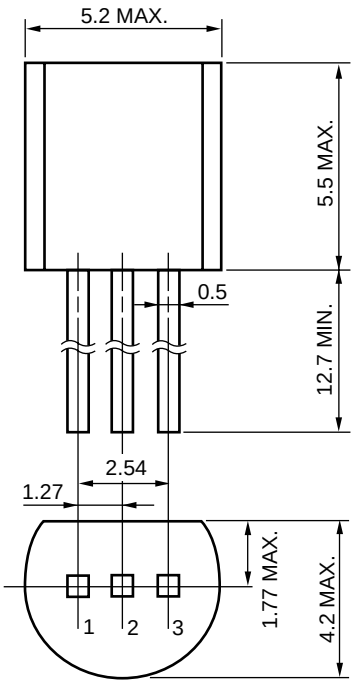
T-92



T-92M

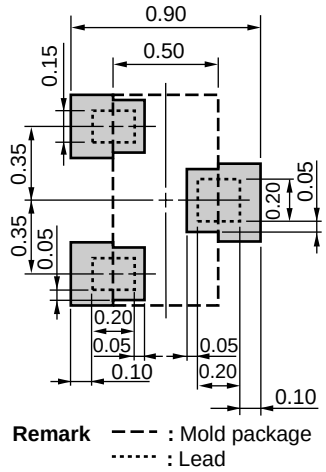
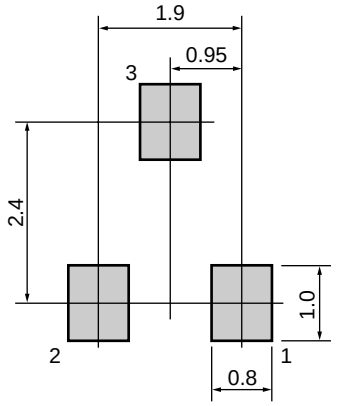
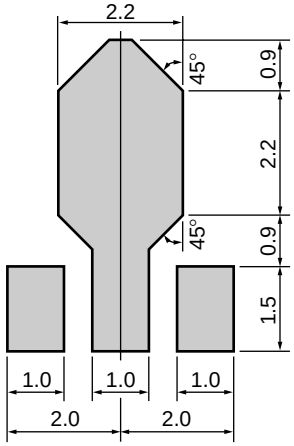
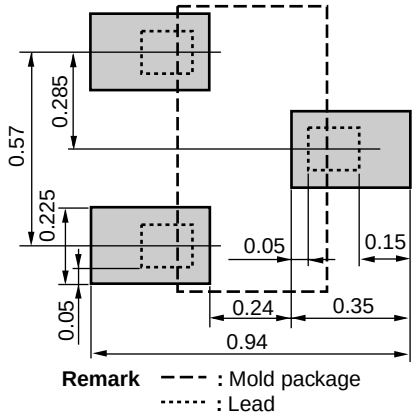
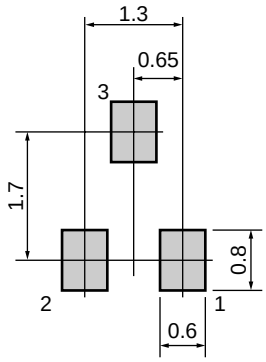
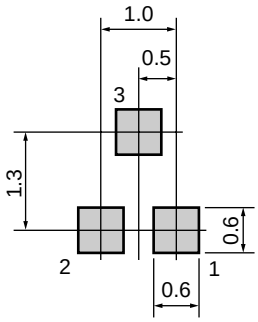
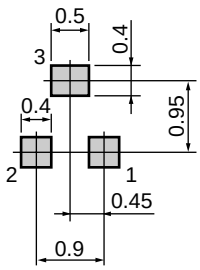
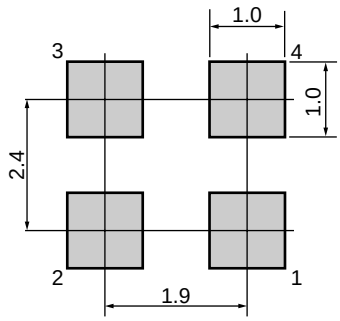
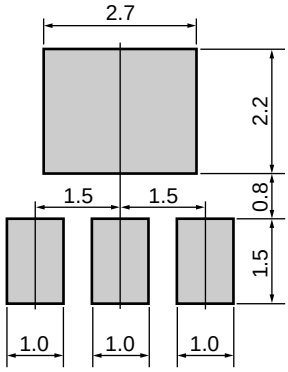


TO-92



Mounting Pad Layout (1/3)

(Unit : mm)

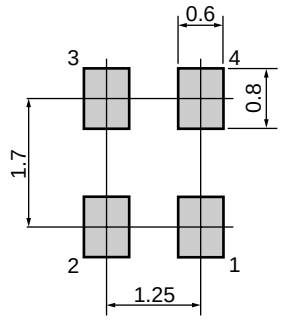
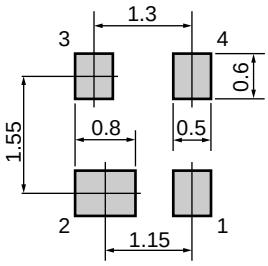
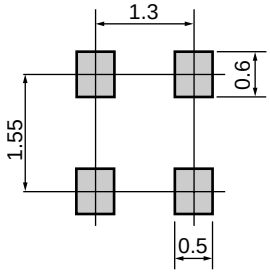
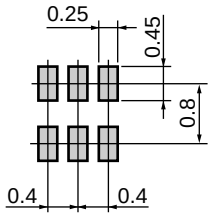
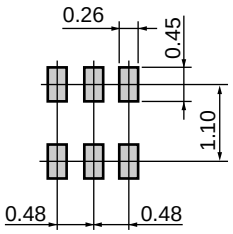
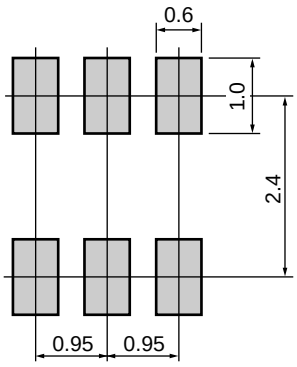
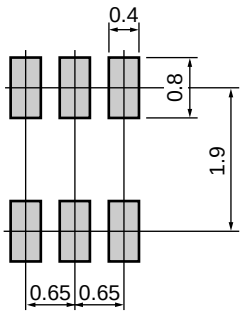
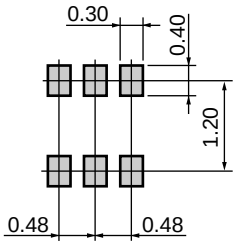
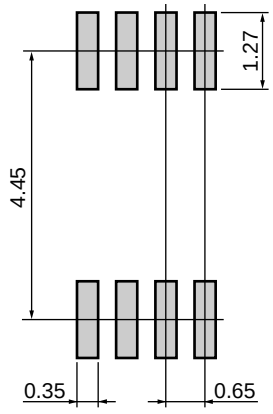
3-Pin Lead-Less Minimold	3-Pin Minimold	3-Pin Power Minimold
		
★ 3-Pin Super Lead-Less Minimold	3-Pin Super Minimold	3-Pin Ultra Super Minimold
		
Flat-Lead 3-Pin Thin-Type Ultra Super Minimold	4-Pin Minimold (39)	4-Pin Power Minimold
		

Remark The mounting pad layouts in this document are for reference only.

Mounting Pad Layout (2/3)

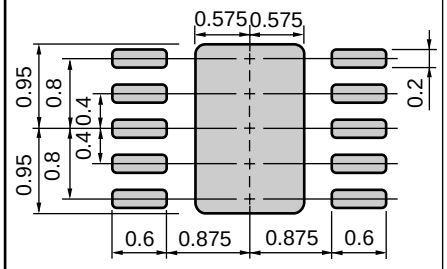
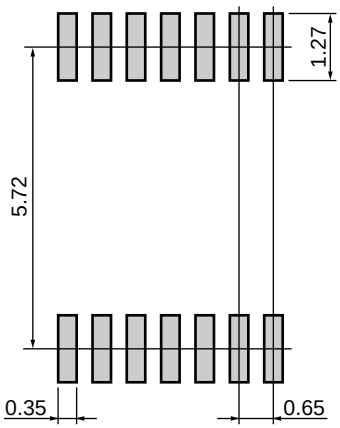
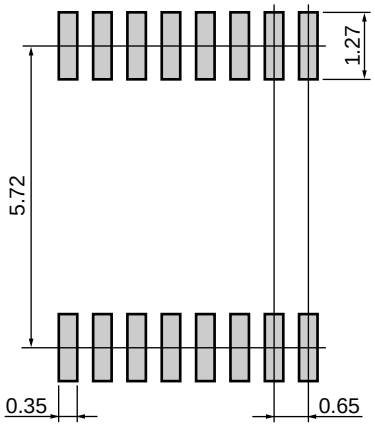
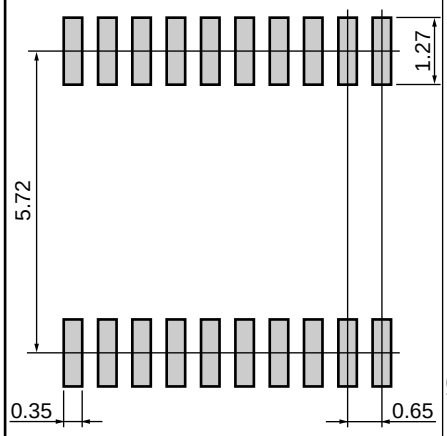
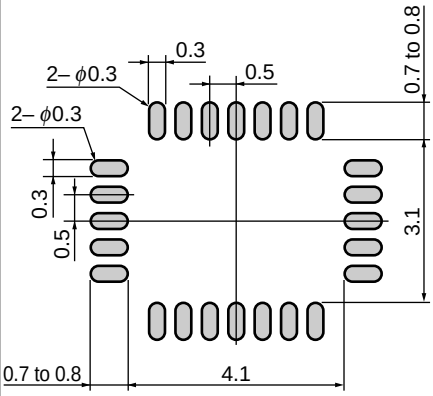
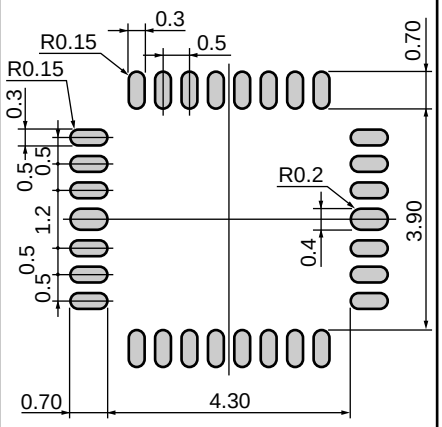
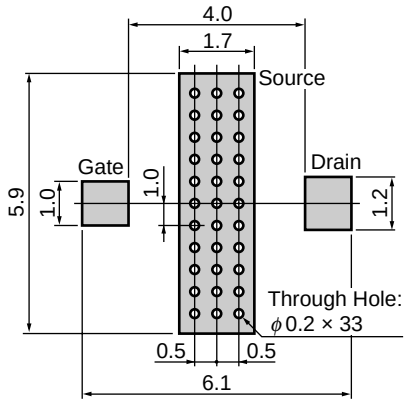
(Unit : mm)

★

4-Pin Super Minimold (18)	Flat-Lead 4-Pin Thin-Type Super Minimold (M04)	Flat-Lead 4-Pin Thin-Type Super Minimold (M05)
		
6-Pin Lead-Less Minimold (1208 PKG)	**6-Pin Lead-Less Minimold (1511 PKG) for Silicon MMIC/GaAs MMIC**	**6-Pin Minimold**
		
6-Pin Super Minimold (M01)	**Flat-Lead 6-Pin Thin-Type Ultra Super Minimold**	**8-Pin Plastic SSOP (4.45 mm (175))**
		

Mounting Pad Layout (3/3)

(Unit : mm)

10-Pin Plastic TSON	14-Pin Plastic SSOP (5.72 mm (225))	16-Pin Plastic SSOP (5.72 mm (225))
		
20-Pin Plastic SSOP (5.72 mm (225))	**24-Pin Plastic QFN**	**28-Pin Plastic QFN**
		
79A		
 Stop up the hole with a rosin or something to avoid solder flow.		

▶**Business issue**

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▶**Technical issue**

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