To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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NEC

Technical Note

HJ-FET & GaAs FET TAPING SPECIFICATION FOR μ-X (84, 84A, 84C) PACKAGES AND MOLD (S01, S02) PACKAGES

Document No. PX10614EJ01V0TN (1st edition)
(Previous No. P10149EJ7V0IF00)
Date Published June 2006 NS CP(K)

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M8E 02. 11-1

The mark <R> shows major revised points.
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

CONTENTS

1. INTRODUCTION

The recent productive technical matters in the process of constructing a print board and a thick film hybrid IC exist in saving time and power, and Q up.

As the effective methods to realize them, the automatic insert machine of electric devices and the automatic assembly machines can be used.

<R> NEC Electronics has been supporting μ-X and mold package for HJ-FET and GaAs FET with low cost and high performance so that the customers can use them in more various applications. Now, we support Tape & Reel service which makes possible for the customers to use the automatic assembly machines.

The specification is shown following·····

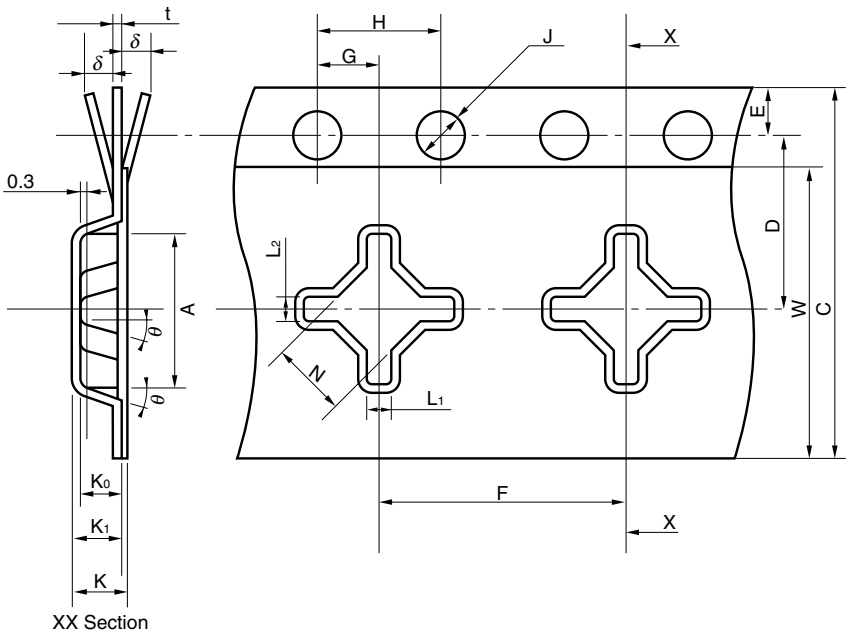
1.1 ADAPTED AREA

<R> This specification covers standards on tape packaging μ-X GaAs FET, HJ-FET and on tape packaging mold GaAs FET, HJ-FET.

2. SPECIFICATION

2.1 TAPE DIMENSIONS

<R> **2.1.1 84, 84A, 84C PACKAGE**

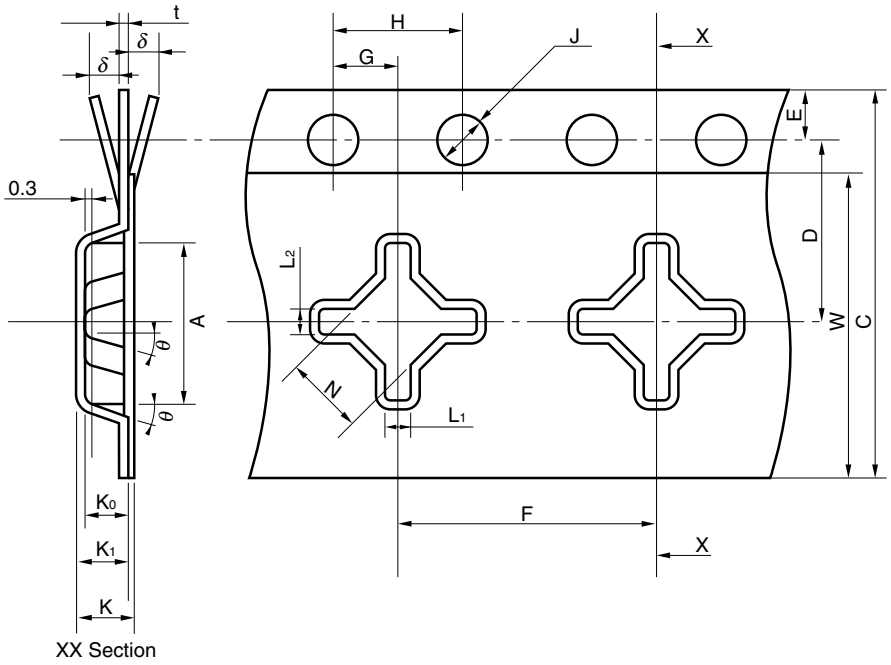


Item		Symbol	Size (mm)	Remarks
			84, 84A, 84C pkg	
Pocket	Length Width	A	5.0 ± 0.15	At 0.3 mm above bottom.
	Depth	K_0	$1.5^{+0.1}_{-0}$	Internal Area
	Pitch	F	8.0 ± 0.1	Accumulated tolerance $^{+0.1}_{-0.3}$ MAX./10 pitch
	Taper	θ	14° ± 1°	At 0.3 mm above bottom.
Ceramic PART	Width	N	2.4 ± 0.1	At 0.3 mm above bottom.
Lead PART	Pocket Width	L_1	$0.7^{+0.2}_{-0}$	At 0.3 mm above bottom.
		L_2	$0.7^{+0.2}_{-0}$	
Perforation	Diameter	J	ϕ1.55 ± 0.05	
	Pitch	H	4.0 ± 0.1	Accumulated tolerance $^{+0.1}_{-0.3}$ MAX./10 pitch
	Position	E	1.5 ± 0.1	Distance between edge of tape and center of hole.
Distance Between Center Line	Length Direct.	G	2.0 ± 0.05	Center lines of pocket and perforation.
	Width Direct.	D	5.65 ± 0.05	Center lines of pocket and perforation.
Cover Tape	Width	W	$9.5^{+0.3}_{-0}$	Thickness: 0.1 mm MAX.
Carrier Tape	Width	C	12 ± 0.1	Warp: δ = 0.3 mm MAX.
	Thick.	t	0.3 ± 0.05	
	Depth	K_1	1.60 ± 0.1	
Overall Thickness		K	1.70 ± 0.1	Cover Tape and Carrier Tape Total.

Remarks 1. The radius in the case of unspecified corners is 0.3 MAX.

2. This carrier is applied treatment of electrostatic prevention.

2.1.2 S01 PACKAGE

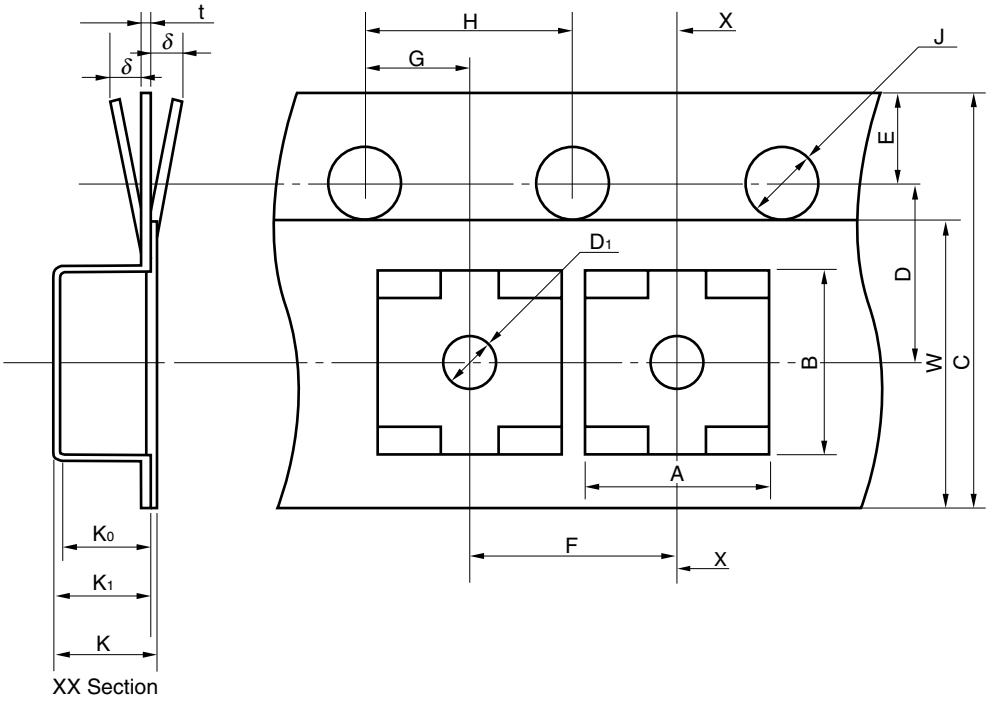


Item		Symbol	Size (mm)	Remarks
			S01 pkg	
Pocket	Length Width	A	5.0 ± 0.15	At 0.3 mm above bottom
	Depth	K_0	1.8 ± 0.1	Internal Area
	Pitch	F	8.0 ± 0.1	Accumulated tolerance $^{+0.1}_{-0.3}$ MAX./10 pitch
	Taper	θ	14° ± 1°	At 0.3 mm above bottom
Plastic PART	Width	N	2.4 ± 0.1	At 0.3 mm above bottom
Lead PART	Pocket Width	L_1	1.15 ± 0.1	At 0.3 mm above bottom
		L_2	1.15 ± 0.1	
Perforation	Diameter	J	ϕ1.55 ± 0.05	
	Pitch	H	4.0 ± 0.1	Accumulated tolerance $^{+0.1}_{-0.3}$ MAX./10 pitch
<R>	Position	E	1.75 ± 0.1	Distance between edge of tape and center of hole.
Distance Between Center Line	Length Direct.	G	2.0 ± 0.05	Center lines of pocket and perforation.
<R>	Width Direct.	D	5.5 ± 0.05	Center lines of pocket and perforation.
Cover Tape	Width	W	$9.5^{+0.3}_{-0}$	Thickness: 0.1 mm MAX.
Carrier Tape	Width	C	12 ± 0.2	Warp: δ = 0.3 mm MAX.
	Thick.	t	0.3 ± 0.05	
	Depth	K_1	1.90 ± 0.1	
Overall Thickness		K	2.00 ± 0.1	Cover Tape and Carrier Tape Total.

Remarks 1. The radius in the case of unspecified corners is 0.3 MAX.

<R> **2.** This carrier is applied treatment of electrostatic prevention.

<R> **2.1.3 S02 PACKAGE**

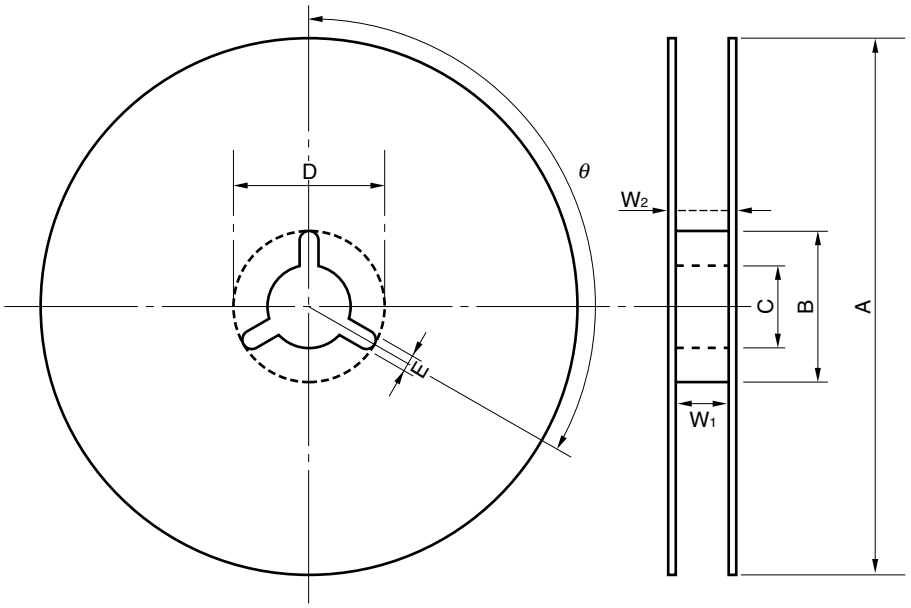


Item		Symbol	Size (mm)	Remarks
			S02 pkg	
Pocket	Length	A	3.5 ± 0.2	Pocket base
	Width	B	3.5 ± 0.2	Pocket base
	Depth	K_0	1.55 ± 0.1	Internal Area
	Pitch	F	4.0 ± 0.1	Accumulated tolerance ± 0.2 /10 pitch
Air Hole	Diameter	D_1	ϕ1.0	
Perforation	Diameter	J	ϕ1.55 ± 0.05	
	Pitch	H	4.0 ± 0.1	Accumulated tolerance ± 0.2 /10 pitch
	Position	E	1.75 ± 0.1	Distance between edge of tape and center of hole.
Distance Between Center Line	Length Direct.	G	2.0 ± 0.05	Center lines of pocket and perforation.
	Width Direct.	D	3.5 ± 0.05	Center lines of pocket and perforation.
Cover Tape	Width	W	$5.5^{+0.3}_{-0.1}$	Thickness: 0.1 mm MAX.
Carrier Tape	Width	C	8.0 ± 0.2	Warp: δ = 0.3 mm MAX.
	Thick.	t	0.2 ± 0.05	
	Depth	K_1	1.9 MAX.	
Overall Thickness		K	2.00 MAX.	Cover Tape and Carrier Tape Total.

Remark This carrier is applied treatment of electrostatic prevention.

<R> 2.2 DIMENSIONS ON REEL

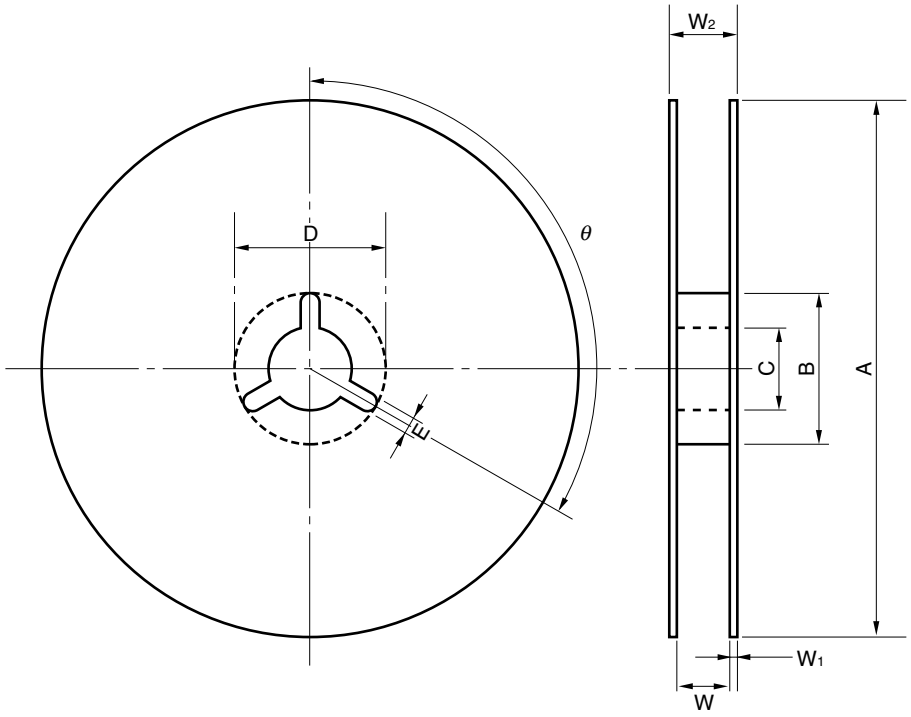
2.2.1 T1, T2



(Unit: mm)

Symbol	Size/Angle
A	$\phi 180^{+0}_{-1.5}$
B	$\phi 60^{+1}_{-0}$
C	$\phi 13 \pm 0.2$
D	$\phi 21 \pm 0.8$
E	2 ± 0.5
W_1	$13^{+1.0}_{-0}$
W_2	17 ± 1.0
θ	120°

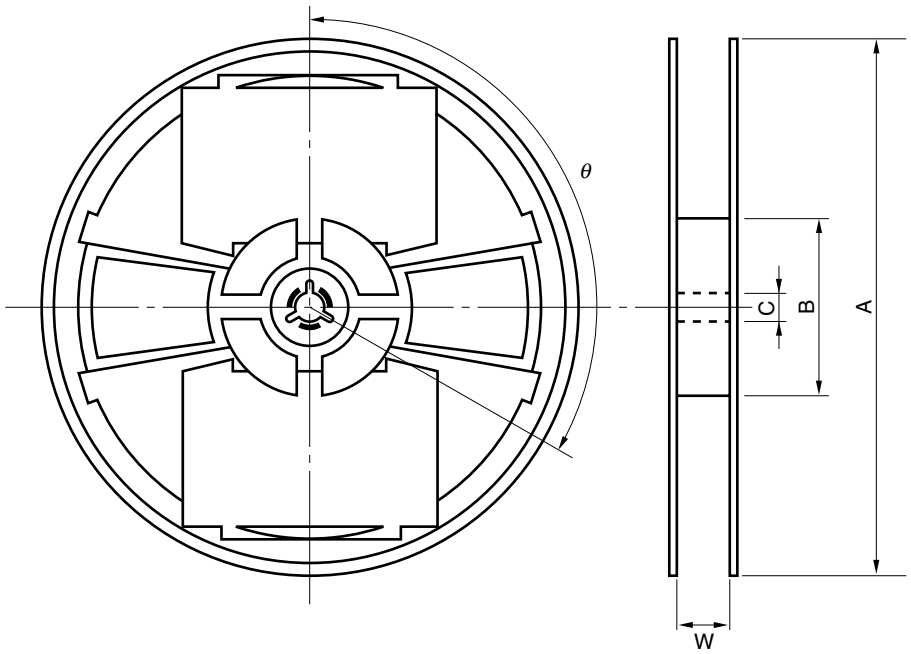
2.2.2 T1A, T2A, T1B, T2B



(Unit: mm)

Symbol	Size/Angle
A	ϕ330 ± 2.0
B	ϕ100 ± 1
C	ϕ13 ± 0.2
D	ϕ21 ± 0.8
E	2 ± 0.5
W	13.5 ± 1.0
W_1	(2.0)
W_2	17.5 ± 1.0
θ	120°

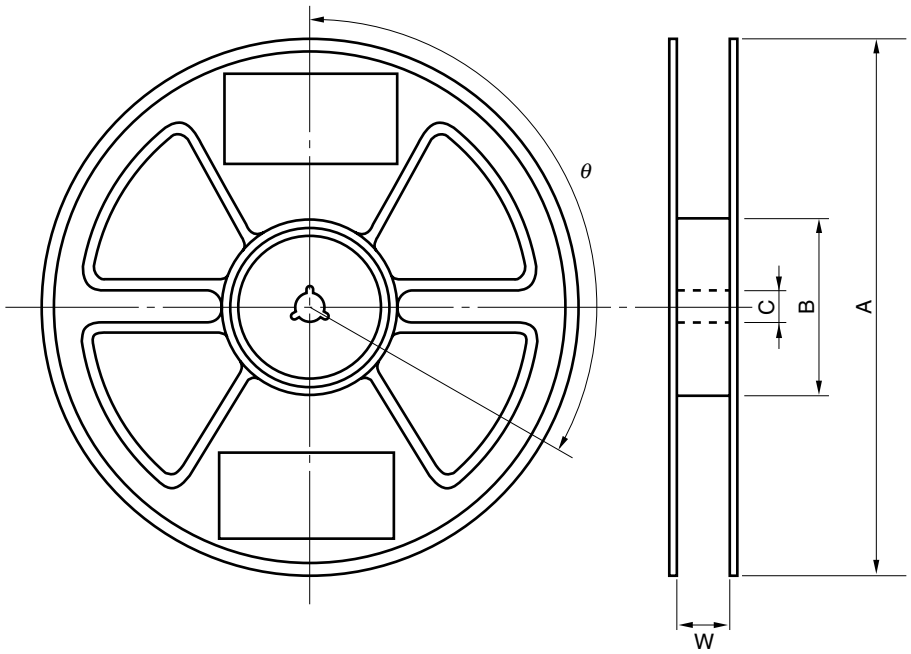
2.2.3 T1C



(Unit: mm)

Item		Symbol	Size/Angle
Flange	Diameter	A	$\phi 180^{+0}_{-1.5}$
	Spacing inside of both flanges	W	9^{+1}_{-0}
Hub	External diameter	B	$\phi 60^{+1}_{-0}$
	Spindle hole diameter	C	$\phi 13 \pm 0.2$
	Key slot position	θ	120°

2.2.4 T1D

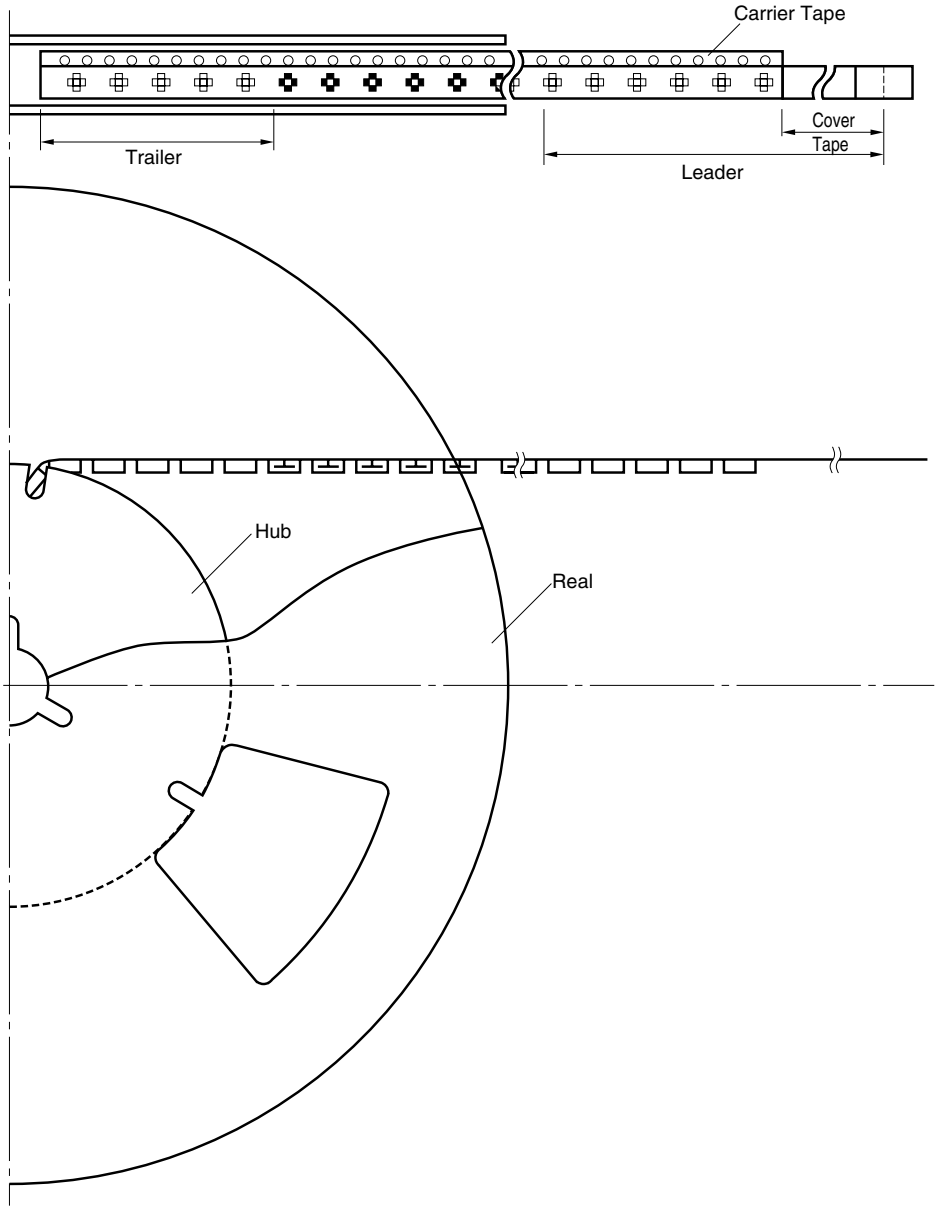


(Unit: mm)

Item		Symbol	Size/Angle
Flange	Diameter	A	ϕ330 ± 2.0
	Spacing inside of both flanges	W	9^{+1}_{-0}
Hub	External diameter	B	ϕ100 ± 1.0
	Spindle hole diameter	C	ϕ13 ± 0.2
	Key slot position	θ	120°

2.3 PACKAGING

2.3.1 LEADER AND TRAILER



Item		Specification	Remarks
Leader	Cover Tape	Cover tape without carrier 200 mm MIN.	Tip taped to rool
	Carrier Tape	Empty pocket 10 MIN.	Take up direction as the above
Trailer	Carrier Tape	Empty pocket 17 to 20 pieces	

2.3.2 QUANTITY

1 k pieces/reel (-T1, -T2)

5 k pieces/reel (-T1A, -T2A)

4 k pieces/reel (-T1B, -T2B)

<R> 2 k pieces/reel (-T1C)

<R> 10 k pieces/reel (-T1D)

2.3.3 SPLICING

No carrier or cover tape is spliced.

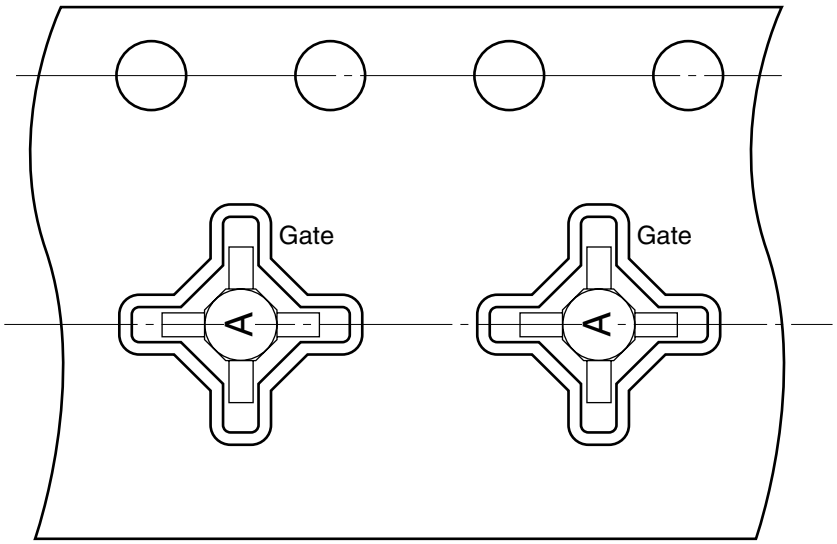
2.3.4 ELECTROSTATIC PREVENTION

Electrostatic prevention measures have been implemented for both carrier and cover tape.

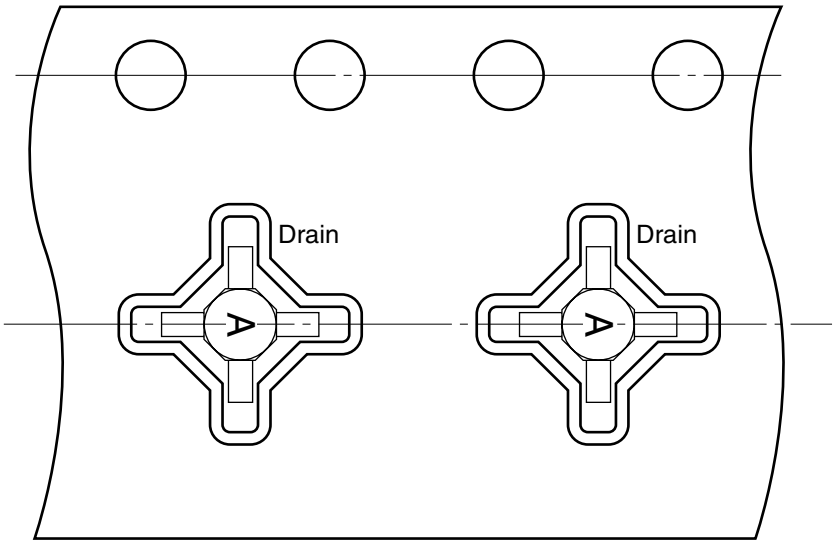
2.4 DEVICE ORIENTATION

As shown below.

(1) -T1, -T1A, -T1B



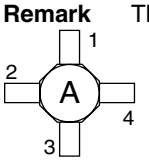
(2) -T2, -T2A, -T2B



<R> -T1, -T1A, -T1B: pin 4 (Gate) face the perforation side of the tape.

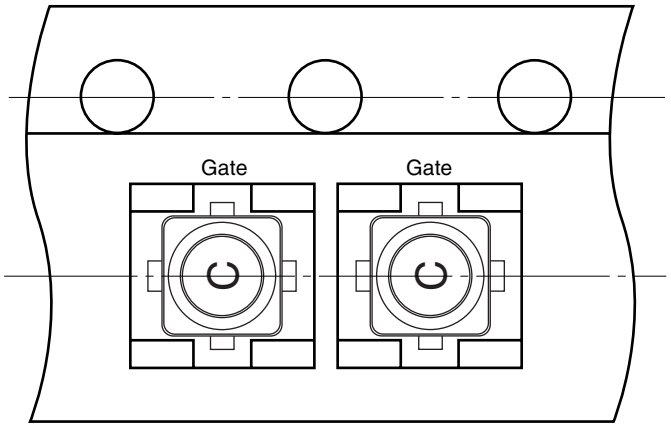
<R> -T2, -T2A, -T2B: pin 2 (Drain) face the perforation side of the tape.

Remark The letter differs depending on the product.



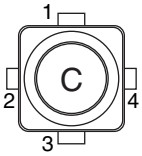
1. Source
2. Drain
3. Source
4. Gate

<R> **(3) -T1C, -T1D**



-T1C, -T1D: pin 4 (Gate) face the perforation side of the tape.

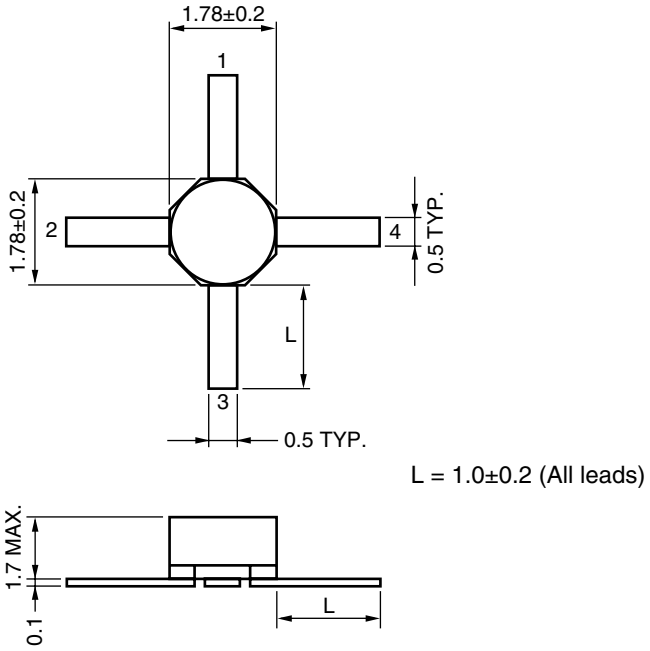
Remark The letter differs depending on the product.



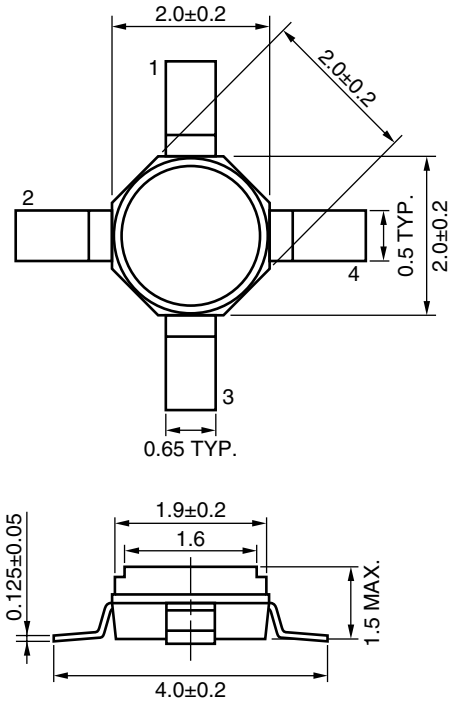
1. Source
2. Drain
3. Source
4. Gate

2.5 PACKAGE DIMENSIONS (UNIT: mm)

<R> **84, 84A, 84C Package**

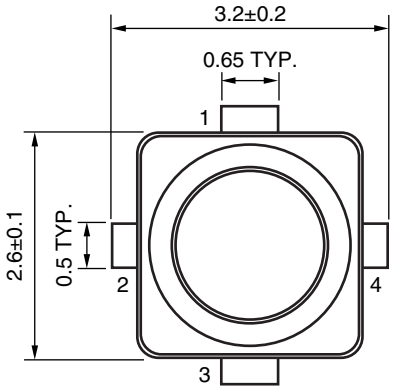


S01 Package

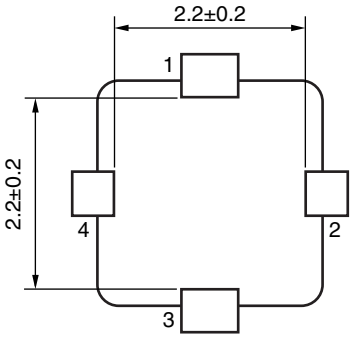


<R> **S02 Package**

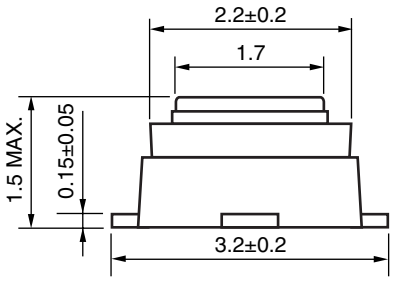
(Top View)



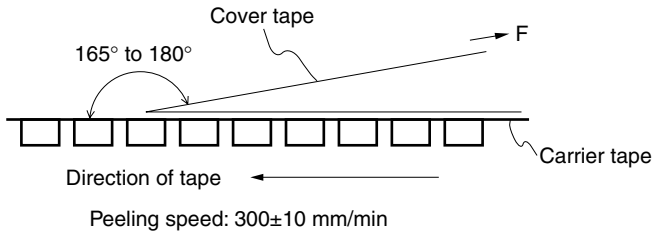
(Bottom View)



(Side View)



<R> 3. MECHANICAL DATA

Item	Carrier tape width	Data	Remarks
COVER TAPE ADHESION	12 mm	0.1 to 1.3 N	
	8 mm	0.1 to 1.0 N	
TAPE BEND STARENGTH		–	When tape is rolled with 15 mm radius, no device should pop out.

Caution Carrier tape and cover tape are bonded with thermocompression.

4. PACKING

1 to 10 reel/carton. Type no. (Ordering name and I_{DSS} classification), quantity, lot code and NEC are marked or labeled.

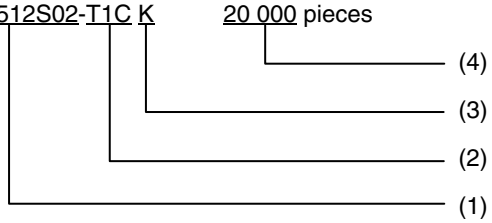
5. ORDERING INFORMATION

5.1 ORDERING INFORMATION

(1) Type no.
(2) Ordering group
(3) I_{DSS} classification (Each reel has only one I_{DSS} classification)
(4) Quantity

(EXAMPLE)

<R> NE3512S02-T1C K 20 000 pieces



<R> 5.2 ORDERING GROUP CLASSIFIED BY SUPPLYING FORM

The ordering groups are specified in the table below.

Ordering Group	Supplying Form	Quantity
-T1 -T2	Tape & Reel (The number specifies the taping direction.)	1 k pieces/reel
-T1A -T2A	Tape & Reel (The number specifies the taping direction.)	5 k pieces/reel
-T1B -T2B	Tape & Reel (The number specifies the taping direction.)	4 k pieces/reel
-T1C	Tape & Reel (The number specifies the taping direction.)	2 k pieces/reel
-T1D	Tape & Reel (The number specifies the taping direction.)	10 k pieces/reel

The order name consists of a combination of the ordering group and the supplying form.

►**For further information, please contact**

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