NEC

Information

EV Socket Package Drawings

EV-9200 Series
EV-9500 Series
Third Party

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- Network requirements

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J01.2

INTRODUCTION

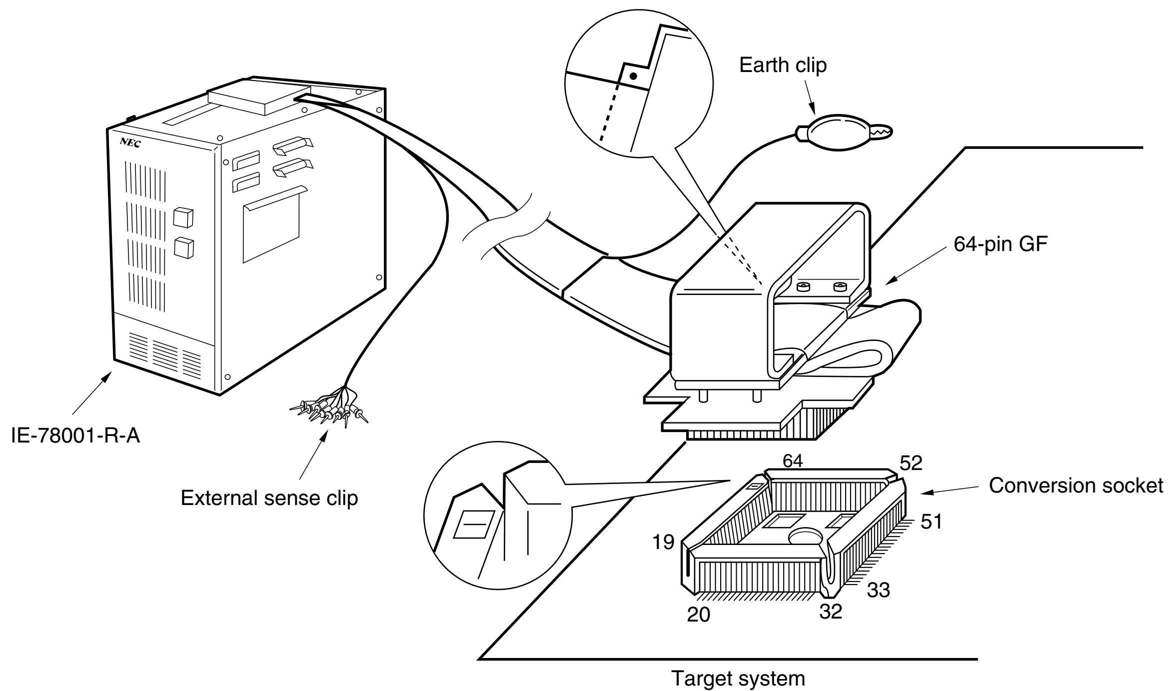
EV sockets (EV-9200 Series, EV-9500 Series, and third-party sockets) are sockets or adapters that facilitate the connection of emulation probes to target systems. This document describes the dimensions and wiring of EV sockets, as well as the recommended mount pad dimensions on the target system side.

For the EV socket usage method, refer to the user's manual of the relevant in-circuit emulator or device.

When purchasing an EV socket, be careful to select a socket suitable for the intended purpose by checking the user's manual of the device or in-circuit emulator, or **Single-chip Microcontroller Development Tool Selection Guide (U11069E)** and **V800 Series™ Development Environment (U10782E)**.

The following section shows an example of the connection of an in-circuit emulator and a socket mounted on a target board (connection of IE-78001-R-A and EV-9200G-64).

64-Pin GF Emulation Probe Connection Diagram



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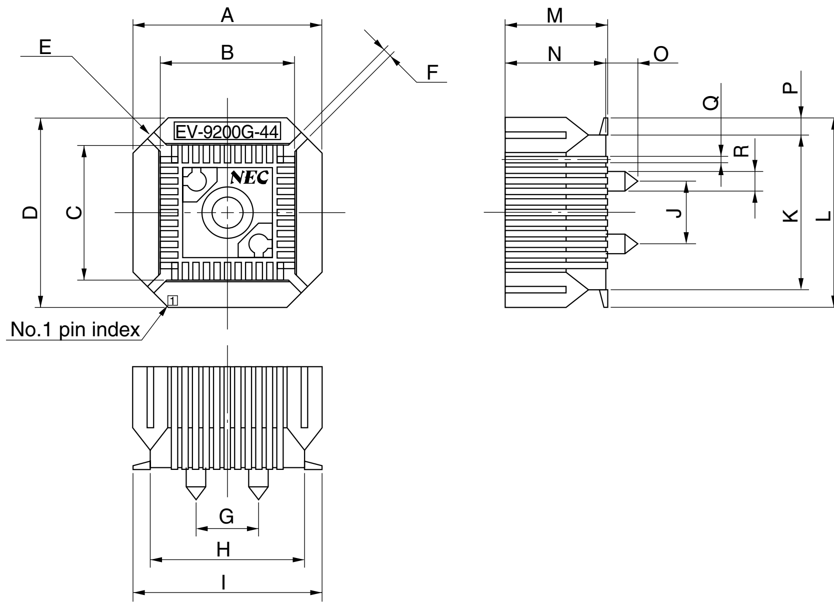
1.1 EV-9200G-44

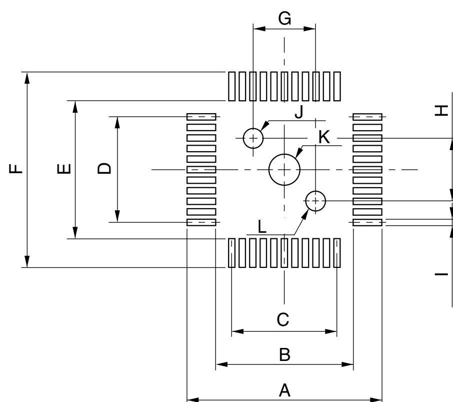
(1) EV-9200G-44 package drawing



EV-9200G-44-G0E

ITEM	MILLIMETERS	INCHES
A	15.0	0.591
B	10.3	0.406
C	10.3	0.406
D	15.0	0.591
E	4-C 3.0	4-C 0.118
F	0.8	0.031
G	5.0	0.197
H	12.0	0.472
I	14.7	0.579
J	5.0	0.197
K	12.0	0.472
L	14.7	0.579
M	8.0	0.315
N	7.8	0.307
O	2.0	0.079
P	1.35	0.053
Q	0.35±0.1	$0.014^{+0.004}_{-0.005}$
R	ϕ1.5	ϕ0.059

(2) EV-9200G-44 recommended board mounting pattern



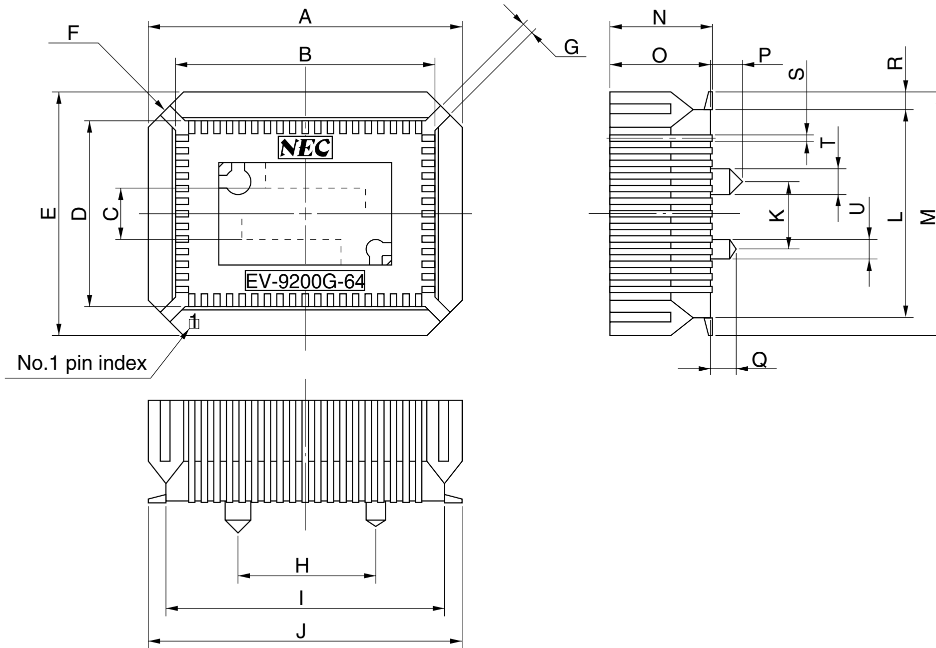
EV-9200G-44-P1E

ITEM	MILLIMETERS	INCHES
A	15.7	0.618
B	11.0	0.433
C	0.8±0.02 × 10=8.0±0.05	$0.031^{+0.002}_{-0.001} \times 0.394 = 0.315^{+0.002}_{-0.002}$
D	0.8±0.02 × 10=8.0±0.05	$0.031^{+0.002}_{-0.001} \times 0.394 = 0.315^{+0.002}_{-0.002}$
E	11.0	0.433
F	15.7	0.618
G	5.00±0.08	$0.197^{+0.003}_{-0.004}$
H	5.00±0.08	$0.197^{+0.003}_{-0.004}$
I	0.5±0.02	$0.02^{+0.001}_{-0.002}$
J	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$
K	ϕ2.2±0.1	$\phi 0.087^{+0.004}_{-0.005}$
L	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.2 EV-9200G-64

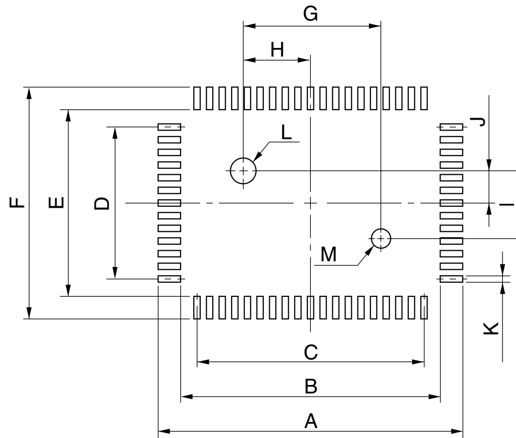
(1) EV-9200G-64 package drawing



EV-9200G-64-G0E

ITEM	MILLIMETERS	INCHES
A	25.0	0.984
B	20.30	0.799
C	4.0	0.157
D	14.45	0.569
E	19.0	0.748
F	4-C 2.8	4-C 0.11
G	0.8	0.031
H	11.0	0.433
I	22.0	0.866
J	24.7	0.972
K	5.0	0.197
L	16.2	0.638
M	18.9	0.744
N	8.0	0.315
O	7.8	0.307
P	2.5	0.098
Q	2.0	0.079
R	1.35	0.053
S	0.35±0.1	$0.014^{+0.004}_{-0.005}$
T	ϕ2.3	ϕ0.091
U	ϕ1.5	ϕ0.059

(2) EV-9200G-64 recommended board mounting pattern



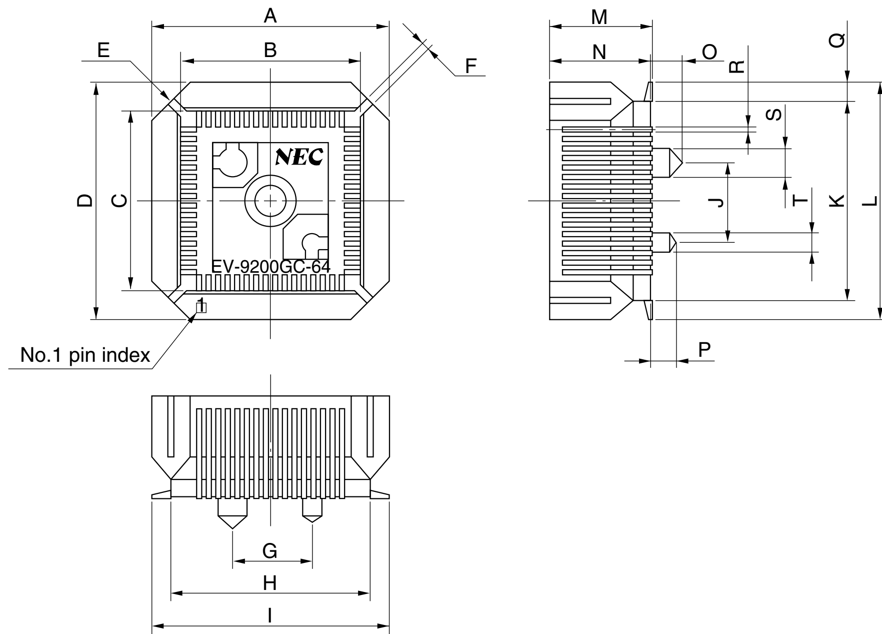
EV-9200G-64-P1E

ITEM	MILLIMETERS	INCHES
A	25.7	1.012
B	21.0	0.827
C	1.0±0.02 × 18=18.0±0.05	$0.039^{+0.002}_{-0.001} \times 0.709 = 0.709^{+0.002}_{-0.003}$
D	1.0±0.02 × 12=12.0±0.05	$0.039^{+0.002}_{-0.001} \times 0.472 = 0.472^{+0.003}_{-0.002}$
E	15.2	0.598
F	19.9	0.783
G	11.00±0.08	$0.433^{+0.004}_{-0.003}$
H	5.50±0.03	$0.217^{+0.001}_{-0.002}$
I	5.00±0.08	$0.197^{+0.003}_{-0.004}$
J	2.50±0.03	$0.098^{+0.002}_{-0.001}$
K	0.6±0.02	$0.024^{+0.001}_{-0.002}$
L	ϕ2.36±0.03	$\phi 0.093^{+0.001}_{-0.002}$
M	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.3 EV-9200GC-64

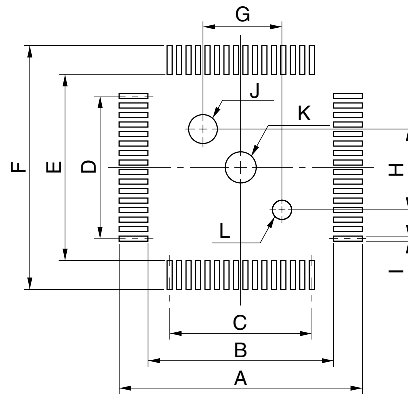
(1) EV-9200GC-64 package drawing



EV-9200GC-64-G0E

ITEM	MILLIMETERS	INCHES
A	18.8	0.74
B	14.1	0.555
C	14.1	0.555
D	18.8	0.74
E	4-C 3.0	4-C 0.118
F	0.8	0.031
G	6.0	0.236
H	15.8	0.622
I	18.5	0.728
J	6.0	0.236
K	15.8	0.622
L	18.5	0.728
M	8.0	0.315
N	7.8	0.307
O	2.5	0.098
P	2.0	0.079
Q	1.35	0.053
R	0.35±0.1	$0.014^{+0.004}_{-0.005}$
S	ϕ2.3	ϕ0.091
T	ϕ1.5	ϕ0.059

(2) EV-9200GC-64 recommended board mounting pattern



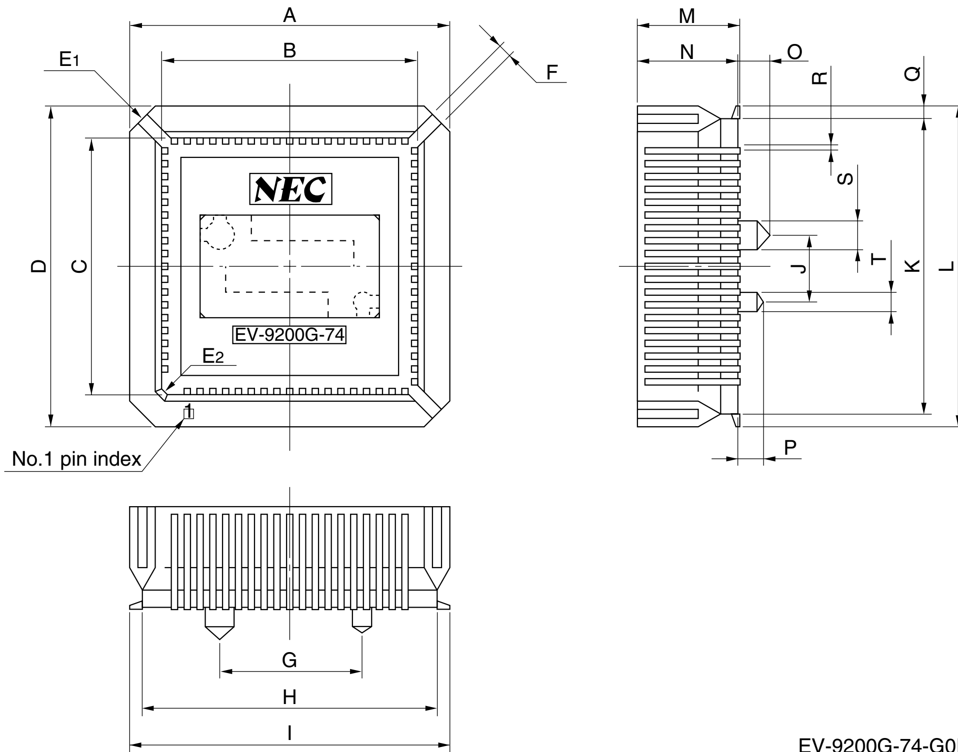
EV-9200GC-64-P1E

ITEM	MILLIMETERS	INCHES
A	19.5	0.768
B	14.8	0.583
C	0.8±0.02 × 15=12.0±0.05	$0.031^{+0.002}_{-0.001}$ × 0.591=$0.472^{+0.003}_{-0.002}$
D	0.8±0.02 × 15=12.0±0.05	$0.031^{+0.002}_{-0.001}$ × 0.591=$0.472^{+0.003}_{-0.002}$
E	14.8	0.583
F	19.5	0.768
G	6.00±0.08	$0.236^{+0.004}_{-0.003}$
H	6.00±0.08	$0.236^{+0.004}_{-0.003}$
I	0.5±0.02	$0.197^{+0.001}_{-0.002}$
J	ϕ2.36±0.03	$\phi 0.093^{+0.001}_{-0.002}$
K	ϕ2.2±0.1	$\phi 0.087^{+0.004}_{-0.005}$
L	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.4 EV-9200G-74

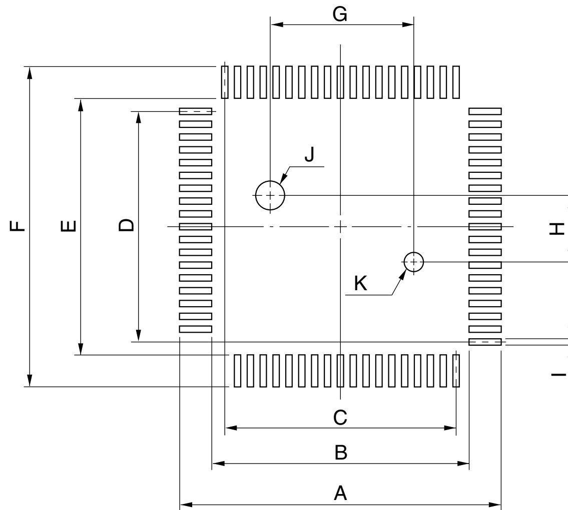
(1) EV-9200G-74 package drawing



EV-9200G-74-G0E

ITEM	MILLIMETERS	INCHES
A	25.0	0.984
B	20.35	0.801
C	20.35	0.801
D	25.0	0.984
E_1	4-C 2.8	4-C 0.11
E_2	C 1.5	C 0.059
F	1.0	0.039
G	11.0	0.433
H	22.0	0.866
I	24.7	0.972
J	5.0	0.197
K	22.0	0.866
L	24.7	0.972
M	8.0	0.315
N	7.8	0.307
O	2.5	0.098
P	2.0	0.079
Q	1.35	$0.053^{+0.004}_{-0.005}$
R	0.35±0.1	0.014
S	ϕ2.3	ϕ0.091
T	ϕ1.5	ϕ0.059

(2) EV-9200G-74 recommended board mounting pattern



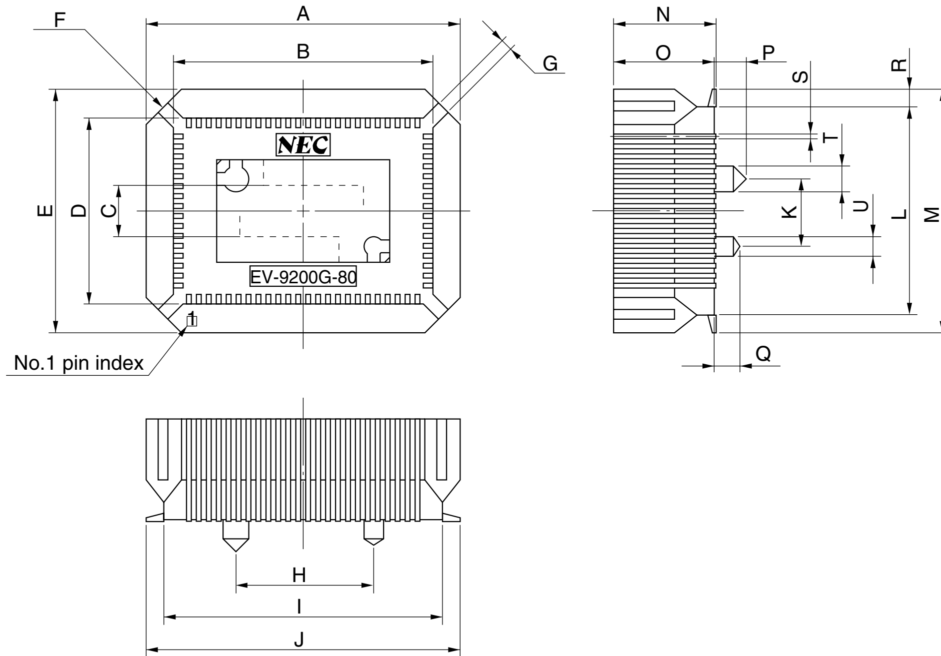
EV-9200G-74-P1E

ITEM	MILLIMETERS	INCHES
A	25.7	1.012
B	21.0	0.827
C	1.0±0.02 × 18=18.0±0.05	$0.039^{+0.002}_{-0.001} \times 0.709 = 0.709^{+0.002}_{-0.003}$
D	1.0±0.02 × 18=18.0±0.05	$0.039^{+0.002}_{-0.001} \times 0.709 = 0.709^{+0.002}_{-0.003}$
E	21.0	0.827
F	25.7	1.012
G	11.00±0.08	$0.433^{+0.004}_{-0.003}$
H	5.00±0.08	$0.197^{+0.003}_{-0.004}$
I	0.6±0.02	$0.024^{+0.001}_{-0.002}$
J	ϕ2.36±0.03	$\phi 0.093^{+0.001}_{-0.002}$
K	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.5 EV-9200G-80

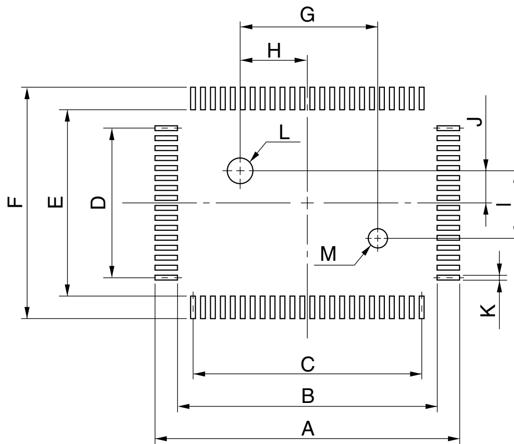
(1) EV-9200G-80 package drawing



EV-9200G-80-G0E

ITEM	MILLIMETERS	INCHES
A	25.0	0.984
B	20.30	0.799
C	4.0	0.157
D	14.45	0.569
E	19.0	0.748
F	4-C 2.8	4-C 0.11
G	0.8	0.031
H	11.0	0.433
I	22.0	0.866
J	24.7	0.972
K	5.0	0.197
L	16.2	0.638
M	18.9	0.744
N	8.0	0.315
O	7.8	0.307
P	2.5	0.098
Q	2.0	0.079
R	1.35	0.053
S	0.35±0.1	$0.014^{+0.004}_{-0.005}$
T	ϕ2.3	ϕ0.091
U	ϕ1.5	ϕ0.059

(2) EV-9200G-80 recommended board mounting pattern



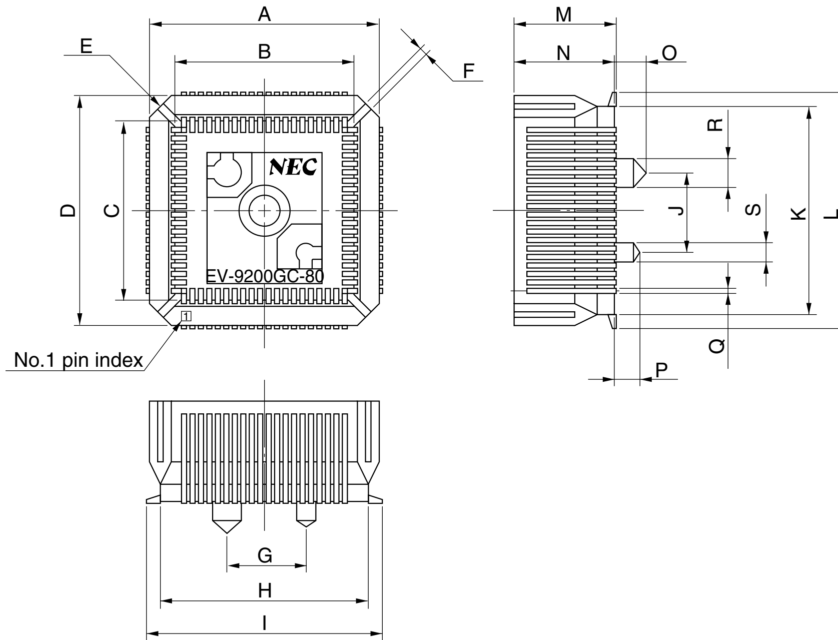
EV-9200G-80-P1E

ITEM	MILLIMETERS	INCHES
A	25.7	1.012
B	21.0	0.827
C	0.8±0.02 × 23=18.4±0.05	$0.031^{+0.002}_{-0.001}$ × $0.906=0.724^{+0.003}_{-0.002}$
D	0.8±0.02 × 15=12.0±0.05	$0.031^{+0.002}_{-0.001}$ × $0.591=0.472^{+0.003}_{-0.002}$
E	15.2	0.598
F	19.9	0.783
G	11.00±0.08	$0.433^{+0.004}_{-0.003}$
H	5.50±0.03	$0.217^{+0.001}_{-0.002}$
I	5.00±0.08	$0.197^{+0.003}_{-0.004}$
J	2.50±0.03	$0.098^{+0.002}_{-0.001}$
K	0.5±0.02	$0.02^{+0.001}_{-0.002}$
L	ϕ2.36±0.03	$\phi 0.093^{+0.001}_{-0.002}$
M	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.6 EV-9200GC-80

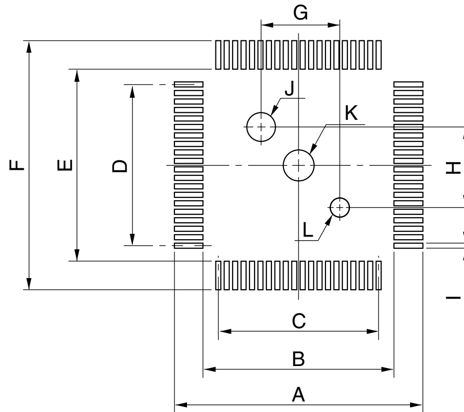
(1) EV-9200GC-80 package drawing



EV-9200GC-80-G1E

ITEM	MILLIMETERS	INCHES
A	18.0	0.709
B	14.4	0.567
C	14.4	0.567
D	18.0	0.709
E	4-C 2.0	4-C 0.079
F	0.8	0.031
G	6.0	0.236
H	16.0	0.63
I	18.7	0.736
J	6.0	0.236
K	16.0	0.63
L	18.7	0.736
M	8.2	0.323
N	8.0	0.315
O	2.5	0.098
P	2.0	0.079
Q	0.35	0.014
R	ϕ2.3	ϕ0.091
S	ϕ1.5	ϕ0.059

(2) EV-9200GC-80 recommended board mounting pattern



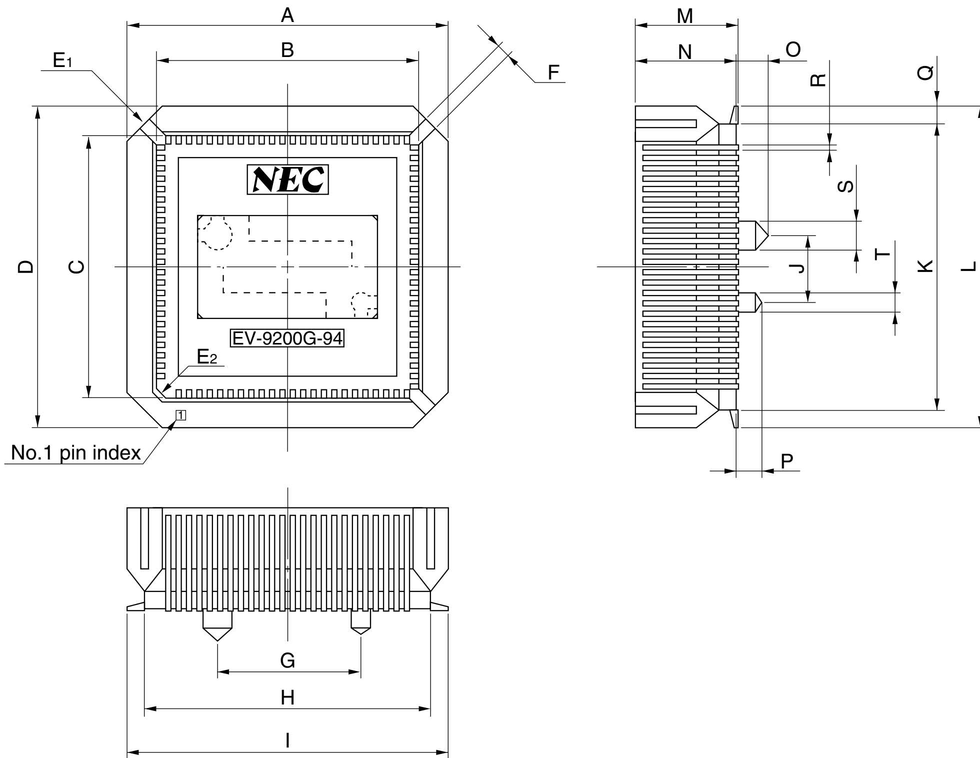
EV-9200GC-80-P1E

ITEM	MILLIMETERS	INCHES
A	19.7	0.776
B	15.0	0.591
C	0.65±0.02 × 19=12.35±0.05	$0.026^{+0.001}_{-0.002}$ × 0.748=0.486 $^{+0.003}_{-0.002}$
D	0.65±0.02 × 19=12.35±0.05	$0.026^{+0.001}_{-0.002}$ × 0.748=0.486 $^{+0.003}_{-0.002}$
E	15.0	0.591
F	19.7	0.776
G	6.0±0.05	$0.236^{+0.003}_{-0.002}$
H	6.0±0.05	$0.236^{+0.003}_{-0.002}$
I	0.35±0.02	$0.014^{+0.001}_{-0.001}$
J	ϕ2.36±0.03	$\phi 0.093^{+0.001}_{-0.002}$
K	ϕ2.3	ϕ0.091
L	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.7 EV-9200G-94

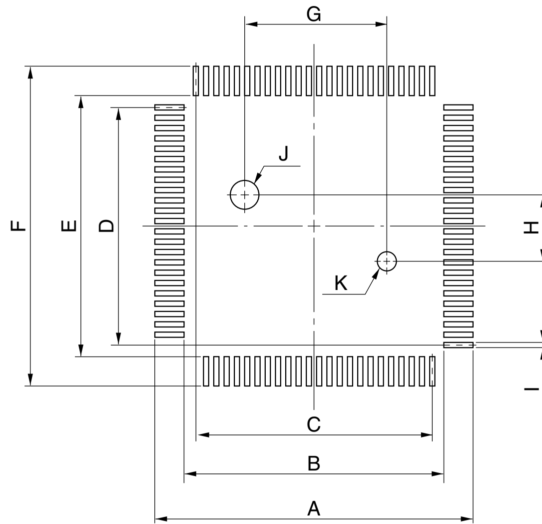
(1) EV-9200G-94 package drawing



EV-9200G-94-G0E

ITEM	MILLIMETERS	INCHES
A	25.0	0.984
B	20.35	0.801
C	20.35	0.801
D	25.0	0.984
E_1	4-C 2.8	4-C 0.11
E_2	C 1.5	C 0.059
F	0.8	0.031
G	11.0	0.433
H	22.0	0.866
I	24.7	0.972
J	5.0	0.197
K	22.0	0.866
L	24.7	0.972
M	8.0	0.315
N	7.8	0.307
O	2.5	0.098
P	2.0	0.079
Q	1.35	0.053
R	0.35±0.1	$0.014^{+0.004}_{-0.005}$
S	ϕ2.3	ϕ0.091
T	ϕ1.5	ϕ0.059

(2) EV-9200G-94 recommended board mounting pattern



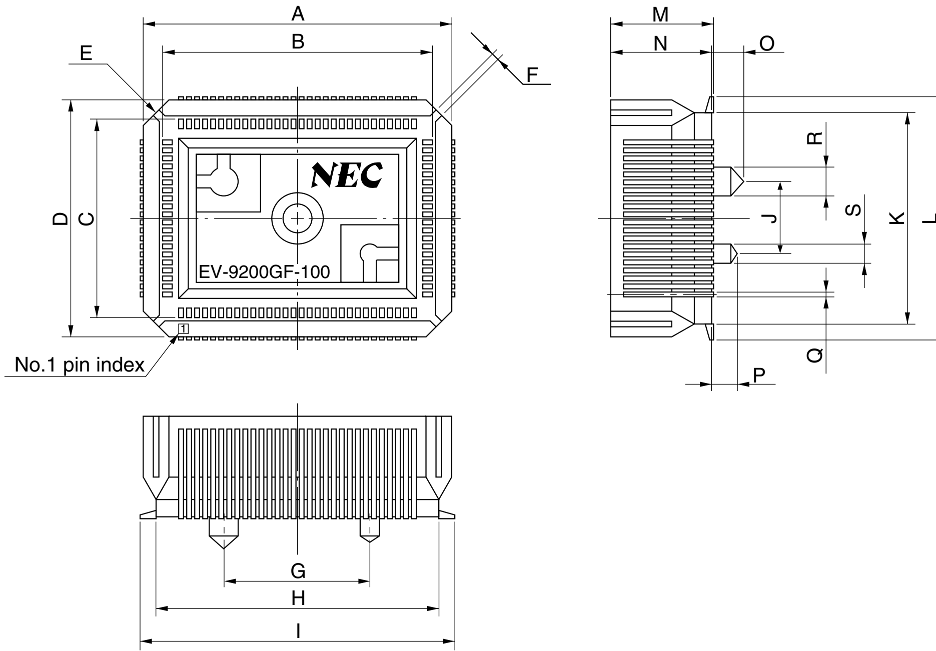
EV-9200G-94-P1E

ITEM	MILLIMETERS	INCHES
A	25.7	1.012
B	21.0	0.827
C	0.8±0.02 × 23=18.4±0.05	$0.031^{+0.002}_{-0.001} \times 0.906 = 0.724^{+0.003}_{-0.002}$
D	0.8±0.02 × 23=18.4±0.05	$0.031^{+0.002}_{-0.001} \times 0.906 = 0.724^{+0.003}_{-0.002}$
E	21.0	0.827
F	25.7	1.012
G	11.00±0.08	$0.433^{+0.004}_{-0.003}$
H	5.00±0.08	$0.197^{+0.003}_{-0.004}$
I	0.5±0.02	$0.02^{+0.001}_{-0.002}$
J	ϕ2.36±0.03	$\phi 0.093^{+0.001}_{-0.002}$
K	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.8 EV-9200GF-100

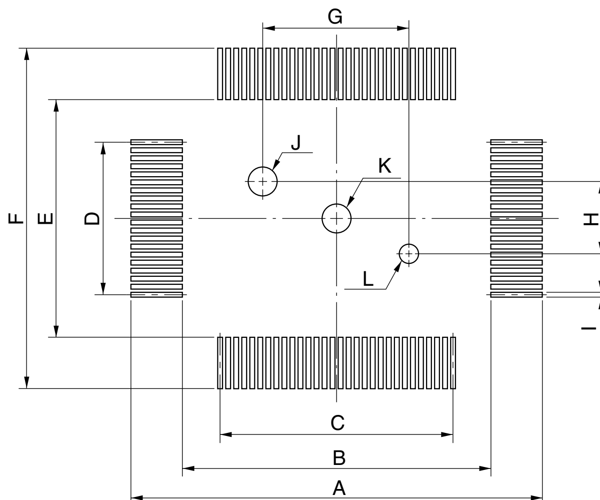
(1) EV-9200GF-100 package drawing



EV-9200GF-100-G0E

ITEM	MILLIMETERS	INCHES
A	24.6	0.969
B	21	0.827
C	15	0.591
D	18.6	0.732
E	4-C 2	4-C 0.079
F	0.8	0.031
G	12.0	0.472
H	22.6	0.89
I	25.3	0.996
J	6.0	0.236
K	16.6	0.654
L	19.3	0.76
M	8.2	0.323
N	8.0	0.315
O	2.5	0.098
P	2.0	0.079
Q	0.35	0.014
R	ϕ2.3	ϕ0.091
S	ϕ1.5	ϕ0.059

(2) EV-9200GF-100 recommended board mounting pattern



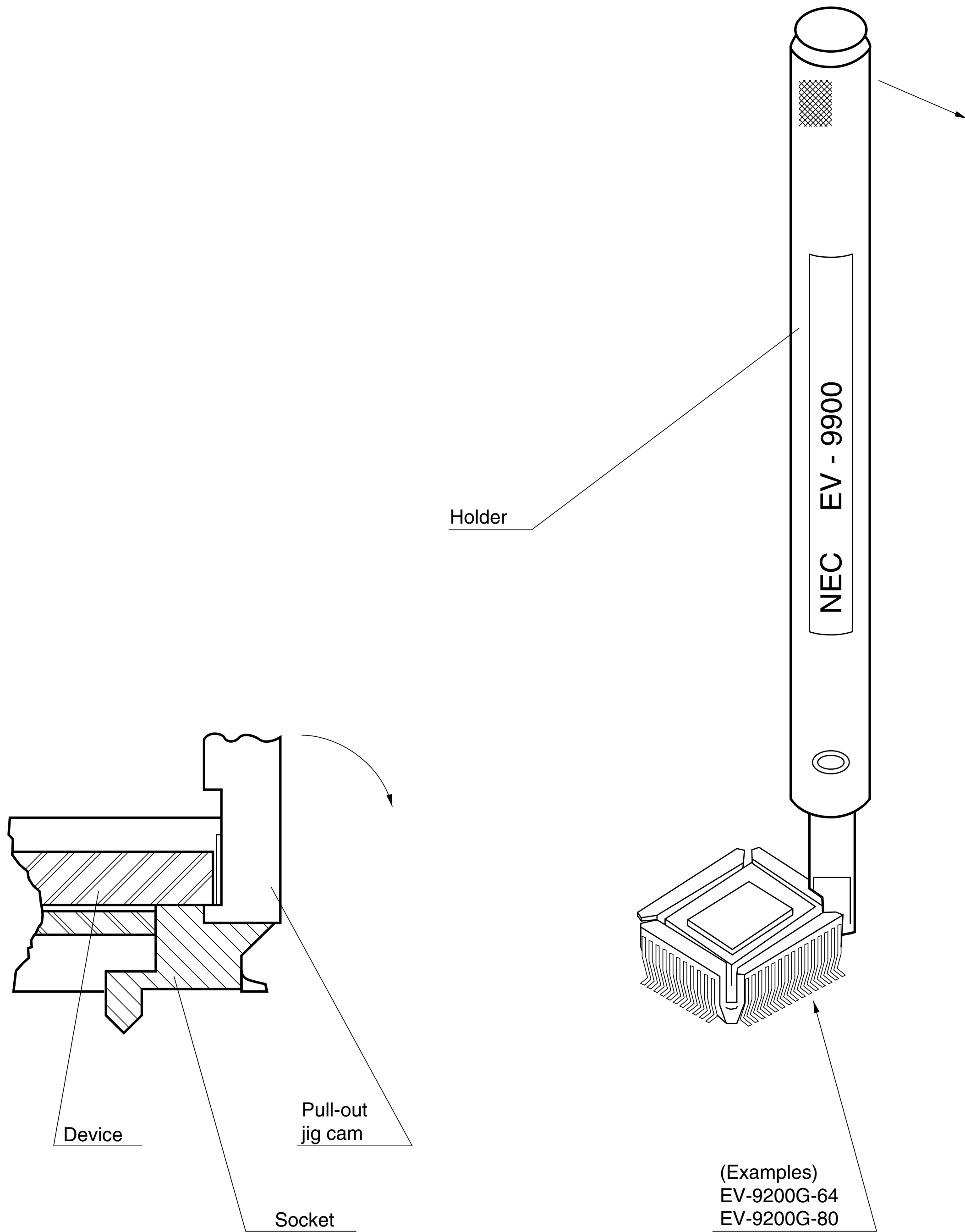
EV-9200GF-100-P1E

ITEM	MILLIMETERS	INCHES
A	26.3	1.035
B	21.6	0.85
C	0.65±0.02 × 29=18.85±0.05	$0.026^{+0.001}_{-0.002}$ × 1.142=$0.742^{+0.002}_{-0.002}$
D	0.65±0.02 × 19=12.35±0.05	$0.026^{+0.001}_{-0.002}$ × 0.748=$0.486^{+0.003}_{-0.002}$
E	15.6	0.614
F	20.3	0.799
G	12±0.05	$0.472^{+0.003}_{-0.002}$
H	6±0.05	$0.236^{+0.003}_{-0.002}$
I	0.35±0.02	$0.014^{+0.001}_{-0.001}$
J	ϕ2.36±0.03	$\phi 0.093^{+0.001}_{-0.002}$
K	ϕ2.3	ϕ0.091
L	ϕ1.57±0.03	$\phi 0.062^{+0.001}_{-0.002}$

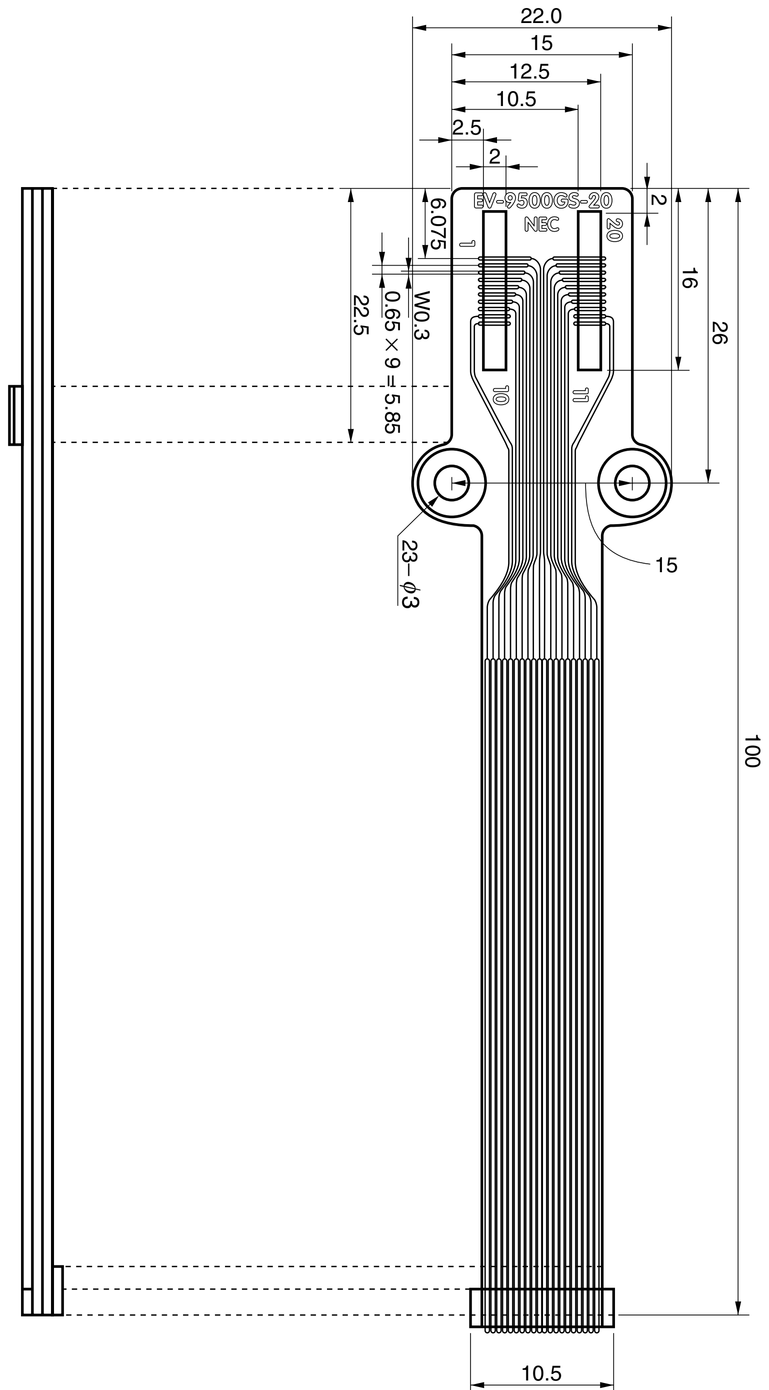
Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

1.9 EV-9900 (Pull-Out Jig)

- Overview
  The EV-9900 is a jig used to remove a device mounted in an LCC socket.
- Usage method
  Insert the cam of the jig in one of the grooves at the socket's four corners and slant the holder toward the outside to lift the device, and then remove the device.

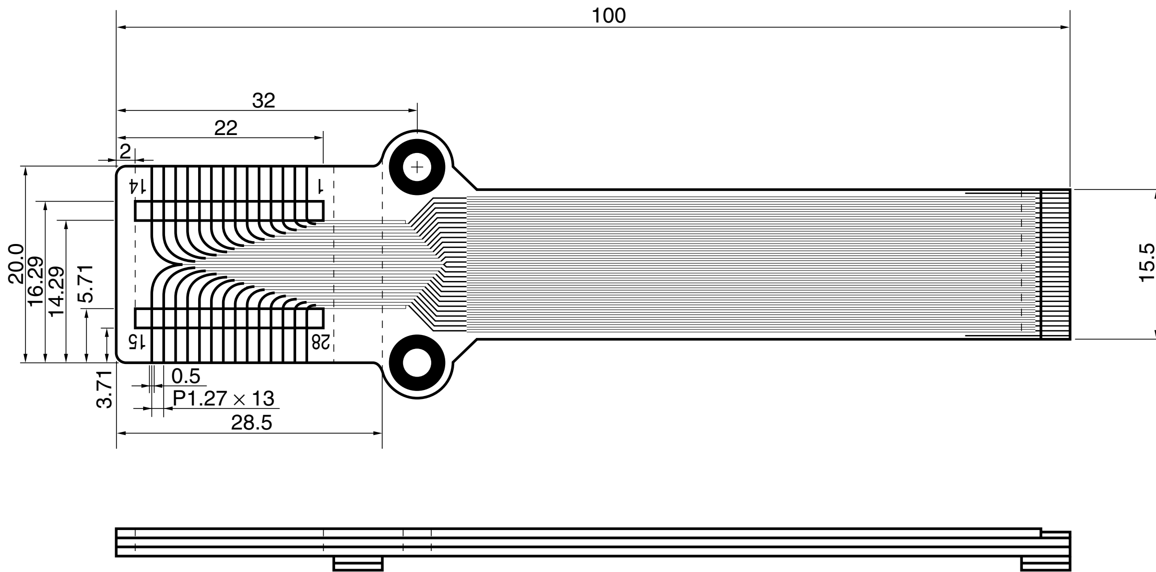


2.1 EV-9500GS-20 (Flexible Type)



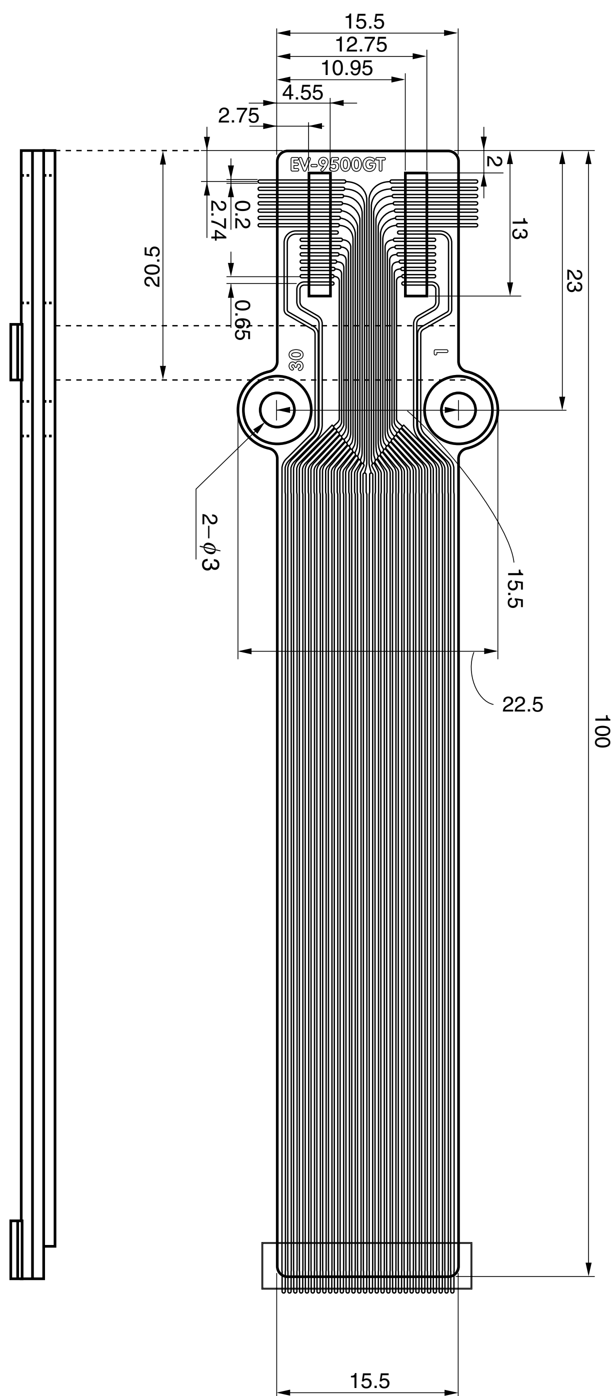
Remark Unit = mm

2.2 EV-9500GT-28 (SOP) (Flexible Type)



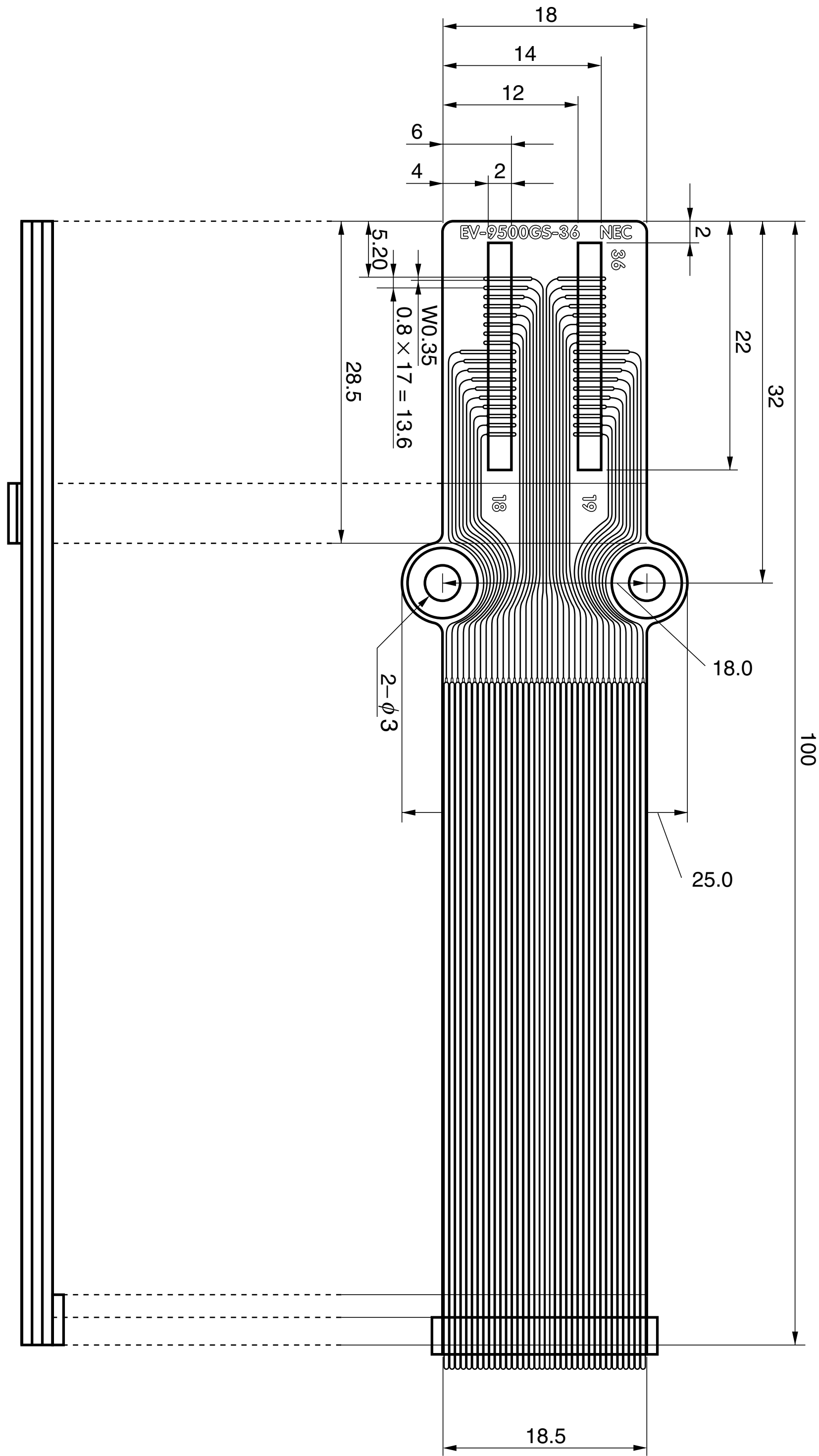
Remark Unit = mm

2.3 EV-9500GT-30 (SSOP) (Flexible Type)



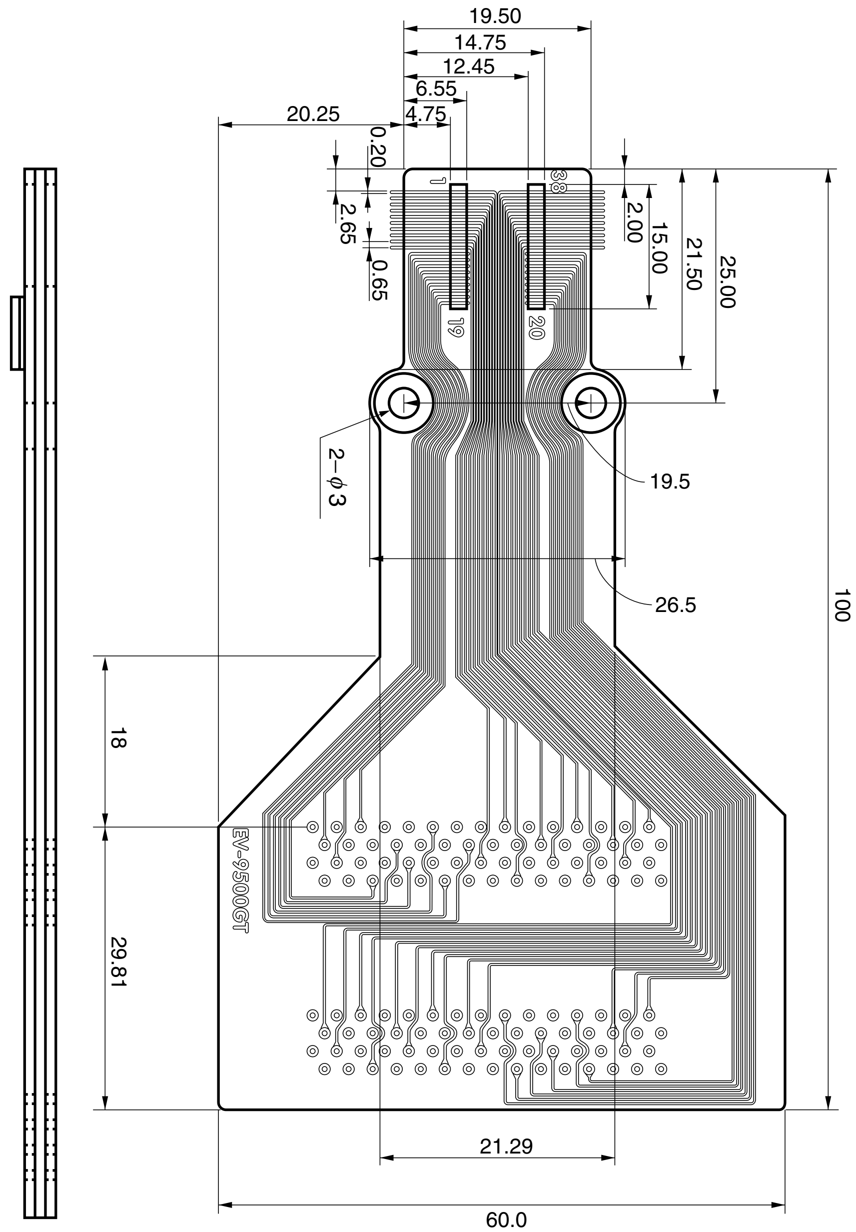
Remark Unit = mm

2.4 EV-9500GS-36 (Flexible Type)



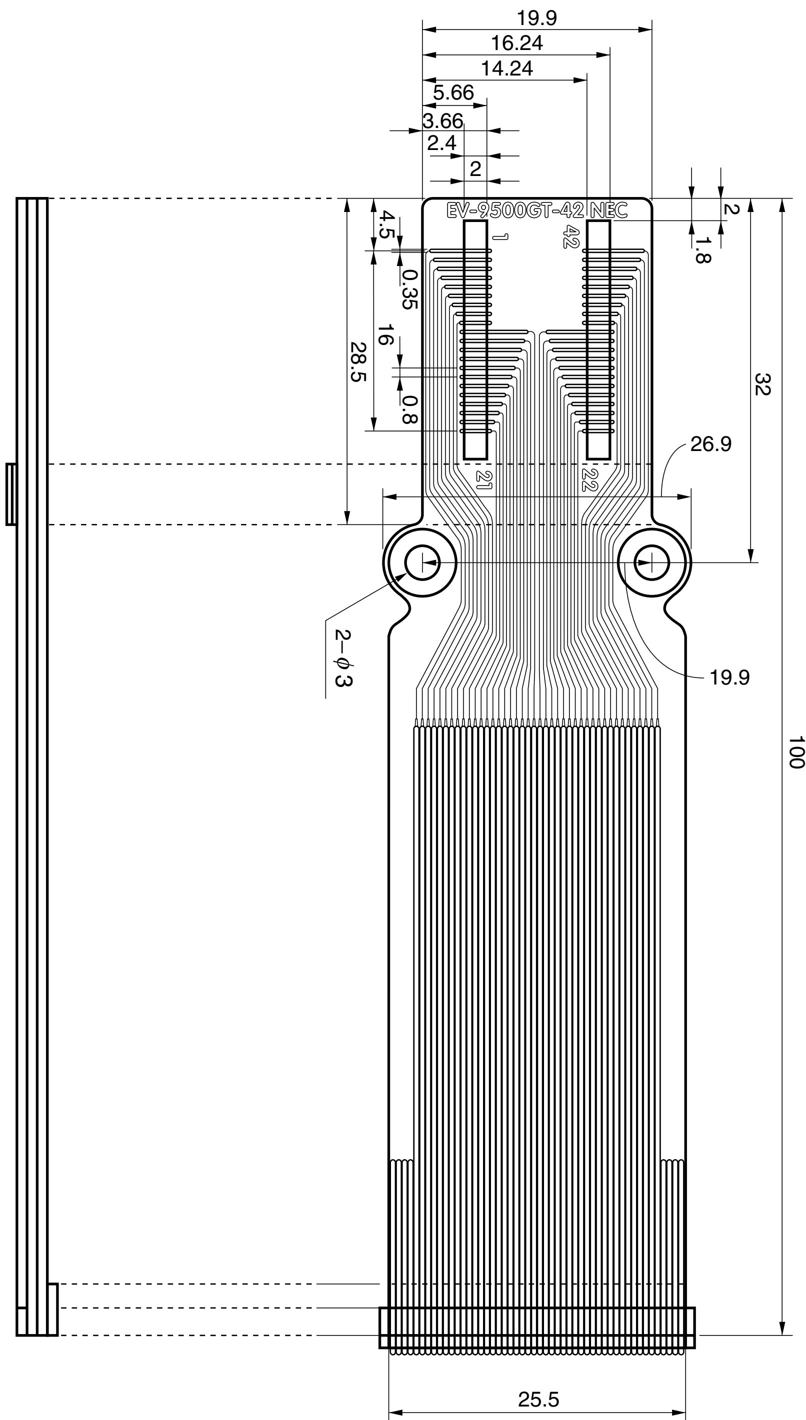
Remark Unit = mm

2.5 EV-9500GT-38 (Flexible Type)



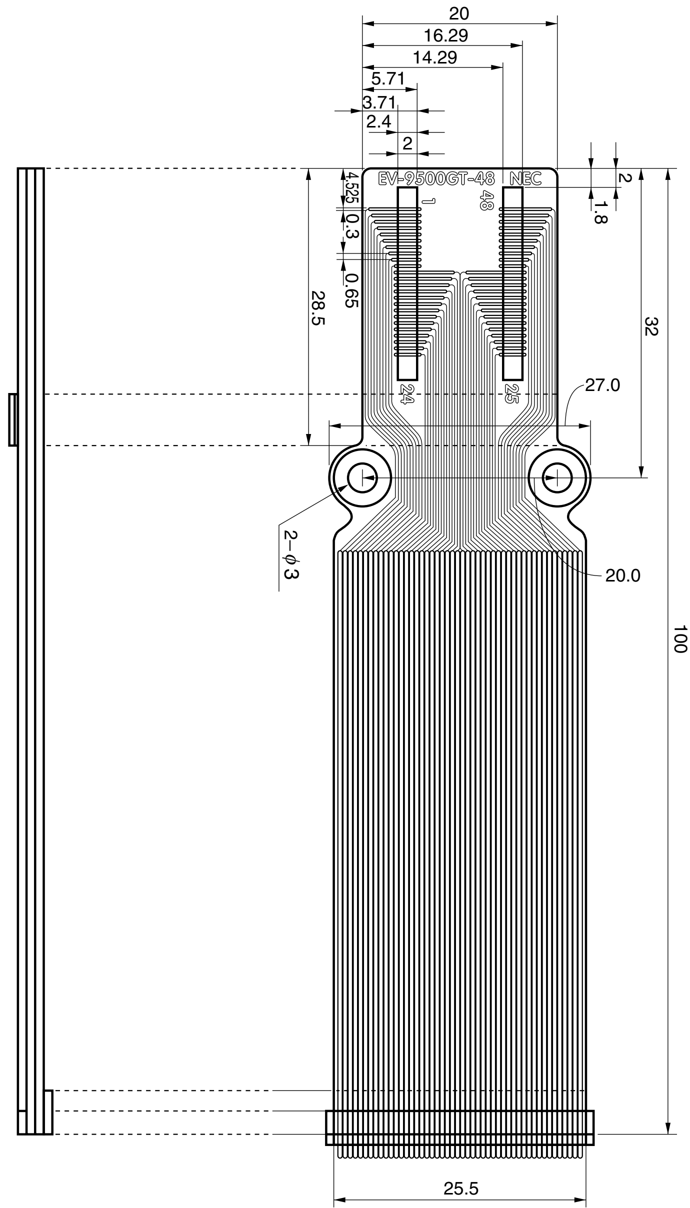
Remark Unit = mm

2.6 EV-9500GT-42 (Flexible Type)



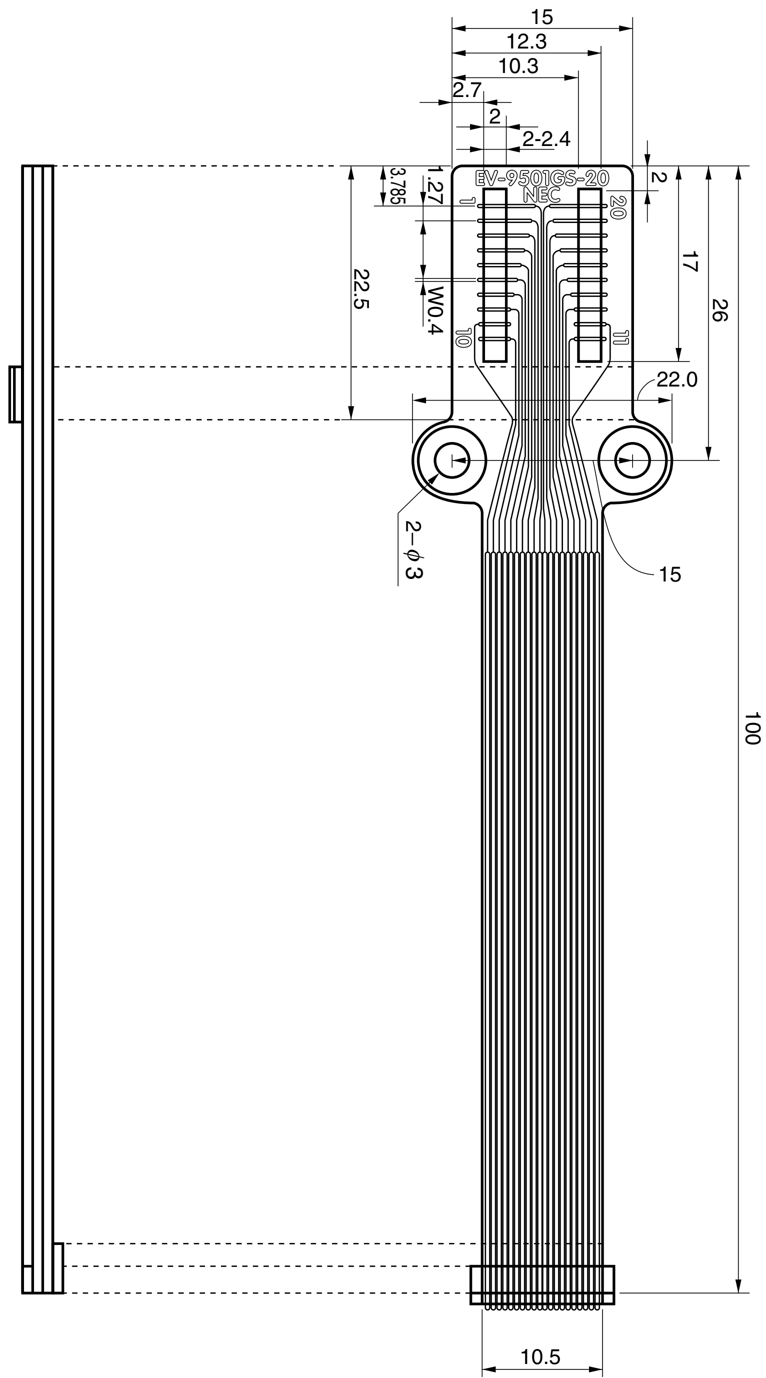
Remark Unit = mm

2.7 EV-9500GT-48 (Flexible Type)



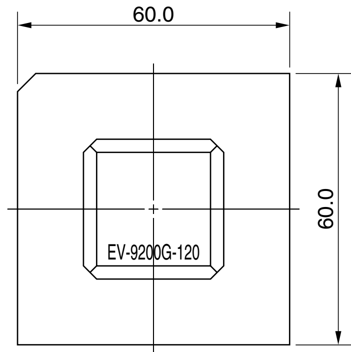
Remark Unit = mm

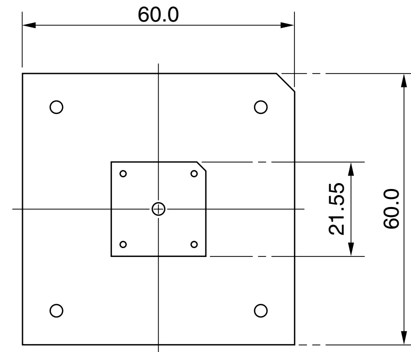
2.8 EV-9501GS-20 (Flexible Type)

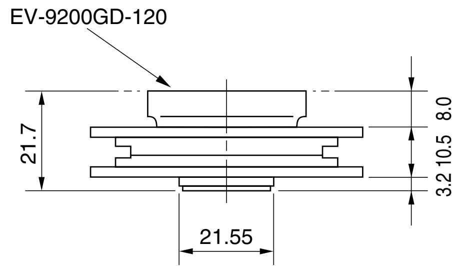


Remark Unit = mm

2.9 EV-9501GC-100







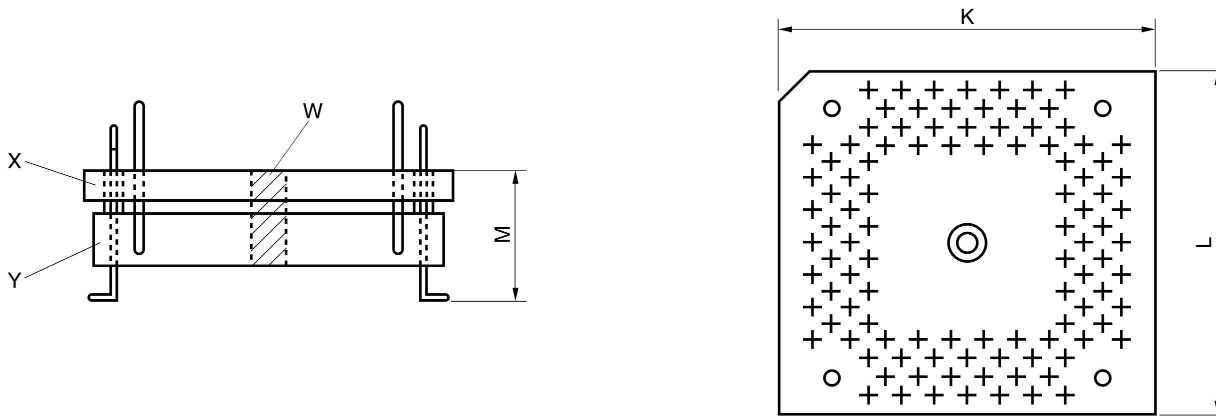
EV-9501GC-100-G0

3.1 Sockets and Adapters Made by TOKYO ELETECH CORP.

3.1.1 Package drawings

(1) TGx Series

Figure 3-1. Product Dimensions

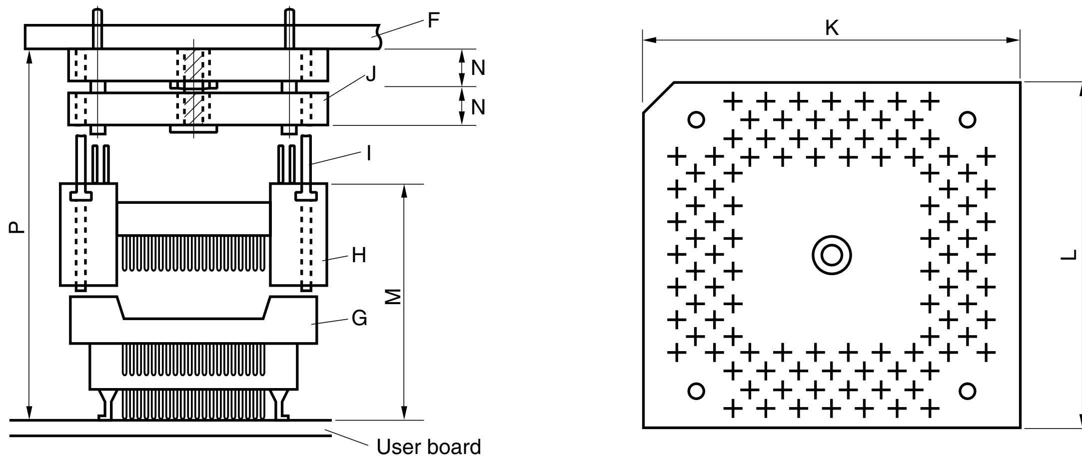


M: 13.8 mm (Common to all products)
W: Hollow set screw (M2 × 5 mm)

Part No.	Configuration	Dimensions (mm)	
	X + Y	K	L
TGB-056SBW	TQPACK056SB + TQSOCKET056SBW	17.1	17.1
TGB-064SDP	TQPACK064SD + TQSOCKET064SDP	16.0	16.0
TGK-064SBW	TQPACK064SB + TQSOCKET064SBW	18.4	18.4
TGK-080SDW	TQPACK080SD + TQSOCKET080SDW	18.0	18.0
TGC-100SDW	TQPACK100SD + TQSOCKET100SDW	21.55	21.55
TGB-080SDP	TQPACK080SD + TQSOCKET080SDP	18.0	18.0
TGF-080RAW	TQPACK080RA + TQSOCKET080RAW	20.65	27.05

(2) NQPACK Series + YQPACK Series + YQSOCKET Series

Figure 3-2. Package Dimensions



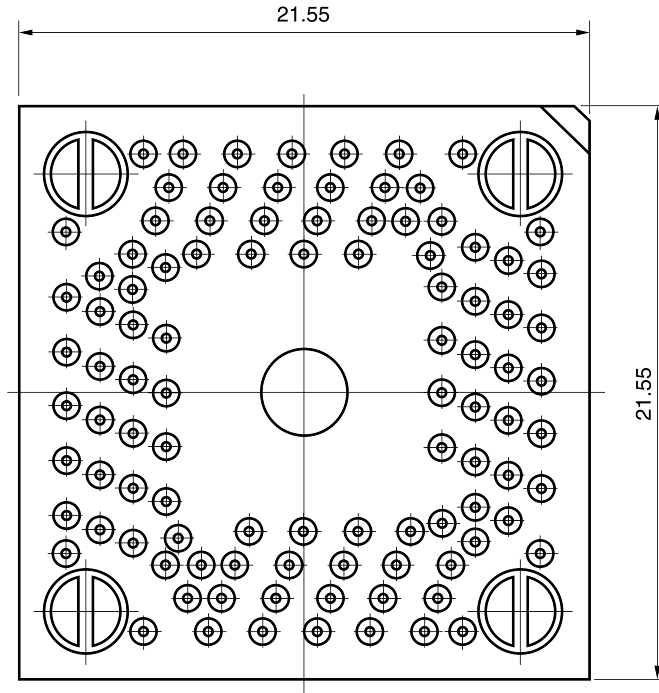
I: YQGUIDE
M: 13.3 mm (common to all products)
N: 3.2 mm (common to all products)
P: 19.7 mm (common to all products)
F: Printed board for ICE connection

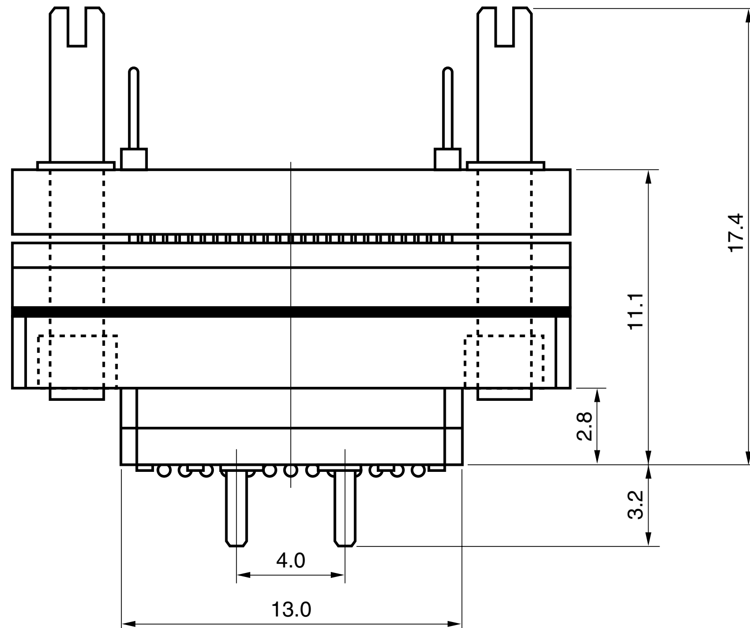
Configuration	Dimensions (mm)	
G + H + J	K	L
NQPACK100SD + YQPACK100SD + YQSOCKET100SDN	21.55	21.55
NQPACK100RB + YQPACK100RB + YQSOCKET100RBN	23.75	30.25
NQPACK144SD + YQPACK144SD + YQSOCKET144SDN	29.0	29.0
NQPACK176SD + YQPACK176SD + YQSOCKET176SDN	33.0	33.0

Remark Customers intending to use the NQPACK100RB + YQPACK100RB + YQSOCKET100RNB should refer to **3.1.4 Appendix (NEXB-100-SD/RB)**.

(3) CSPACK Series + CSICE Series

<1> 121-pin FPBGA socket kit
(CSPACK121A1312N02 + CSICE121A1312N02)

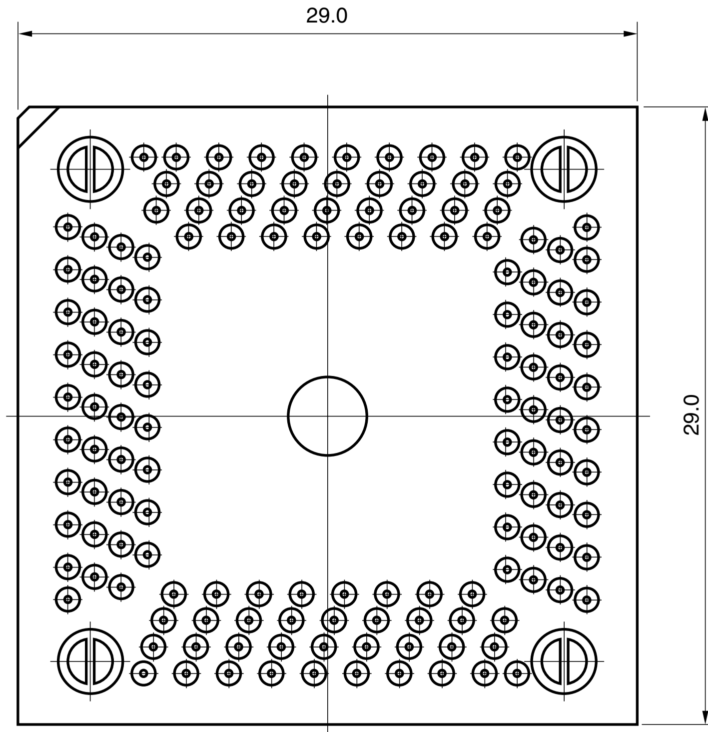


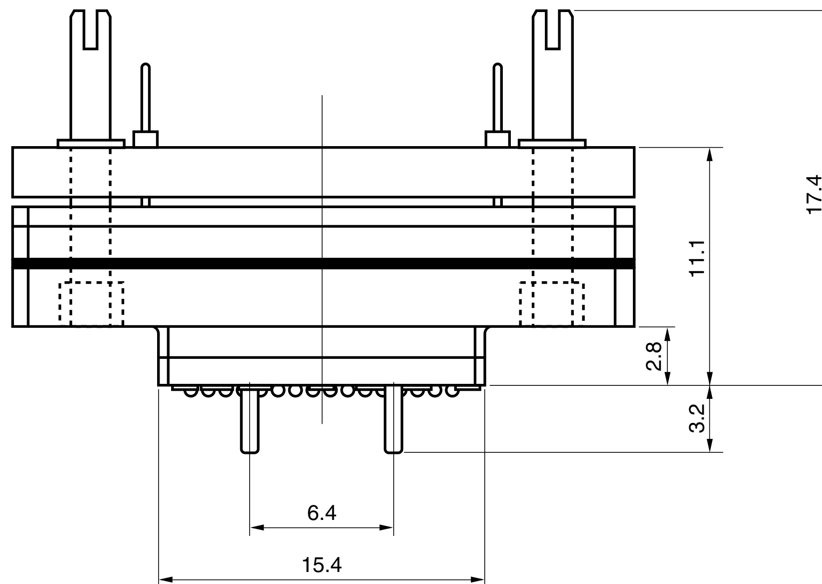


Remarks 1. The only device to use the 121-pin FPBGA socket kit is the V850/SA1.

2. Unit: mm

<2> 157-pin FPBGA socket kit
(CSPACK157A1614N01 + CSICE157A1614N01)





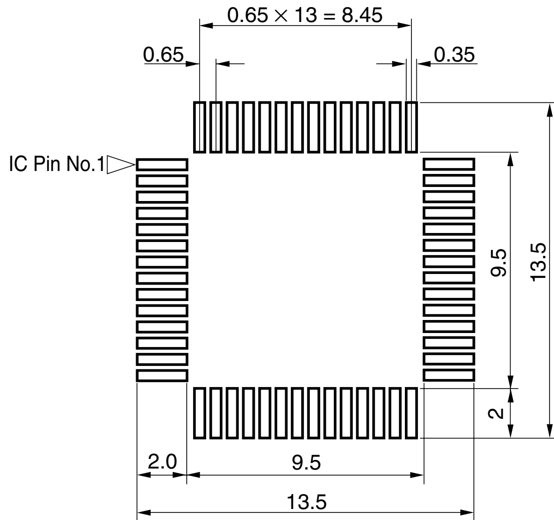
Remarks 1. The only device to use the 157-pin FPBGA socket kit is the V850E/MS1.

2. Unit: mm

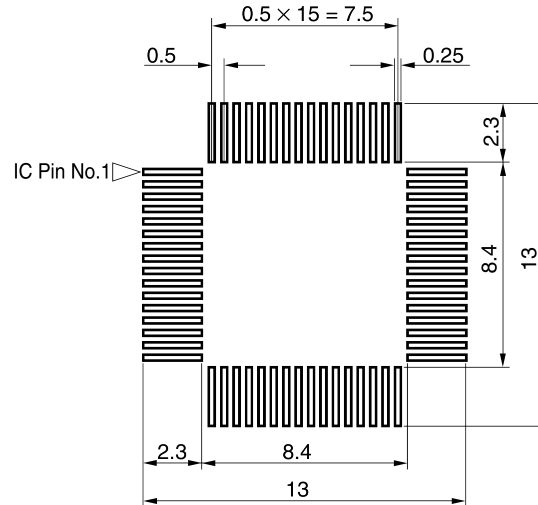
3.1.2 Recommended board mounting pattern

(1) TGx Series

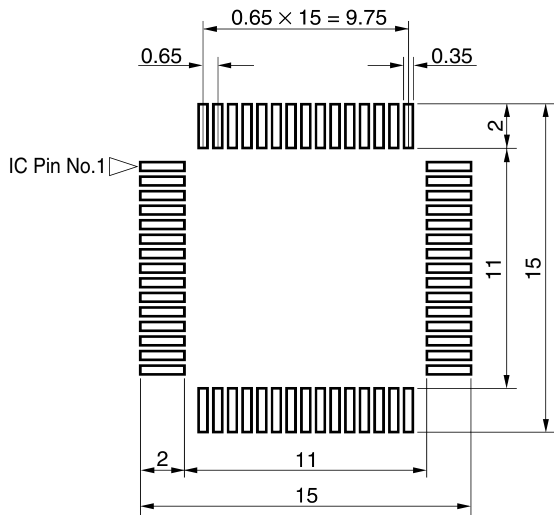
<1> TGB-056SBW (old part No.: EV-9500GB-56)



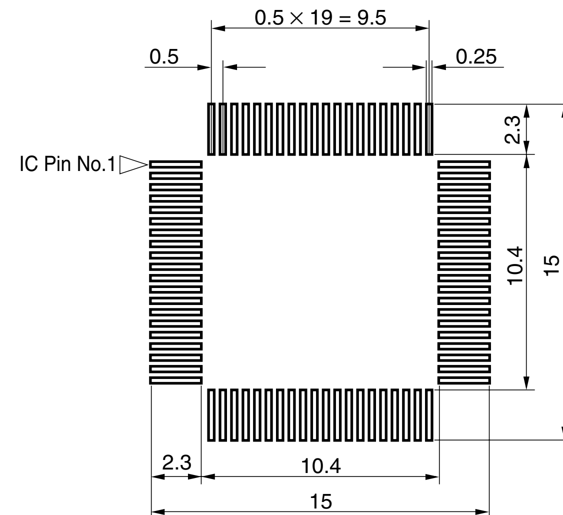
<2> TGB-064SDP (old part No.: EV-9500GB-64)



<3> TGK-064SBW (old part No.: EV-9500GK-64)



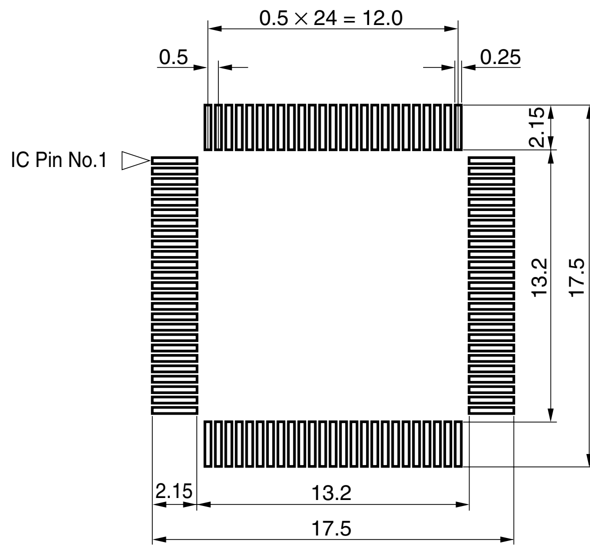
<4> TGK-80SDW (old part No.: EV-9500GK-80)



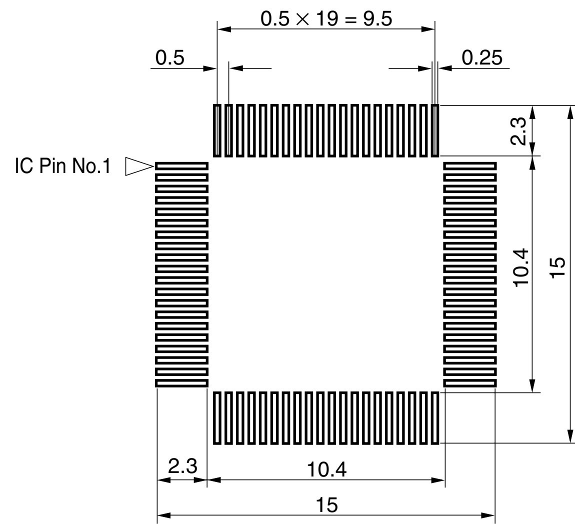
Caution **Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).**

Remark Unit = mm

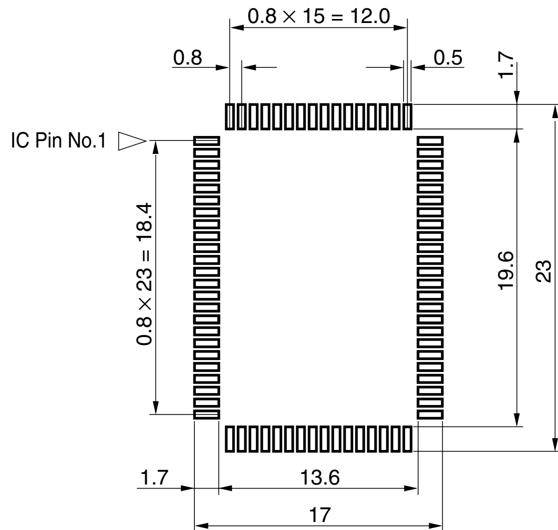
<5> TGC-100SDW (old part No.: EV-9500GC-100)



<6> TGB-080SDP



<7> TGF-080RAW

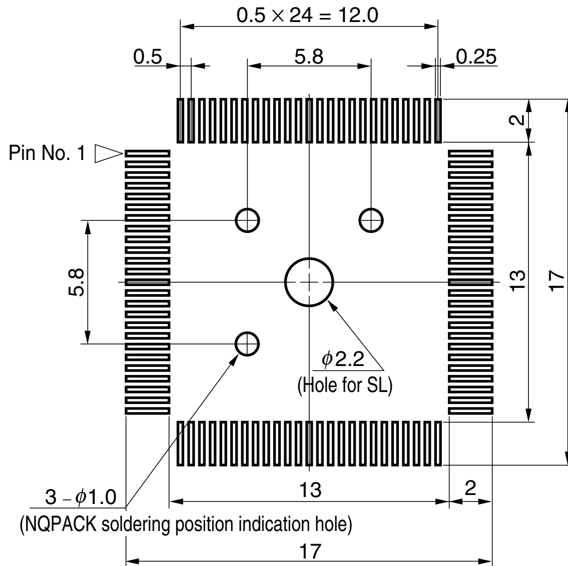


Caution **Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).**

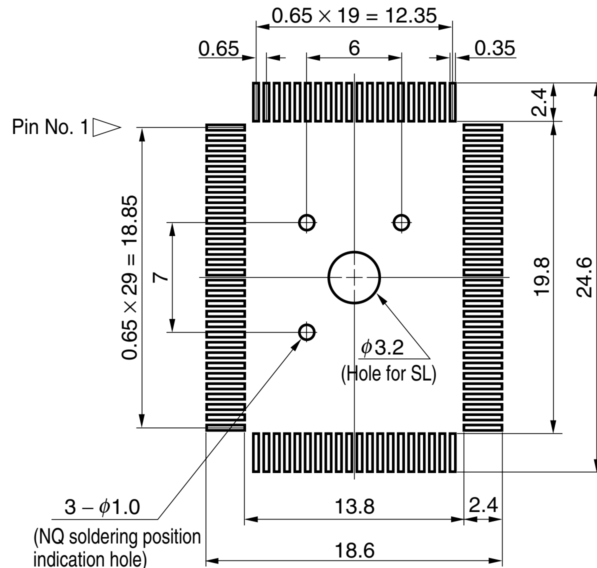
Remark Unit = mm

(2) NQPACK Series + YQPACK Series + YQSOCKET Series

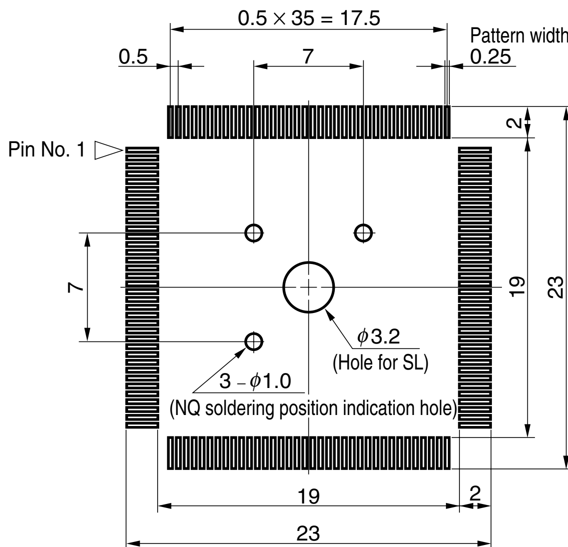
<1> 100-pin GC socket kit
(NQPACK100SD + YQPACK100SD +
YQSOCKET100SDN)



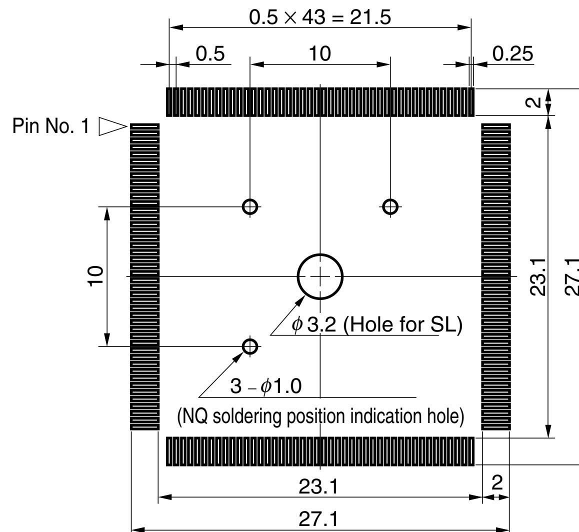
<2> 100-pin GF socket kit
(NQPACK100RB + YQPACK100RB +
YQSOCKET100RBN)



<3> 144-pin GC socket kit
(NQPACK144SD + YQPACK144SD +
YQSOCKET144SDN)



<4> 176-pin GF socket kit
(NQPACK176SD + YQPACK176SD +
YQSOCKET176SDN)

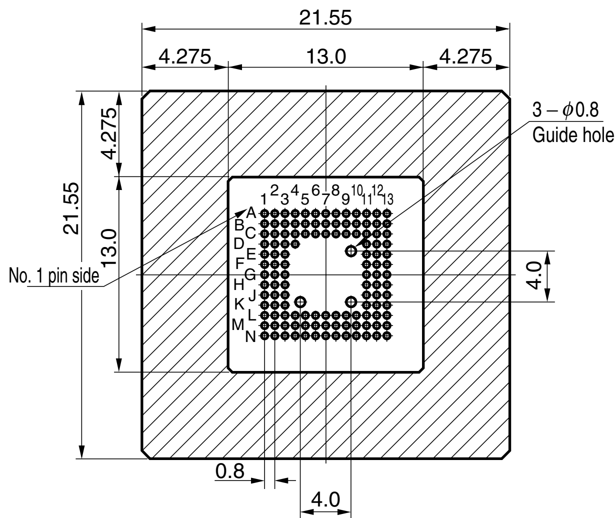


Caution **Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).**

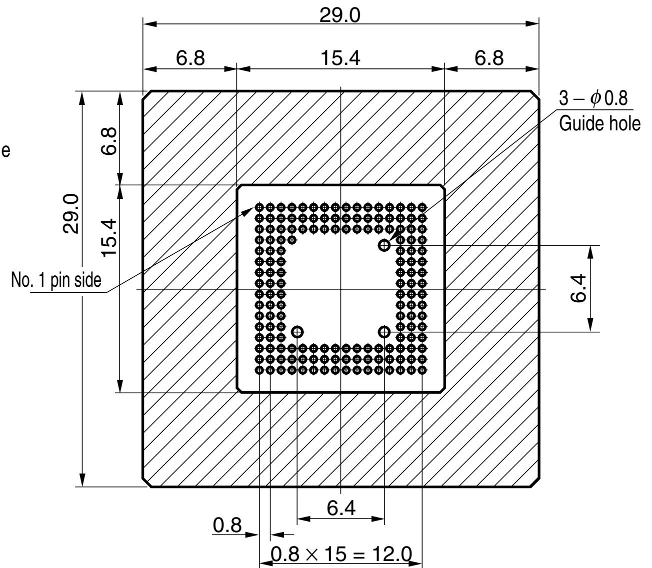
Remark Unit = mm

(3) CSPACK Series + CSICE Series

<1> 121-pin FPBGA socket kit
(CSPACK121A1312N02 + CSICE121A1312N02)



<2> 157-pin FBPGA socket kit
(CSPACK157A1614N01 + CSICE157A1614N01)



Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

Remarks 1. Unit = mm

2. ▨: Components with a height of approx. 2.8 mm can be mounted in this area.

3.1.3 Cautions

(1) Cautions related to TGx Series (TQPACK Series + TQSOCKET Series)

<1> Cautions related to TQPACK

Item		Description
1. Material	• Contacts:	Alloy 42 (nickel-iron alloy) Nickel substrate of 2.5 μm or more, gold plating of 0.25 μm or more
	• Mold:	Crystal polymer (Vectra A130 made by Polyplastics Ltd, with 30% glass fiber content), UL94V-0 fire resistance, surface resistivity = 5 × 1016 Ω, volume resistivity = 3 × 1016 Ω • cm (measurement method: ASTM-D257), dielectric constant = 3.8, dielectric dissipation factor = 0.017 (106 Hz: ASTM-D150)
2. Contact resistance:		70 mΩ/pin or less when TQSOCKET is mounted
3. Withstanding voltage:		No anomaly observed following application of AC100 V for 1 minute
4. Insulation resistance:		500 MΩ or higher, measured using DC100 V
5. Rated current:		Current per pin of 0.5 A or less
6. Chemical resistance:		Ability to resist washing with freon (dipping time of 2 minutes or less)
7. Soldering heat resistance:		Ability to resist vapor phase soldering (VPS) of 220°C, 60 seconds
8. Usage temperature range:		–25°C to +85°C
9. Insertion/extraction force:		The force required for extraction from TQSOCKET shall be 60 g or less per pin The forced required for insertion to TQSOCKET shall be 10 g or less per pin
10. Number of insertions/extractions:		Number of insertions/extractions to/from TQSOCKET: 100 times MAX.

<2> Cautions related to TQSOCKET

Item		Description
1. Material	• Contact:	4-sheet configuration, beryllium copper, nickel substrate of 2.5 μm or more, gold plating of 0.25 μm or more
	• Sleeve:	Brass, nickel substrate of 2.5 μm or more, solder plating of 5 μm or more[Note]
	• Insulator:	Glass epoxy laminate t = 2.4 mm UL94V-0 fire resistance, surface resistivity = 3 × 1014 Ω, volume resistivity = 3 × 1015 Ω • cm, dielectric constant = 4.7, dielectric dissipation factor = 0.017 (106 Hz), measurement method: JIS-C-6481
2. Soldering heat resistance:		260°C × 20 seconds

Note Switch to gold plating for sleeves (0.10 μm or more) started from January 1994.

(2) Cautions related to NQPACK Series + YQPACK Series + YQSOCKET Series

1. When taking out the NQPACK/YQPACK from the case, first remove the sponge while holding down the NQPACK/YQPACK.
2. Leaving the case in a location with a temperature of 50°C or higher for a long time may cause warping. Always store the case in a location with a temperature of 40°C or lower and shielded from direct sunlight.
3. When fixing the YQPACK to the NQPACK with screws, first loosely fix the 4 screws with a No. 0 or No. 1 (Philips tip) precision driver or a torque driver, and then gradually tighten the screws. (Use a maximum torque of 0.054N • m.) Strongly tightening only one screw may cause improper connection.
4. Wrenching or joggling while inserting/extracting YQPACK and YQSOCKET may cause bending of the pins of YQPACK. Therefore insert/extract the YQPACK from all four sides using a minus screwdriver.
5. Component holes at the prescribed locations (4 locations: ϕ 2.3 mm or ϕ 3.3 mm) are required on the board to which the YQPACK is connected.
   Do not use screws with a head size of ϕ 3.8 mm or ϕ 4.3 mm because these sizes overlap the wiring prohibited area.
6. When soldering NQPACK, cover NQPACK with HQPACK to protect it from flux spattering on it.
   - Recommended soldering conditions: Solder reflow: 240°C × 20 seconds or less
     Hand soldering: 240°C × 10 seconds or less

   In addition to the above soldering conditions, the use of hot blast soldering equipment is also recommended.
7. Due to their configuration, there is the risk of washing solvent remaining on the connectors of the NQPACK, YQPACK, and YQSOCKET. Therefore, do not wash these products.
8. NQPACK, YQPACK, and YQSOCKET have been designed assuming use for development and evaluation in systems. NQPACK, YQPACK, and YQSOCKET are not approved by any Electric Appliances Safety Rules or EMI Regulations.

(3) Cautions related to CSPACK Series + CSICE Series

1. When removing CSPACK from its case, first remove the sponge while holding down the CKPACK.
2. Leaving the case in a location with a temperature of 50°C or higher for a long time may cause warping. Always store the case in a location with a temperature of 40°C or lower and shielded from direct sunlight.
3. The CSPACK is stored in a vacuum pack to prevent oxidation of the surface of the solder balls. It is recommended to perform soldering the same day the pack is opened. (If soldering is to be performed the following day, store the CSPACK is a dessicator.
4. To prevent pin bending, the CSPACK is fitted with a protective cover, secured by 4 screws, and placed in a vacuum pack. To protect the CSPACK from flux spatters, leave the protective cover on the CSPACK until the completion of solder reflow.
5. Recommended soldering conditions
   CSPACK surface temperature Preheating: 150 to 180°C, approx. 180 seconds
   Soldering: 210°C or higher, approx. 30 to 60 seconds
6. Due to its configuration, there is the risk of flux and washing solvent remaining on the connectors of the CSPACK. Therefore, absolutely never perform flux immersion or flux washing for the CSPACK. Also, when using the CSPACK with another DIP product, there is the risk that the flux on the DIP product side may get inside the connector of the CSPACK through the guide pin. Therefore, do not perform flux washing of the CSPACK.
7. When fixing the CSPACK screws, first loosely fix the 4 screws using the provided dedicated driver (Philips tip) or a torque driver, and then gradually tighten the screws. A tightening torque of 0.55 kg • f • cm (0.054N • m) MAX. should be used. Strongly tightening only one screw may cause improper contact.
8. When a CSPACK with guide pin is soldered on a board, the guide pin juts out under the board approximately 1.4 mm (when using a board with a thickness of 1.6 mm). If a load is placed on the guide pin from under the board in this condition, stress is applied on the soldered part of the CSPACK and this may cause the connector to break. Therefore, be careful not to place a load on the guide pin after soldering.
9. CSPACK and CSICE are designed assuming use for development and evaluation in systems. CSPACK and CSICE are not approved by any Electric Appliances Safety Rules or EMI Regulations.

(4) Cautions related to NQPACK Series + YQPACK Series

When mounting the NQPACK Series + YQPACK Series on a target board and mounting the TQSOCKET Series to the emulation probe used for connection to the target board, the two sides cannot be connected directly. The YQSOCKETxxxxxF-2 type must be inserted in between the two.

Figure 3-3. Emulation Probe Connection Diagram

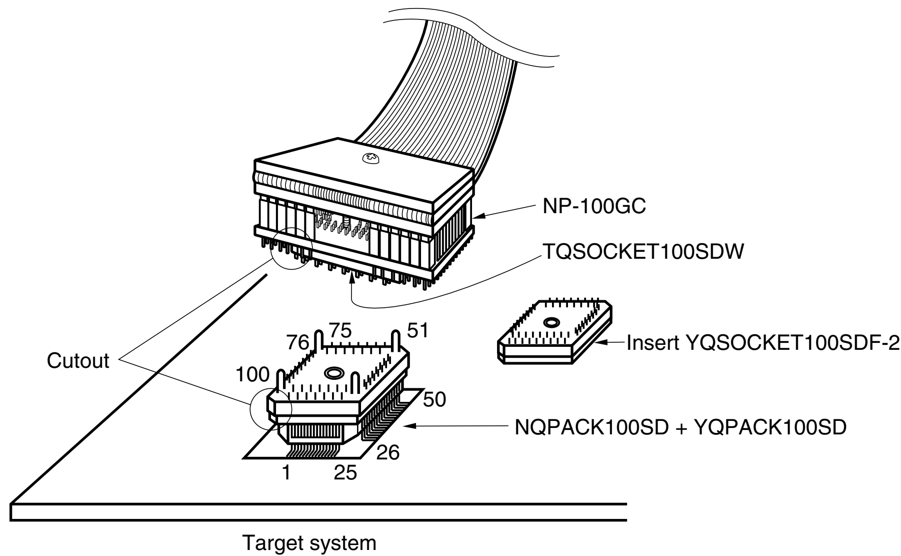


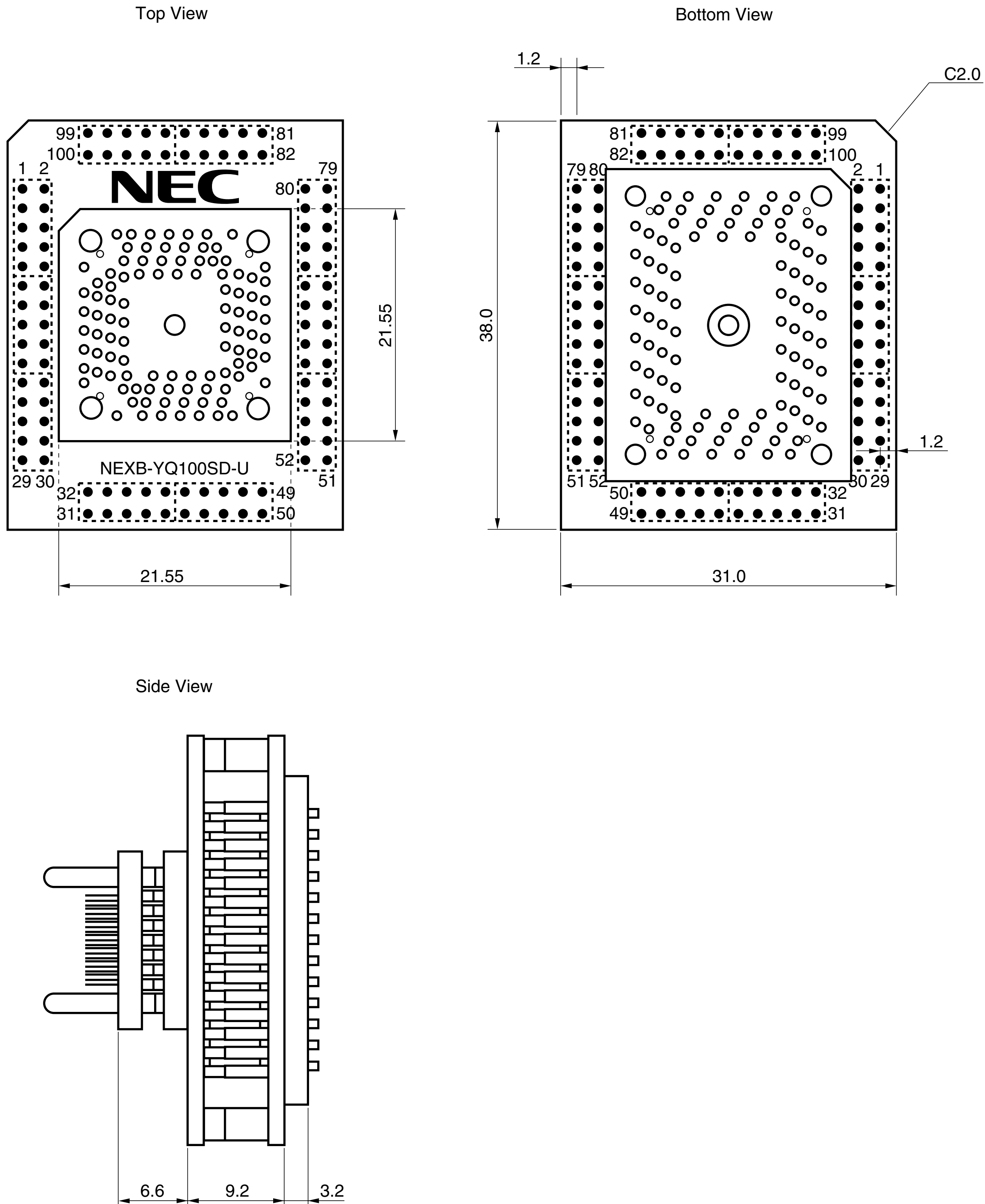
Table 3-2. Socket and Emulation Probe Combinations

NQPACK Series + YQPACK Series	Emulation Probe	Required YQSOCKET×××××F-2
NQPACK064SA + YQPACK064SA	NP-64GC-TQ	YQSOCKET064SAF-2
NQPACK064SB + YQPACK064SB	NP-64GK	YQSOCKET064SBF-2
NQPACK080SD + YQPACK080SD	NP-80GK	YQSOCKET080SDF-2
NQPACK080RA + YQPACK080RA	NP-80GF-TQ	YQSOCKET080RAF-2
NQPACK100SD + YQPACK100SD	NP-100GC	YQSOCKET100SDF-2

3.1.4 Appendix (NEXB-100-SD/RB)

The NEXB-100SB/RB is a GC-CF conversion board used to connect the socket and in-circuit emulator when performing emulation of 100-pin GF type V850/SB1 and V850/SB2 devices.

Concretely, when using the NQPACK100RB + YQPACK100RB + YQSOCKET100RBN as the socket, connection is possible by inserting NEXB-100SB/RB between the socked and the in-circuit emulator.

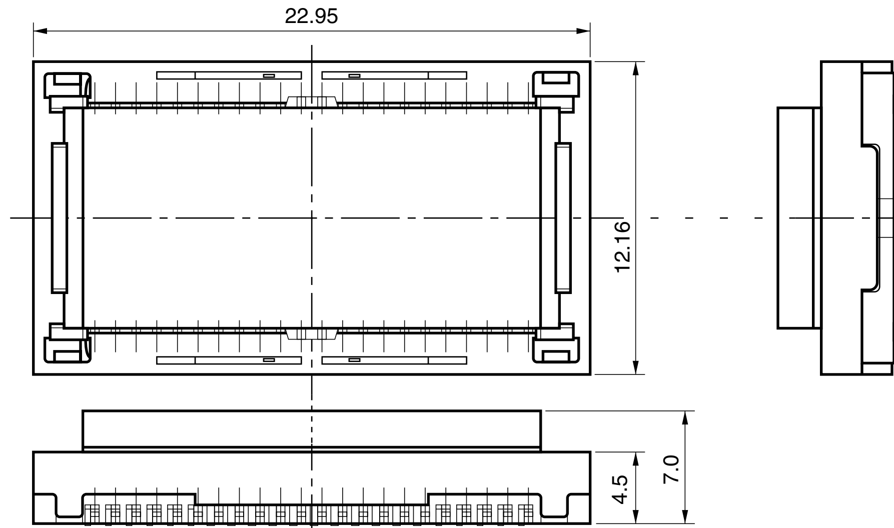


Remark Unit = mm

3.2 Sockets and Adapters Made by Naito Densei Machida Mfg. Co., Ltd.

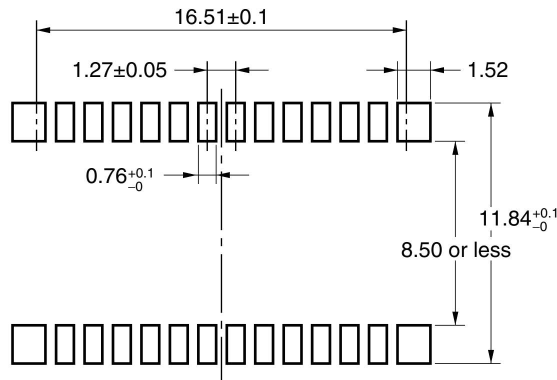
3.2.1 28GT-IC dummy set (dummy IC + AXS628119P + AXS662821)

Figure 3-4. Dimensions



Remark Unit = mm

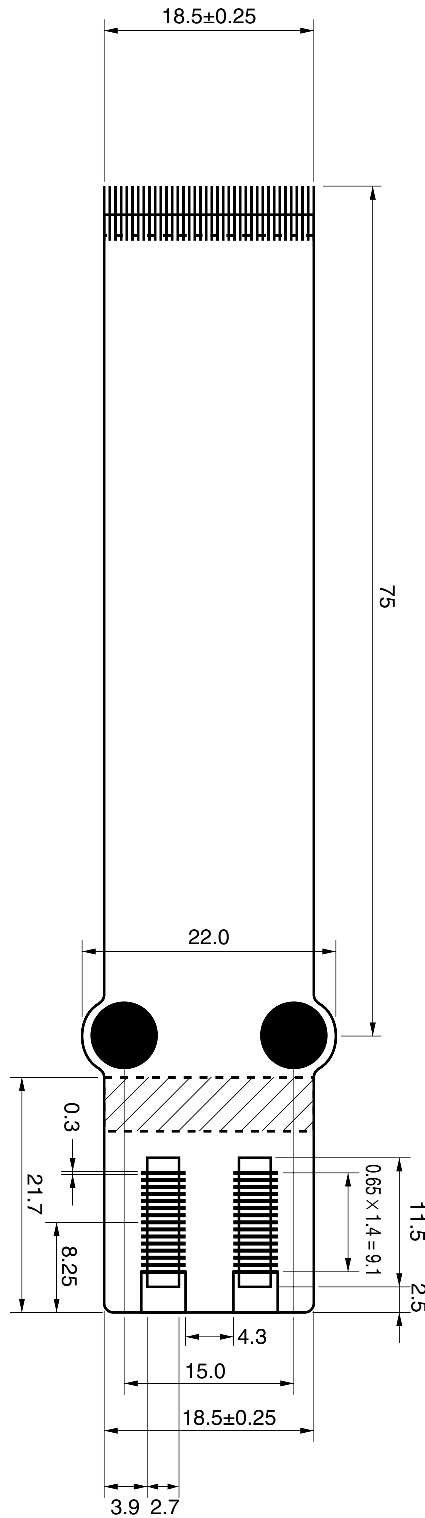
Figure 3-5. Recommended Board Mounting Pattern



Caution Dimensions of mount pad for EV-9200 and that for target device (QFP) may be different in some parts. For the recommended mount pad dimensions for QFP, refer to "SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL" (C10535E).

Remark Unit = mm

3.2.2 NGS-30 (flexible type)



Remark Unit = mm

3.3 Third-Party Contact List

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Naito Densei Machida Mfg. Co., Ltd. E-mail: info@ndk-m.co.jp Web site: http://www.ndk-m.co.jp/asmis/	+81-45-475-4191	+81-45-475-4091

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