

# Tape-and-Reel Packaging for Surface Mount Devices

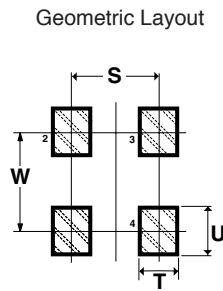
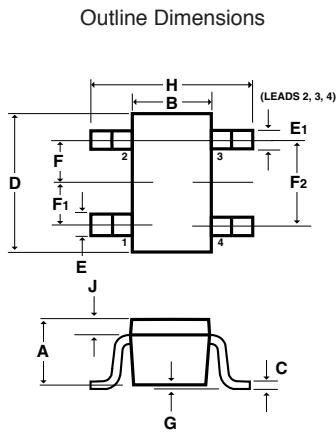
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# Tape-and-Reel Packaging for Surface Mount Devices

## Package Outline Dimensions and Geometric Pad Layout

### "18" Package

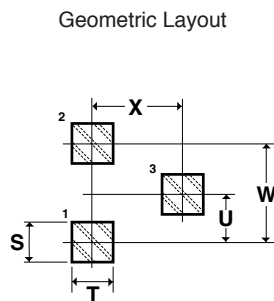
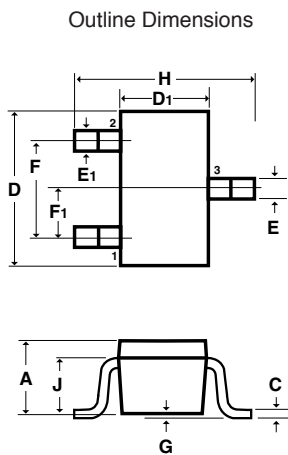


Pin Connections

1. Collector
2. Emitter
3. Base
4. Emitter

SYMBOL	DIMENSION	
	Millimeters	Inches
A	0.9 ± 0.1	0.035 ± 0.004
B	1.25 ± 0.1	0.060 <sup>+0.004</sup> <sub>-0.002</sub>
C	0.15 <sup>+0.1</sup> <sub>-0.05</sub>	0.006 <sup>+0.004</sup> <sub>-0.002</sub>
D	2.0 ± 0.2	0.080 ± 0.008
E	0.4 <sup>+0.1</sup> <sub>-0.05</sub>	0.016 <sup>+0.004</sup> <sub>-0.002</sub>
E <sub>1</sub>	0.3 <sup>+0.1</sup> <sub>-0.05</sub>	0.012 <sup>+0.004</sup> <sub>-0.002</sub>
F	0.65	0.026
F <sub>1</sub>	0.60	0.024
F <sub>2</sub>	1.3	0.051
G	0 to 0.1	0 to 0.004
H	2.1 ± 0.2	0.083 ± 0.008
J	0.3	0.012
S	1.7	0.067
T	0.8	0.032
U	0.6	0.024
W	1.3	0.051

### "19" Package



Pin Connections

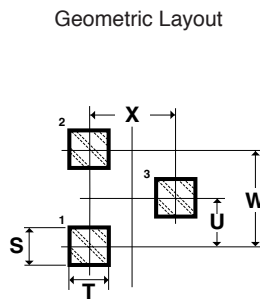
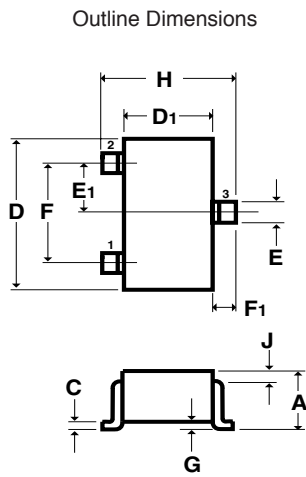
1. Emitter
2. Base
3. Collector

SYMBOL	DIMENSION	
	Millimeters	Inches
A	0.75 ± 0.05	0.030 ± 0.002
C	0.15 <sup>+0.1</sup> <sub>-0.05</sub>	0.006 <sup>+0.004</sup> <sub>-0.002</sub>
D	1.6 ± 0.1	0.063 ± 0.004
D <sub>1</sub>	0.8 ± 0.1	0.032 ± 0.004
E	0.3 <sup>+0.1</sup> <sub>-0</sub>	0.012 <sup>+0.004</sup> <sub>-0</sub>
E <sub>1</sub>	0.2 <sup>+0.1</sup> <sub>-0</sub>	0.008 <sup>+0.004</sup> <sub>-0</sub>
F	1.0	0.039
F <sub>1</sub>	0.5	0.020
G	0 to 0.1	0 to 0.004
H	1.6 ± 0.1	0.063 ± 0.004
J	0.6	0.024
S	0.6	0.024
T	0.6	0.024
U	0.5	0.020
W	1.0	0.039
X	1.3	0.051

# Tape-and-Reel Packaging for Surface Mount Devices

## Package Outline Dimensions and Geometric Pad Layout

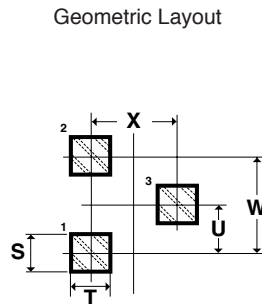
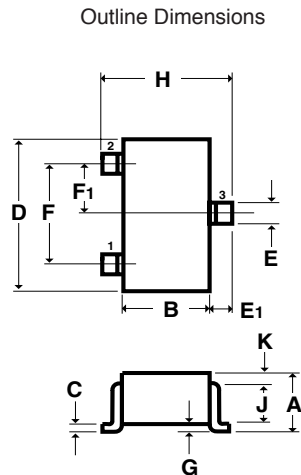
### "30" Package



- Pin Connections
1. Emitter
  2. Base
  3. Collector

SYMBOL	DIMENSION	
	Millimeters	Inches
A	0.8 to 1.1	0.031 to 0.043
C	0.15 <sup>+0.1</sup> <sub>-0.05</sub>	0.006 <sup>+0.004</sup> <sub>-0.002</sub>
D	2.0 ± 0.2	0.079 ± 0.008
D <sub>1</sub>	1.25 ± 0.1	0.049 ± 0.004
E	0.3 <sup>+0.1</sup> <sub>-0</sub>	0.012 <sup>+0.004</sup> <sub>-0</sub>
E <sub>1</sub>	0.65	0.026
F	1.3	0.051
F <sub>1</sub>	0.43 ± 0.1	0.017 ± 0.004
G	0 to 0.1	0 to 0.004
H	2.1 ± 0.1	0.083 ± 0.004
J	0.15	0.006
S	0.6 Min	0.024
T	0.8 Min	0.031
U	0.65	0.026
W	1.3	0.051
X	1.7	0.067

### "33" Package



- Pin Connections
1. Emitter
  2. Base
  3. Collector

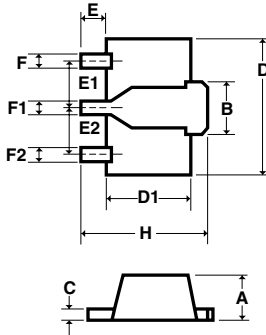
SYMBOL	DIMENSION	
	Millimeters	Inches
A	1.1 to 1.4	0.043 to 0.055
B	1.5	0.059
C	0.16 <sup>+0.10</sup> <sub>-0.06</sub>	0.006 <sup>+0.004</sup> <sub>-0.002</sub>
D	2.9 ± 0.2	0.114 ± 0.008
E	0.4 <sup>+0.10</sup> <sub>-0.05</sub>	0.016 <sup>+0.004</sup> <sub>-0.002</sub>
E <sub>1</sub>	0.65 <sup>+0.10</sup> <sub>-0.15</sub>	0.026 <sup>+0.004</sup> <sub>-0.006</sub>
F	1.9	0.075
F <sub>1</sub>	0.95	0.037
G	0 to 0.1	0 to 0.004
H	2.8 ± 0.2	0.110 ± 0.008
J	0.8	0.031
K	0.3	0.012
S	0.8 Min	0.031
T	1.0 Min	0.039
U	0.95	0.037
W	1.9	0.075
X	2.4	0.095

# Tape-and-Reel Packaging for Surface Mount Devices

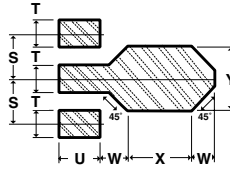
## Package Outline Dimensions and Geometric Pad Layout

### "34" Package

Outline Dimensions



Geometric Layout

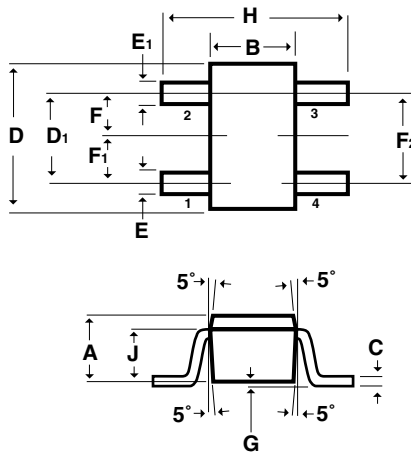


SYMBOL	DIMENSION	
	Millimeters	Inches
A	1.5 ± 0.1	0.059 ± 0.004
B	1.6 ± 0.2	0.063 to 0.008
C	0.41 <sup>+0.03</sup> <sub>-0.05</sub>	0.061 <sup>+0.001</sup> <sub>-0.002</sub>
D	4.51 to ± 0.1	0.177 ± 0.004

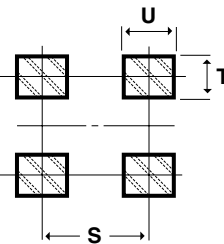
SYMBOL	DIMENSION	
	Millimeters	Inches
D <sub>1</sub>	2.5 ± 0.1	0.098 ± 0.004
E	0.8 Min	0.031
E <sub>1</sub>	1.5	0.059
E <sub>2</sub>	1.5	0.059
F	0.42 ± 0.06	0.017 ± 0.002
F <sub>1</sub>	0.47 ± 0.06	0.019 ± 0.002
F <sub>2</sub>	0.42 ± 0.06	0.017 ± 0.002
H	4.0 ± 0.25	0.157 ± 0.010
S	1.5	0.059
T	1.0	0.039
U	1.5	0.059
W	0.9	0.035
X	2.2	0.087
Y	2.2	0.087

### "39/39R" Package

Outline Dimensions



Geometric Layout



Pin Connections

1. Collector
2. Emitter
3. Base
4. Emitter

SYMBOL	DIMENSION	
	Millimeters	Inches
A	1.1 <sup>+0.2</sup> <sub>-0.1</sub>	0.043 <sup>+0.008</sup> <sub>-0.004</sub>
B	1.5 <sup>+0.2</sup> <sub>-0.1</sub>	0.059 <sup>+0.008</sup> <sub>-0.004</sub>
C	0.16 <sup>+0.1</sup> <sub>-0.06</sub>	0.006 <sup>+0.004</sup> <sub>-0.002</sub>
D	2.9 ± 0.2	0.114 ± 0.008
D <sub>1</sub>	1.8	0.071
E	0.6 <sup>+0.1</sup> <sub>-0.05</sub>	0.024 <sup>+0.004</sup> <sub>-0.002</sub>
E <sub>1</sub>	0.4 <sup>+0.1</sup> <sub>-0.05</sub>	0.016 <sup>+0.004</sup> <sub>-0.002</sub>
*F	0.95	0.037
*F <sub>1</sub>	0.85	0.033
F <sub>2</sub>	1.9	0.075
G	0 to 0.1	0 to 0.004
H	2.8 <sup>+0.2</sup> <sub>-0.3</sub>	0.110 <sup>+0.008</sup> <sub>-0.012</sub>
J	0.8	0.031
S	2.4	0.095
T	0.8 Min	0.031
U	1.0 Min	0.039
W	1.9	0.075

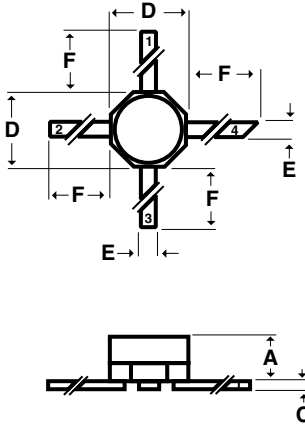
\*Note: Dimensions for "F" and "F1" are reversed in 39R package.

# Tape-and-Reel Packaging for Surface Mount Devices

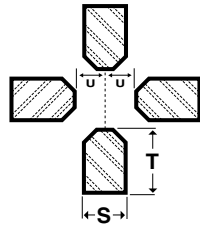
## Package Outline Dimensions and Geometric Pad Layout

### "84C" Package

Outline Dimensions



Geometric Layout



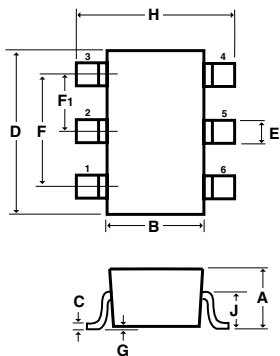
Pin Connections

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

SYMBOL	DIMENSION	
	Millimeters	Inches
A	1.7 Max	0.055
C	0.10	0.004
D	$1.78 \pm 0.2$	$0.070 \pm 0.008$
E	0.50	0.020
F	$1.0 \pm 0.2$	$0.039 \pm 0.008$
S	1.0	0.039
T	1.5	0.059
U	0.9	0.035

### "T06" Package

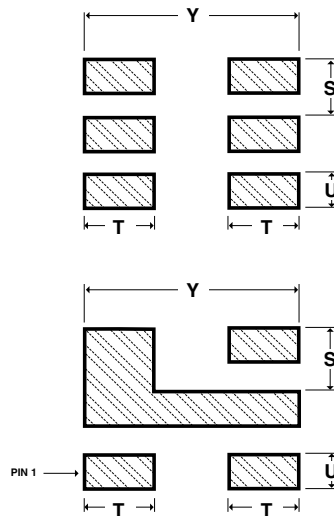
Outline Dimensions



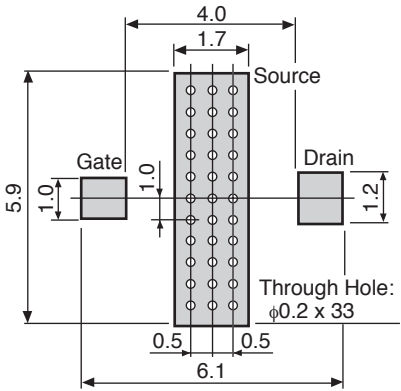
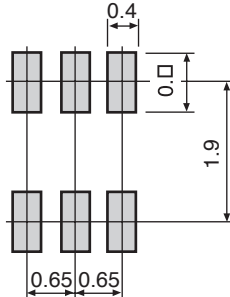
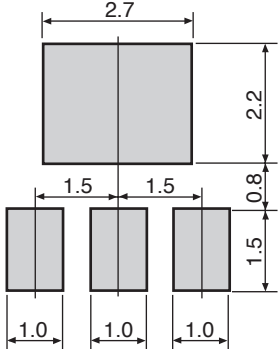
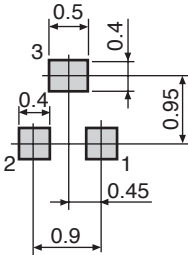
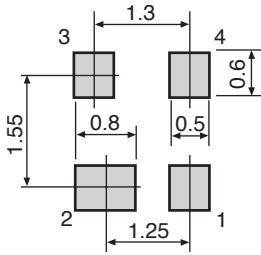
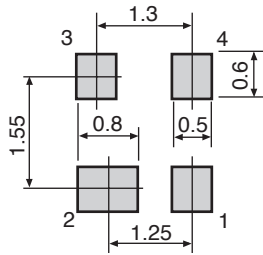
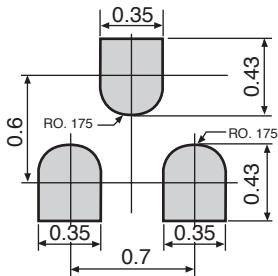
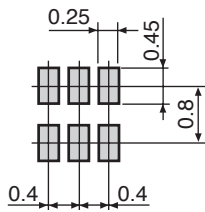
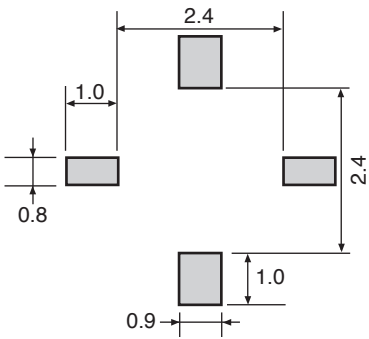
Pin Connections

1. Input
2. Ground
3. Ground
4. Output
5. Ground
6. Vcc

Geometric Layout

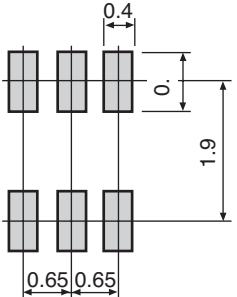
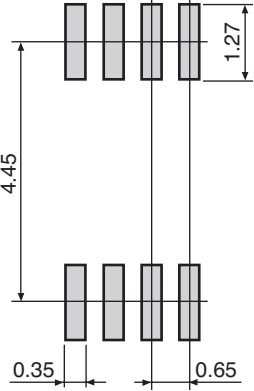
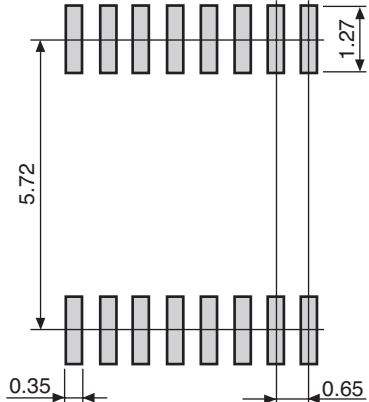
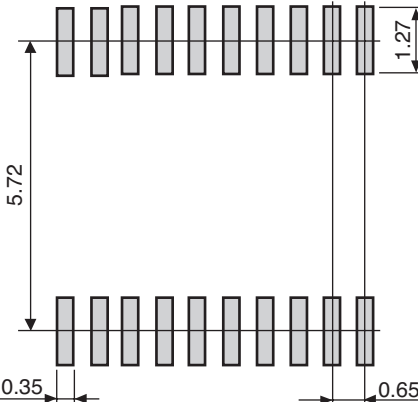
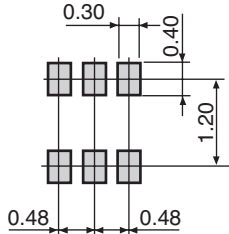
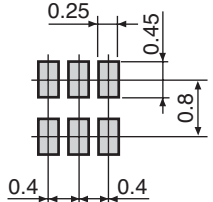
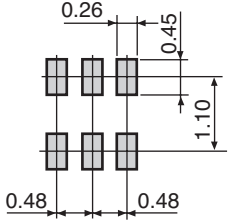


SYMBOL	DIMENSION	
	Millimeters	Inches
A	0.8	0.032
B	1.5	0.059
C	$0.13 \pm 0.1$	$0.005 \pm 0.004$
D	$2.9 \pm 0.2$	$0.114 \pm 0.008$
E	$0.35 \pm 0.1$	$0.014 \pm 0.004$
F	$1.9 \pm 0.2$	$0.075 \pm 0.008$
F <sub>1</sub>	0.95	0.037
G	0 to 0.1	0 to 0.004
H	$2.8^{+0.2}_{-0.3}$	$0.110^{+0.008}_{-0.012}$
J	$1.1^{+0.2}_{-0.1}$	$0.043^{+0.008}_{-0.004}$
S	0.95	0.037
T	1.0	0.039
U	0.5	0.020
Y	3.1	0.122

"79A" Package	"M01" Package	"M02" Package
<p>Geometric Layout</p>  <p>Dimensions: 5.9 (total height), 1.0 (Gate height), 1.0 (Gate width), 4.0 (Source width), 1.7 (Source pad width), 1.2 (Drain height), 0.5 (Through Hole offset), 6.1 (total width), 0.2 x 33 (Through Hole).</p>	<p>Geometric Layout</p>  <p>Dimensions: 0.4 (pad width), 0.1 (pad height), 1.9 (total height), 0.65 (pad spacing).</p>	<p>Geometric Layout</p>  <p>Dimensions: 2.7 (total width), 2.2 (total height), 1.5 (pad width), 1.5 (pad spacing), 0.8 (pad height), 1.5 (total height), 1.0 (pad width).</p>
"M03" Package	"M04" Package	"M05" Package
<p>Geometric Layout</p>  <p>Dimensions: 0.5 (pad width), 0.4 (pad height), 0.95 (total height), 0.9 (total width), 0.45 (pad spacing).</p>	<p>Geometric Layout</p>  <p>Dimensions: 1.3 (total width), 0.6 (pad height), 1.55 (total height), 0.8 (pad width), 0.5 (pad spacing), 1.25 (total width).</p>	<p>Geometric Layout</p>  <p>Dimensions: 1.3 (total width), 0.6 (pad height), 1.55 (total height), 0.8 (pad width), 0.5 (pad spacing), 1.25 (total width).</p>
"M13" Package	"M16" Package	"S01" Package
<p>Geometric Layout</p>  <p>Dimensions: 0.35 (pad width), 0.43 (pad height), 0.6 (total height), 0.7 (total width), RO.175 (radius).</p>	<p>Geometric Layout</p>  <p>Dimensions: 0.25 (pad width), 0.45 (pad height), 0.8 (total height), 0.4 (pad spacing).</p>	<p>Geometric Layout</p>  <p>Dimensions: 2.4 (total width), 2.4 (total height), 1.0 (pad width), 0.8 (pad height), 0.9 (pad width).</p>

# Tape-and-Reel Packaging for Surface Mount Devices

## Geometric Pad Layouts

"S06" Package	"S08" Package	"S16" Package
<p>Geometric Layout</p> 	<p>Geometric Layout</p> 	<p>Geometric Layout</p> 
"S20" Package	"TC" Package	"TD" Package
<p>Geometric Layout</p> 	<p>Geometric Layout</p> 	<p>Geometric Layout</p> 
"TK" Package		
<p>Geometric Layout</p> 		

# Tape-and-Reel Packaging for Surface Mount Devices

## Tape Dimensions

PACKAGE NUMBER			18	19	T06	30	33	M03	M04, M05
ITEMS		SYMBOLS	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)
Pocket	Length <sup>1</sup>	A	2.2±0.1	1.9±0.1	3.18 ±0.1	2.2±0.1	3.35±0.1	1.5	2.15 <sup>+0.15</sup> <sub>-0.05</sub>
	Width	B	2.4±0.1	2.0±0.1	3.4 ±0.1	2.3 ±0.1	3.2±0.1	1.5	2.60±0.1
	Depth <sup>2</sup>	Ko	1.2±0.1	0.9±0.1	1.4 ±0.1	1.2±0.1	1.4±0.1	0.77	0.85±0.1
	Pitch <sup>3</sup>	F	4.0±0.1	4.0±0.1	4.0 ±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
Air Hole	Diameter	M	ø1.1±0.2	ø0.5 ±0.05	ø1.0±0.2	ø0.8 ± 0.1		ø0.5±0.1	ø1.05±1.0
Ceramic Section	Width	N							
Perforation	Diameter	J	ø1.55 <sup>+0.1</sup> <sub>-0.05</sub>	ø1.5 <sup>+0.1</sup> <sub>-0.05</sub>	ø1.55±0.05	ø1.5 <sup>+0.1</sup> <sub>-0.05</sub>	ø1.5 <sup>+0.1</sup> <sub>-0.05</sub>	ø1.55±0.05	ø1.55±0.05
	Pitch <sup>5</sup>	H	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
	Position	E	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
Distance Between Center Lines	Length Dir.	G	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05
	Width Dir.	D	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05
Cover Tape	Width <sup>6</sup>	W	5.5 <sup>+0.3</sup> <sub>-0.3</sub>	5.5±0.1	5.5 <sup>+0.3</sup> <sub>-0.3</sub>	5.5±0.2	5.5 <sup>+0.3</sup> <sub>-0.3</sub>	5.5±0.1	5.5 <sup>+0.3</sup> <sub>-0.3</sub>
Carrier Tape	Width <sup>7</sup>	C	8.0±0.2	8.0±0.2	8.0 ±0.2	8.0±0.2	8.0±0.2	8.0±0.2	8.0 ±0.2
	Thickness	t	0.3±0.05	0.3±0.05	0.3 ±0.05	0.2±0.05	0.2±0.05	0.2 <sup>+0.05</sup> <sub>-0.1</sub>	0.3 <sup>+0.05</sup> <sub>-0.1</sub>
	Depth	K1		1.1±0.1	1.6 ±0.1		1.5±0.1	0.97 <sup>+0.15</sup> <sub>-0.1</sub>	
Device	Tilt	ø	20°Max.	30°Max.	20°Max.	30°Max.	30°Max.	20°Max.	20°Max.
Overall Thickness <sup>8</sup>		K	1.8Max.	1.2±0.1	1.65 ±0.1	1.35±0.1	1.55±0.1	1.3Max.	1.45Max.

PACKAGE NUMBER			34	39	84C	S01	S06, M01	S20	S20 <sup>9</sup>
ITEMS		SYMBOLS	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)
Pocket	Length <sup>1</sup>	A	5.0±0.1	3.18 ±0.1	5.0±0.1	5.0±0.15	2.2±0.1	6.8	6.9
	Width	B	4.6±0.1	3.4 ±0.1			2.4±0.1	7.2	7.2
	Depth <sup>2</sup>	Ko	1.8±0.1	1.4±0.1	1.5±0.1	1.8±0.1	1.1±0.2		
	Pitch <sup>3</sup>	F	8.0±0.1	4.0 ±0.1	8.0±0.1	8.0±0.1	4.0±0.1	8.0±0.1	8.0±1
Air Hole	Diameter	M					ø1.0±0.2	ø1.5 Min	ø1.5 Min.
Ceramic Section	Width	N			2.4±0.1	2.4±0.1			
Perforation	Diameter	J	ø1.5 <sup>+0.1</sup> <sub>-0.05</sub>	ø1.5 <sup>+0.1</sup> <sub>-0.05</sub>	ø1.55±0.05	ø1.55±0.05	ø1.55 <sup>+0.1</sup> <sub>-0.05</sub>	ø1.5 <sup>+0.1</sup> <sub>-0.0</sub>	ø1.5 <sup>+0.1</sup> <sub>-0.0</sub>
	Pitch <sup>5</sup>	H	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
	Position	E	1.5±0.1	1.75±0.1	1.5±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
Distance Between Center Lines	Length Dir.	G	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.1	2.0±0.1
	Width Dir.	D	5.65±0.05	3.5±0.05	5.65±0.05	5.5±0.05	3.5±0.05	5.5±0.05	7.5±0.1
Cover Tape	Width <sup>6</sup>	W	9.5±0.03	5.5 <sup>+0.3</sup> <sub>-0</sub>	9.5 <sup>+0.3</sup> <sub>-0</sub>	9.5 <sup>+0.3</sup> <sub>-0</sub>	5.5±0.1		
Carrier Tape	Width <sup>7</sup>	C	12.0±0.2	8.0 ±0.2	12.0±0.2	12.0±0.2	8.0±0.2	12.0±0.3	16.0±0.3
	Thickness	t	0.3±0.05	0.3 ±0.05	0.3±0.05	0.3±0.05	0.3±0.05	0.3	0.3
	Depth	K <sub>1</sub>	2.1±0.1	1.6 ±0.1	1.60±0.1	1.9±0.1			
Device	Tilt	ø	30°Max.	20°Max.			30° Max.		
Overall Thickness <sup>8</sup>		K	2.3±0.1	1.65 ±0.1	1.7±0.1	2.0±0.1	1.8 Max.	2.2	1.8

**Notes:**

- |                                                                       |                                                                       |                                      |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------|
| 1. At 0.3mm above bottom                                              | 4. At 0.3mm above bottom                                              | 7. Bend = δ -0.3 Max                 |
| 2. Internal Area                                                      | 5. Accumulated Tolerance <sup>+0.1</sup> <sub>-0.3</sub> Max/10 pitch | 8. Cover tape and carrier tape total |
| 3. Accumulated Tolerance <sup>+0.1</sup> <sub>-0.3</sub> Max/10 pitch | 6. Thickness: 0.1mm Max                                               | 9. NEC Malaysia UPC2798GR-E1         |



# Tape-and-Reel Packaging for Surface Mount Devices

## Tape Dimensions

PACKAGE NUMBER			S08		S16	S30	79A	M13
	ITEMS	SYMBOLS	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)	SIZE (mm)
Pocket	Length <sup>1</sup>	A	5.45±0.1	5.25	6.7±0.1	8.7	6.0±0.05	0.87±0.5
	Width	B	3.25±0.1	3.25	5.92±0.1	10.4	6.0±0.5	2.0±0.5
	Depth <sup>2</sup>	Ko	1.9±0.1	2.1	1.2±0.1	2.4	1.2±0.1	0.58±0.5
	Pitch <sup>3</sup>	F	8.0 ±0.1	8.0±0.1	8.0±0.1	12±0.1	8.0±0.1	4.0±0.1
Air Hole	Diameter	M	ø1.0 Min.	ø1.5 Min.	ø1.55±0.05	ø1.5 Min	ø1.55±0.05	ø0.5±0.1
Ceramic Section	Width	N						
Perforation	Diameter	J	ø1.5 <sup>±0.1</sup>	ø1.5 <sup>±0.1</sup>	ø1.55±0.1	ø1.5 <sup>±0.1</sup>	ø1.55±0.05	ø1.55±0.05
	Pitch <sup>5</sup>	H	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
	Position	E	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
Center Lines	Length Dir.	G	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.01	2.0±0.05	2.0±0.05
	Width Dir.	D		5.5±0.1	5.5±0.1	7.5±0.1	5.5±0.05	3.5±0.05
Cover Tape	Width <sup>6</sup>	W					8.7±0.4	5.5±0.2
Carrier Tape	Width <sup>7</sup>	C	8.0±0.3	12.0±0.3	12.0±0.3	16±0.3	12.0±0.2	8.0±0.2
	Thickness	t	0.3±0.05	0.3	0.3±0.05	0.3	0.3±0.05	0.2 <sup>+0.5</sup> <sub>-0.05</sub>
	Depth	K1						
Device	Tilt	ø						30° Max
Overall Thickness <sup>8</sup>		K					1.6	

Notes:

1. At 0.3mm above bottom

2. Internal Area

3. Accumulated Tolerance <sup>+0.1</sup> Max/10 pitch  
<sub>-0.3</sub>

4. At 0.3mm above bottom

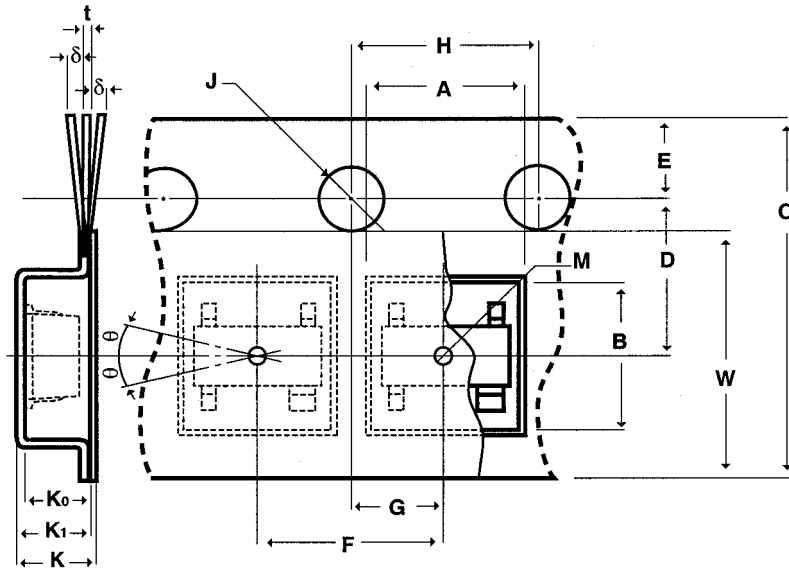
5. Accumulated Tolerance <sup>+0.1</sup> Max/10 pitch  
<sub>-0.3</sub>

6. Thickness: 0.1mm Max

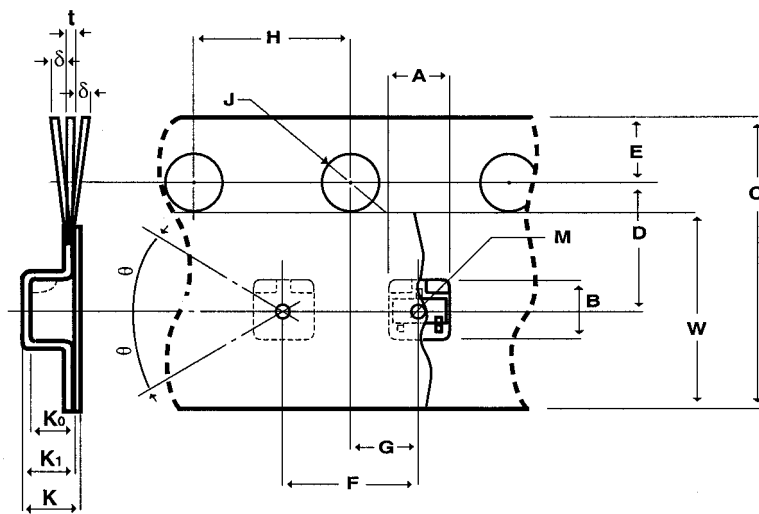
7. Bend = δ -0.3 Max

8. Cover tape and carrier tape total

"18" Packages



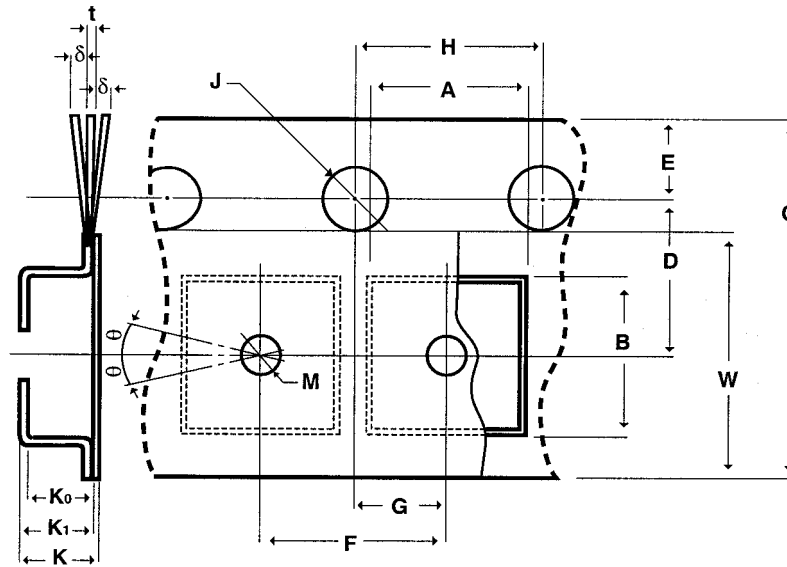
"19" Packages



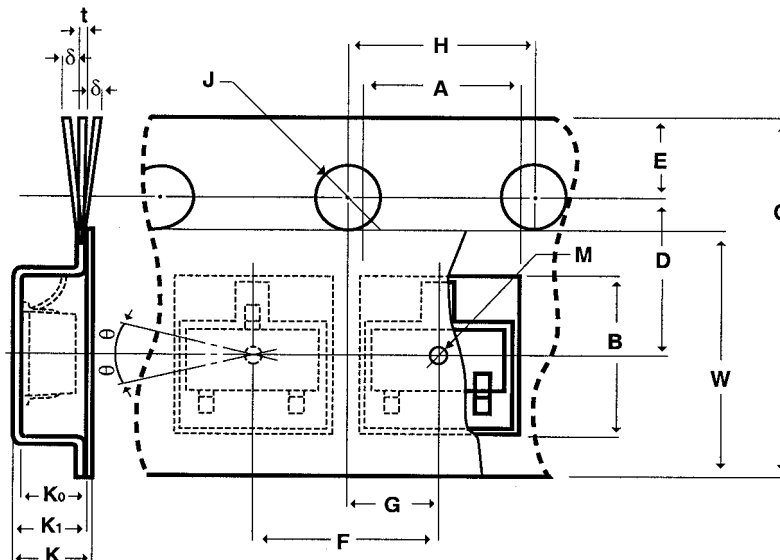
# Tape-and-Reel Packaging for Surface Mount Devices

## Tape Dimensions

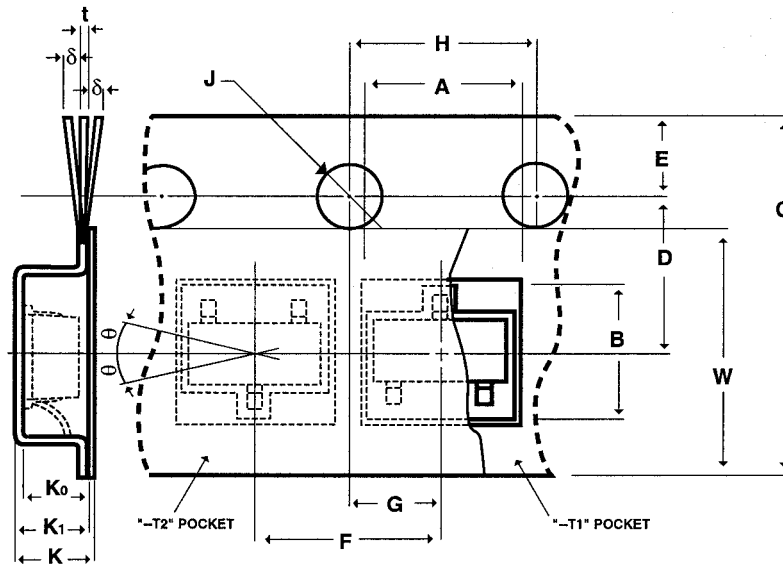
"M01", "S06", "T06" Packages



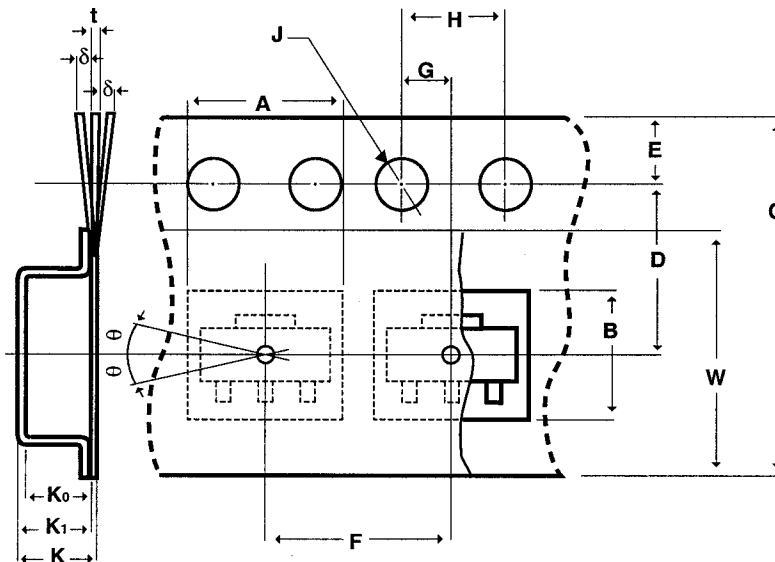
"30" Packages



"33" Packages



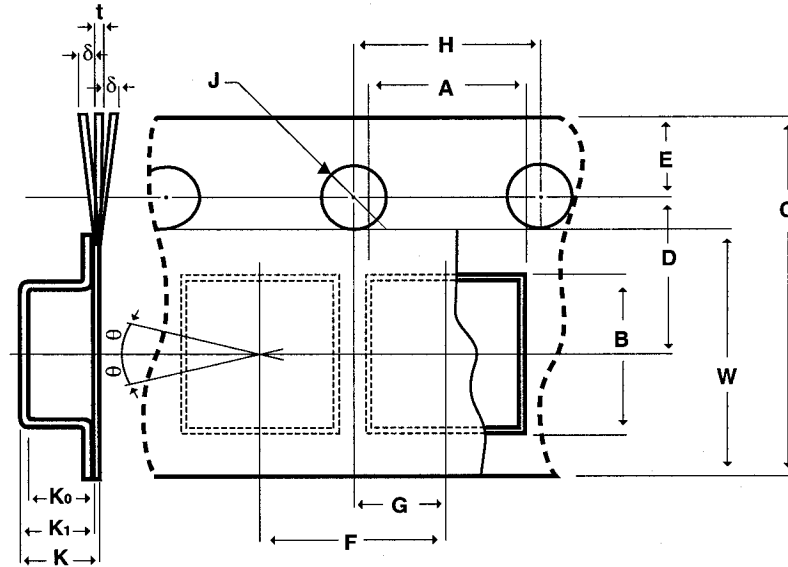
"34" Packages



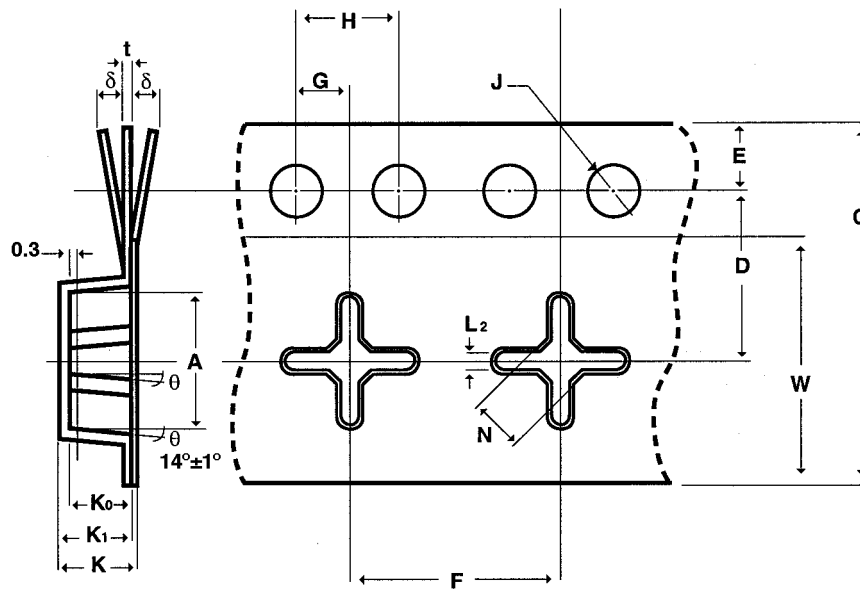
# Tape-and-Reel Packaging for Surface Mount Devices

## Tape Dimensions

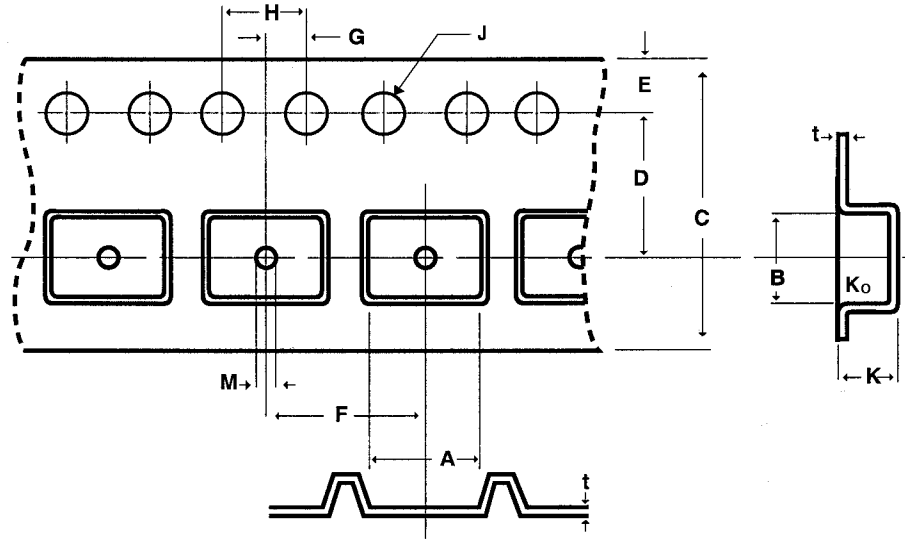
### "39" Packages



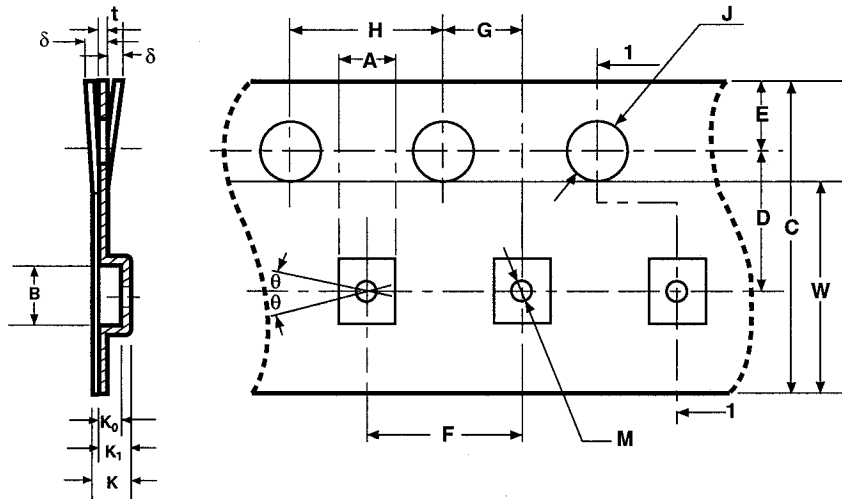
### "S01" and "84C" Packages



"S08", "S16", "S20", &  
"S30" Packages



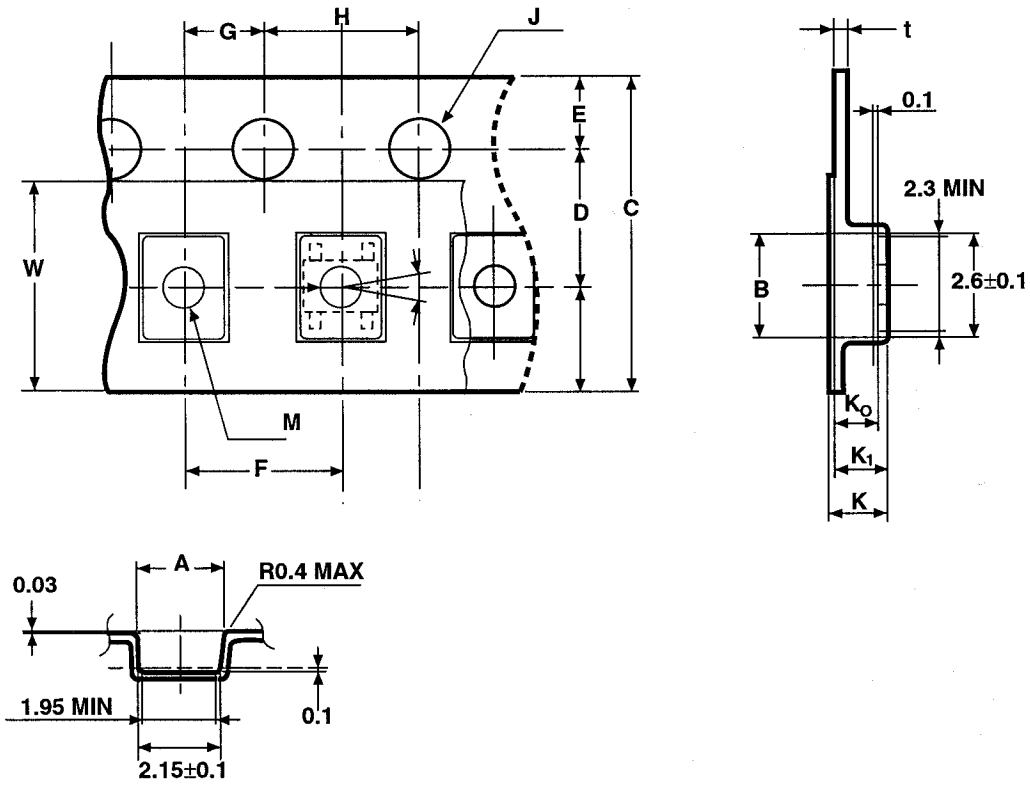
"M03" Packages



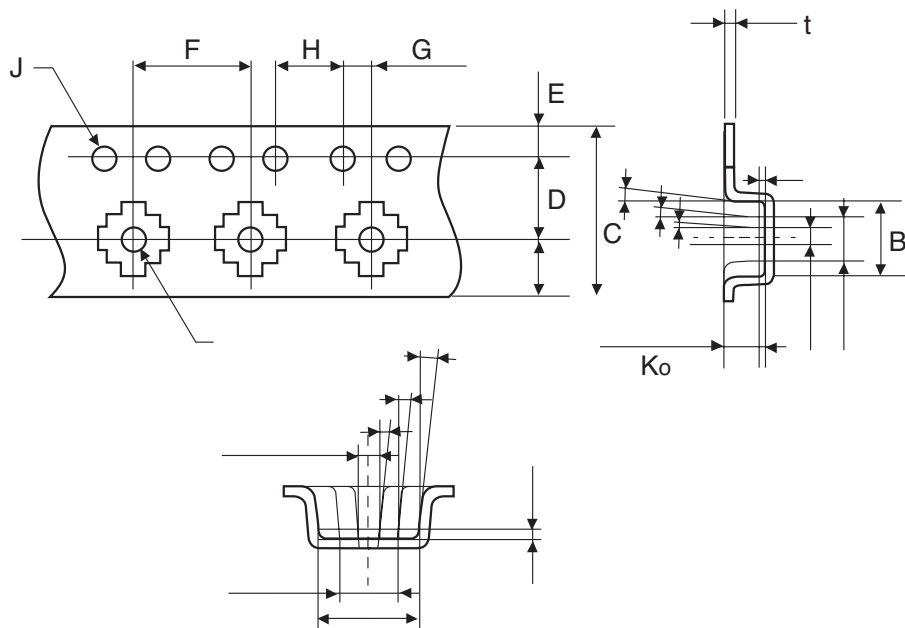
# Tape-and-Reel Packaging for Surface Mount Devices

## Tape Dimensions

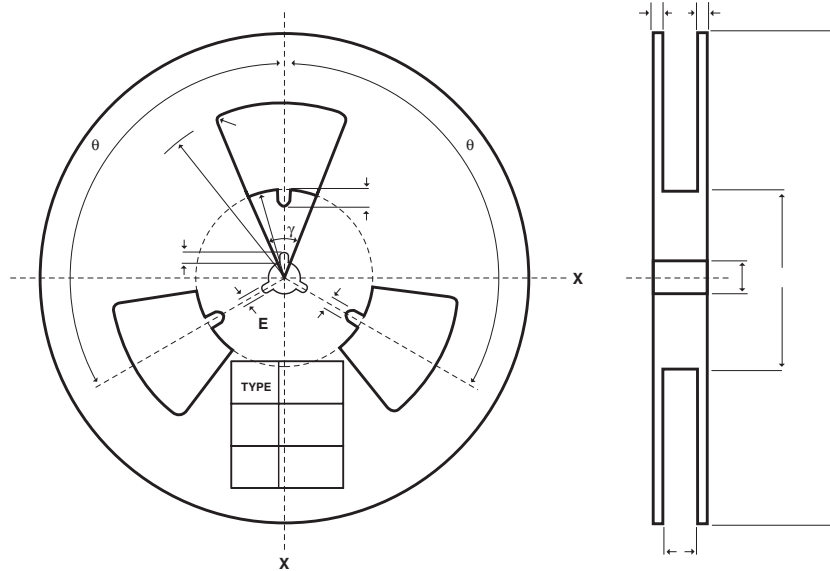
### "M04" & "M05" Packages



### "79A" Packages



## Reel Dimensions and Tape Leader Specifications



### REEL DIMENSIONS (Units in mm)

PACKAGE NUMBER			84C, S01		S08		
			T1, T2 SIZE	T1B, T2B SIZE	SIZE	SIZE	
Flange	Diameter	A	$\phi 180 \pm 1.5$	$\phi 330 \pm 2$	$\phi 178 \pm 2$	$\phi 330 \pm 2$	
	Thickness	t	$1.5 \pm 0.1$	$2.5^{+0.5}_{-0}$	$1.5 \pm 0.1$	2.5	
	Space between flanges	W	$14 \pm 0.5$	$13.5 \pm 0.1$	$9 \pm 0.1$	12.4	
Hub	Outer Diameter	B	$\phi 60 \pm 1$	$\phi 100 \pm 0.1$	$\phi 60 \pm 0.1$	$\phi 100$	
	Slit	Width	F				
		Depth	V				
		Location	o			$120^\circ \pm 3^\circ$	
	Spindle Hole Diameter	C	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$	
	Key Slit	Width	E	$2.0 \pm 0.5$	$2.0 \pm 0.5$	$2.0 \pm 0.5$	$2.0 \pm 0.5$
		Depth	U	$4.0 \pm 0.5$	$4.0 \pm 0.5$	$4.0 \pm 0.5$	$4.0 \pm 0.5$
Outer Radius	Location	o			$120^\circ \pm 3^\circ$		
Window	Outer Radius	Rø					
	Inner Radius	Ri					
	Corner Radius	Rc				R6.5	
		γ					
Number of Pieces per Reel			1,000	4,000	1,000	2,000	
Number of Orientations Available			1	1	1	2	

PACKAGE NUMBER			S16	S20	S30	79A	
ITEMS	SYMBOLS	SIZE	SIZE	SIZE	SIZE	SIZE	
Flange	Diameter	A	$\phi 330 \pm 2$	$\phi 330 \pm 2$	$\phi 330 \pm 2$	$\phi 180^{+0.5}_{-1}$	
	Thickness	t	$2.0 \pm 0.5$	2.0	$2.0 \pm 0.5$		
	Space between flanges	W	13.4	$13.5 \pm 1^*$	16.4	$13.0^{+1.0}_{-0}$	
Hub	Outer Diameter	B	$\phi 100$	$\phi 100 \pm 1$	$\phi 100$		
	Slit	Width	F				
		Depth	V				
		Location	o				
	Spindle Hole Diameter	C	$\phi 13 \pm 0.2$	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$	
	Key Slit	Width	E	$2.0 \pm 0.5$	$2.0 \pm 0.5$	$2.0 \pm 0.5$	$2.0 \pm 0.5$
		Depth	U		4.0		4.0
Outer Radius	Location	o		$120^\circ \pm 3^\circ$		$120^\circ \pm 3^\circ$	
Window	Outer Radius	Rø					
	Inner Radius	Ri					
	Corner Radius	Rc					
		γ					
Number of Pieces per Reel				3,000	2,500	1,000	
Number of Orientations Available			1	1	1	1	

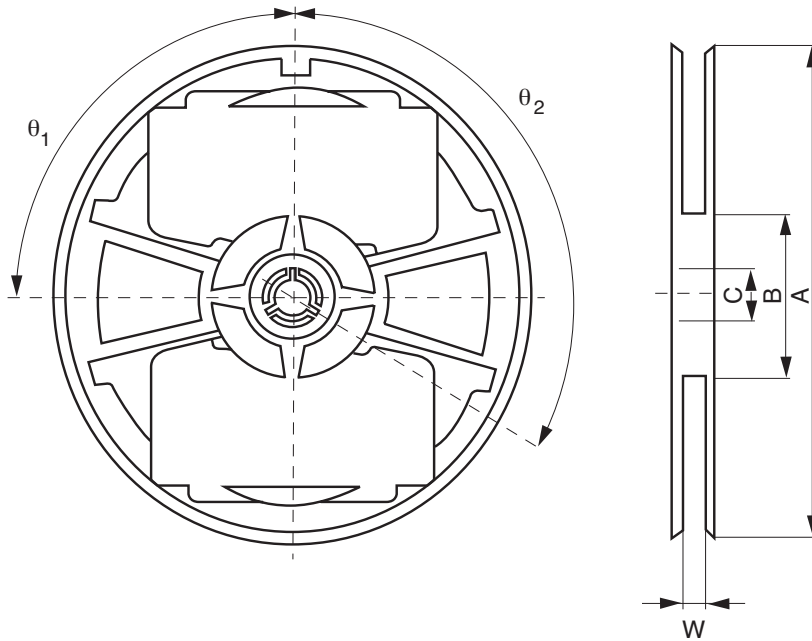
Note:

\*  $17.5 \pm 1$  for NEC Malaysia, UPC2798GR-E1



# Tape-and-Reel Packaging for Surface Mount Devices

## Reel Dimensions and Tape Leader Specifications



### REEL DIMENSIONS (Units in mm)

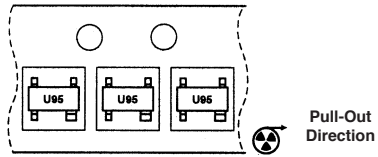
PACKAGE NUMBER			18, 19, 30, 33, 39 M01, S06, T06	34	M03, M04, M05	79A
ITEMS		SYMBOLS	SIZE	SIZE	SIZE	SIZE
Flange	Diameter	A	$\phi 178 \pm 2$	$\phi 178 \pm 2$	$\phi 180^{+0}_{-3}$	$\phi 180^{+0}_{-1.5}$
	Space between flanges	W	$9 \pm 0.5$	$13 \pm 0.5$	$9 \pm 0.5$	$13.0^{+1.0}_{-0}$
Hub	Outer Diameter	B	$\phi 60 \pm 1$	$\phi 60 \pm 1$	$\phi 60 \pm 1$	
	Slit Location	$\theta_1$	$90^\circ$	$90^\circ$	$90^\circ$	
	Spindle Hole Diameter	C	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$	$\phi 13 \pm 0.5$
	Outer Radius Location	$\theta_2$	$120^\circ$	$120^\circ$	$120^\circ$	$120^\circ \pm 3^\circ$
Number of Pieces per Reel			3,000	1,000	3,000	1,000
Number of Orientations Available			1	2	1	1

### TAPE LEADER SPECIFICATIONS

PACKAGE		18, 19, S06, M03, M01, T06	S20	33, 39	30, 34, 84C, S01	S08	M04, M05
Leader	Cover Tape w/o Carrier Tape	200 mm Min (400 mm M03, 19 pkg only)	300 mm Max	200 mm Min	200 mm Min (400 mm 30 pkg. only)	80±40 mm	400 mm Min
	Carrier Tape	10 empty pockets Min	80±40 mm	20-50 empty pockets	10 empty pockets Min	300 mm Max empty pockets	20 empty pockets Min
Trailer	Cover Tape w/o Carrier Tape	N/A	Length longer than one wrap around hub	N/A	200 Min	Length equal to onewrap around hub	N/A
	Carrier Tape	10 empty pockets Min	530±30 mm	17-20 empty pockets	17-20 empty pockets	500 mm Max empty pockets	10 empty pockets Min

### "18" Package

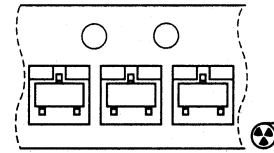
4 Pin Super Mini-Mold



T1 Orientation

### "19","30" and "33" Package

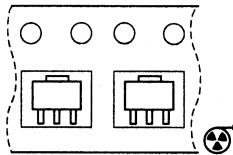
19 = 3 Pin Ultra Super Mini-Mold  
 30 = 3 Pin Super Mini-Mold    33 = 3 Pin Mini-Mold



T1

### "34" Package

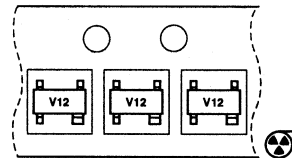
Power Mini-Mold



T1

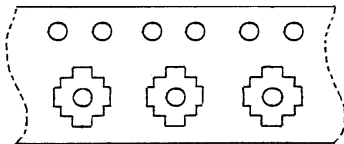
### "39" Package

4 Pin Mini-Mold



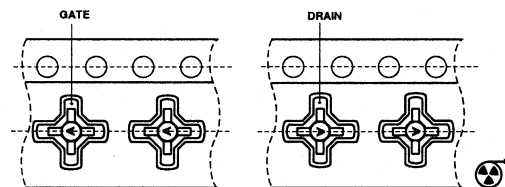
T1

### "79A" Package



T1, T1A

### "S01" Packages



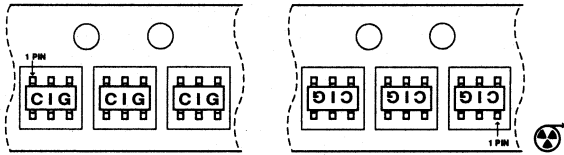
T1, T1B

T2, T2B

**Please Note:** Tape orientation options T1, E1, and E3 are maintained in inventory. Others are available by special order.

### "TB" & "T" Package

Silicon RFICs and the following GaAs products:  
UPG2155TB, UPG2156TB, UPG2179TB

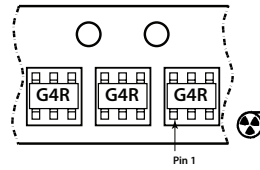


E3 Orientation

E4 Orientation

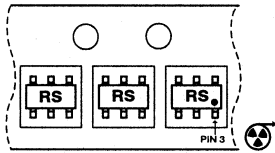
### "TB" Package

GaAs Only Except for UPG2155TB,  
UPG2156TB, UPG2179TB



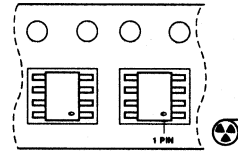
E4 Orientation

### Twin Transistor "T" & "M01" Package



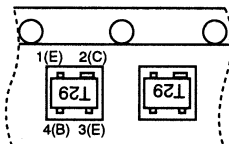
T1

### "S08", "S16", "S20" & "S30" Packages



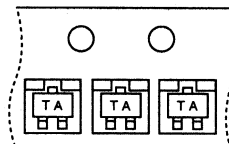
E1 Orientation

### "M04" & "M05" Package



T2

### "M03" Package



T1

**Please Note:** Tape orientation options T1, E1, and E3 are maintained in inventory. Others are available by special order.