

## ■ Features

- Ferrite core.
- EP6 SMD type.
- Shielding for optimized EMC-behavior.
- 5 U-shape terminals.
- Operating temperature:  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$  (Including self-temperature rise) .
- AEC-Q200 verified.

## ■ Applications

- Ultrasonic Sensor.
- Ultrasonic Park Assist.
- Industrial distance measuring.
- Robotics.

## ■ Product Identification

**YSTEP6** –             

(1)                      (2)                      (3)                      (4)

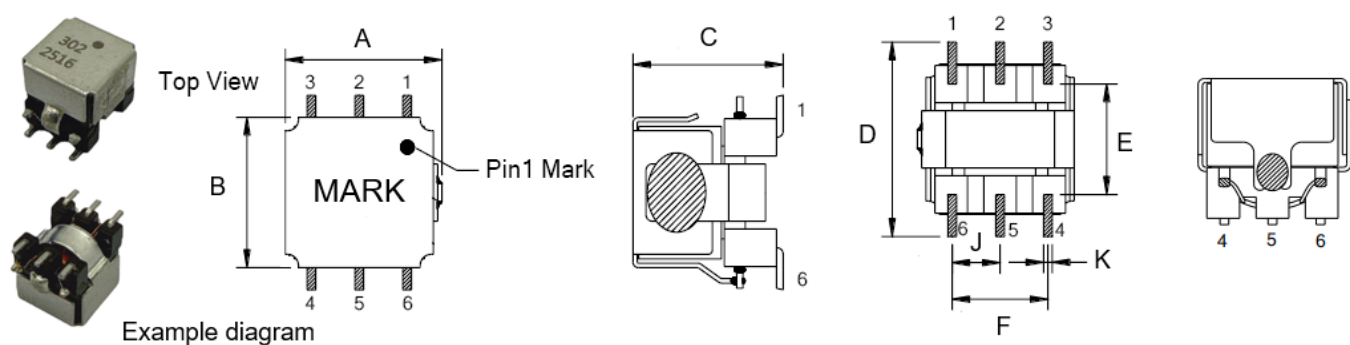
(1) : Type

(2) : Inductance value

(3) : Taping

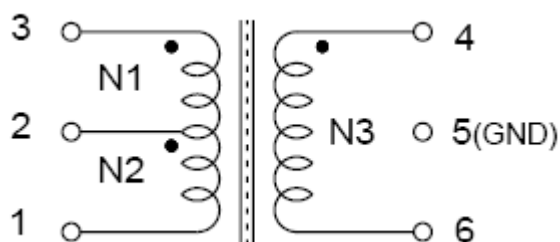
(4) : Internal Code

## ■ Shapes and Dimensions (Unit: mm)

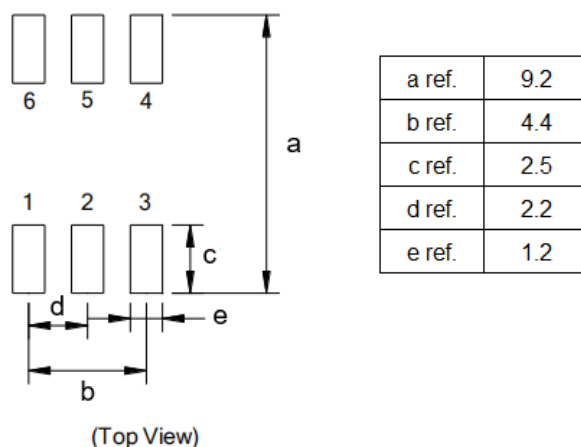


TYPE	A Max.	B	C	D Max.	E Typ.	F Typ.	J Typ.	K
YSTEP6	7.6	6.6±0.5	6.9±0.3	9.1	4.8	4.4	2.2	0.5±0.1

## ELECTRICAL SCHEMATICS



## RECOMMENDED LAND PATTERN(Unit:mm)



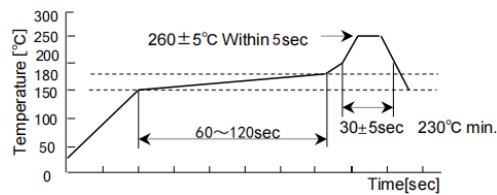
## ELECTRICAL CHARACTERISTICS

Part No.	Inductance	L <sub>k</sub>	Test Conditions	DCR			Turns Ratio	Maring
	mH	uH Max.		Ω±20%				
	4-6	4-6		KHz/1V	1-2	2-3	4-6	
YSTEP6-262T	2.45±0.15	150	52	0.60	0.60	21.5	1:1:7.84	262
YSTEP6-272T	2.70±8%	150	58	0.45	0.45	23.5	1:1:12	272
YSTEP6-272TC	2.70±8%	150	58	0.85	0.80	17.5	1:1:7	272C
YSTEP6-302T	3.0±10%	150	52	0.60	0.60	24.0	1:1:8.42	302
YSTEP6-318TA	3.18±8%	150	52	0.75	0.70	25.0	1:1:10.07	318A
YSTEP6-402T	4.0±5%	150	50	1.30	1.30	27.0	1:1:5.2	402
YSTEP6-412TC	4.1±8%	150	48	0.53	0.53	28.0	1:1:11.75	412C
YSTEP6-552T	5.5±8%	150	52	3.7 Max.	3.7 Max.	35 Max.	1:1:8	552

※ Dielectric Strength: 250V D.C./1mA 1 Min (Coil-Coil)

※ Specifications other than the above will be furnished upon request.

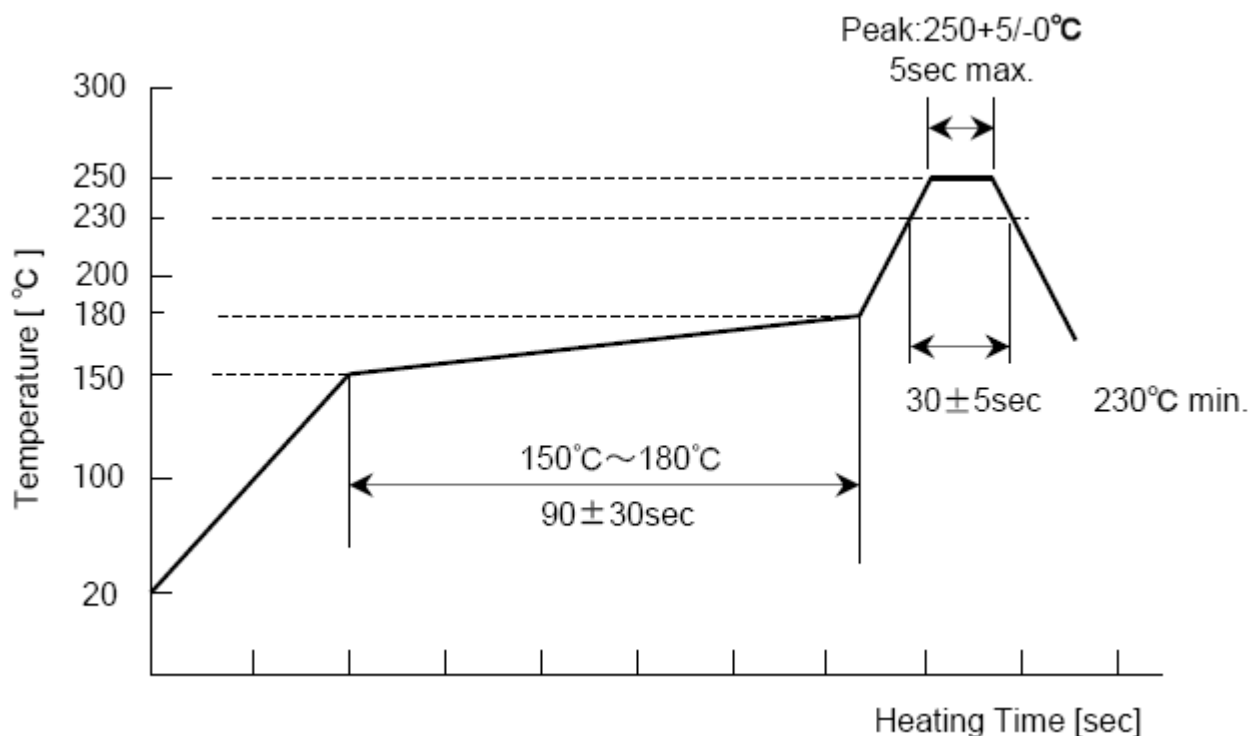
## ■ RELIABILITY TESTS

Item	Specified Value	Test Method and Conditions																		
1.With standing voltage:	No abnormality	300 V a.c. shall be applied for 60 sec between wires and core. (Cut off current :1mA)																		
2.Resistance to soldering heat	Inductance change: Within ± 5% . No significant abnormality in appearance.	<p>The test samples shall be exposed to reflow oven as shown in below table.</p> <div></div> <table><tr><th>Temperature range</th><th>Duration</th></tr><tr><td>150~180°C</td><td>60~120 sec</td></tr><tr><td>peak temperature 260± 5°C</td><td>within 5 sec</td></tr><tr><td>230°C min</td><td>30±5 sec</td></tr></table> <p>Recovery:At least 1 hours of recovery under the standard condition after the test, followed by the measurement within 48 hours.</p>	Temperature range	Duration	150~180°C	60~120 sec	peak temperature 260± 5°C	within 5 sec	230°C min	30±5 sec										
Temperature range	Duration																			
150~180°C	60~120 sec																			
peak temperature 260± 5°C	within 5 sec																			
230°C min	30±5 sec																			
3.Thermal shock	Inductance change: Within ± 5% . No significant Abnormality in appearance.	<p>The test samples shall be soldered to the test board by the reflow.The test samples shall be placed at specified temperature for specified time by step 1 to step 4 as shown in below table in sequence. The temperature cycle shall be repeated 1000 cycles.</p> <table><tr><th colspan="3">Conditions of 1 cycle</th></tr><tr><th>Step</th><th>Temperature</th><th>Duration</th></tr><tr><td>1</td><td>-40°C± 3°C</td><td>30± 3min</td></tr><tr><td>2</td><td>Room Temperature</td><td>within 3min</td></tr><tr><td>3</td><td>+125°C± 3°C</td><td>30± 3min</td></tr><tr><td>4</td><td>Room Temperature</td><td>within 3min</td></tr></table> <p>Recovery: At least 1 hours of recovery under the standard condition after the test, followed by the measurement within 48 hours.</p>	Conditions of 1 cycle			Step	Temperature	Duration	1	-40°C± 3°C	30± 3min	2	Room Temperature	within 3min	3	+125°C± 3°C	30± 3min	4	Room Temperature	within 3min
Conditions of 1 cycle																				
Step	Temperature	Duration																		
1	-40°C± 3°C	30± 3min																		
2	Room Temperature	within 3min																		
3	+125°C± 3°C	30± 3min																		
4	Room Temperature	within 3min																		
4.Dry heat	Inductance change: Within ± 5%. No significant abnormality in appearance.	<p>The coilshall be storedata temperature of 125± 2°C for 96± 2 h. And then the test samples shall be subjected to standard atmospheric conditions for 1 h. after which measurement shall be made. The measurement shall be made within 1h after the recovery period.</p>																		
5.Damp heat	Inductance change: Within ± 5% No significant abnormality in appearance.	<p>The test samples shall be placed in thermostatic oven set at specified temperature and humidity as shown in below table.</p> <table><tr><td>Temperature</td><td>60± 2°C</td></tr><tr><td>Humidity</td><td>95%RH</td></tr><tr><td>Time</td><td>96± 2hour</td></tr></table> <p>Recovery: At least 1 hours of recovery under the standard condition after the test, followed by the measurement within 48 hours.</p>	Temperature	60± 2°C	Humidity	95%RH	Time	96± 2hour												
Temperature	60± 2°C																			
Humidity	95%RH																			
Time	96± 2hour																			

## ■ RELIABILITY TESTS

Item	Specified Value	Test Method and Conditions																
6.Cold	Inductance change: Within ± 5% . No significant abnormality in appearance.	The coilshall be storedata temperature of -40± 2℃ for 96± 2 h. And then the test samples shall be subjected to standard atmospheric conditions for 1 h. after which measurement shall be made. The measurement shall be made within 1 h after the recove																
7.Resistance to vibration	Inductance change: Within ± 5% . No significant abnormality in appearance.	<div>The test samples shall be soldered to the test board by the reflow. Then it shall be submitted to below test conditions.</div> <table><tr><td>Frequency Range</td><td colspan="2">10~55Hz</td></tr><tr><td>Total Amplitude</td><td colspan="2">1.5mm(May not exceed acceleration196m/s2 )</td></tr><tr><td>Sweeping Method</td><td colspan="2">10Hz to 55Hz to 10Hz for 1 min.</td></tr><tr><td rowspan="3">Time</td><td>X</td><td rowspan="3">For 2 hours on each X,Y,and Z axis</td></tr><tr><td>Y</td></tr><tr><td>Z</td></tr></table>			Frequency Range	10~55Hz		Total Amplitude	1.5mm(May not exceed acceleration196m/s2 )		Sweeping Method	10Hz to 55Hz to 10Hz for 1 min.		Time	X	For 2 hours on each X,Y,and Z axis	Y	Z
Frequency Range	10~55Hz																	
Total Amplitude	1.5mm(May not exceed acceleration196m/s2 )																	
Sweeping Method	10Hz to 55Hz to 10Hz for 1 min.																	
Time	X	For 2 hours on each X,Y,and Z axis																
	Y																	
	Z																	
8.Shock	Inductance change: Within ±5% . No significant abnormality in appearance.	Pulse shape: Half sine Peak acceleration: 981m/s2 Duration of pulse: 6ms Three successive shocks shall be applied in both directions of 6 mutually perpendicular axis (atotal of 18 shocks).																
9.Thermal strength	Terminals appear to be normal.	Axial pulling force 9.8N for 60± 0.5 s.																
10.Solderability	95% or more of mounting terminal side shall be covered with fresh solder	<div>The test samples shall be dipped influx,and then immersed in molten solder as shown in below table.</div> <table><tr><td>Solder Temperature</td><td>260± 5℃</td></tr><tr><td>Time</td><td>3± 0.5sec</td></tr></table>			Solder Temperature	260± 5℃	Time	3± 0.5sec										
Solder Temperature	260± 5℃																	
Time	3± 0.5sec																	

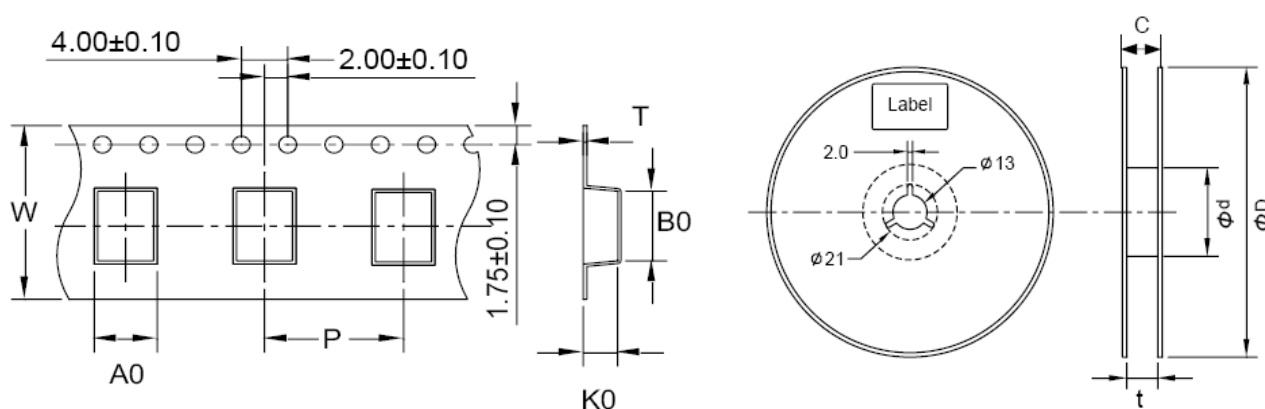
## RECOMMENDED REFLOW CONDITION(Pb free solder)



## MANUAL SOLDERING

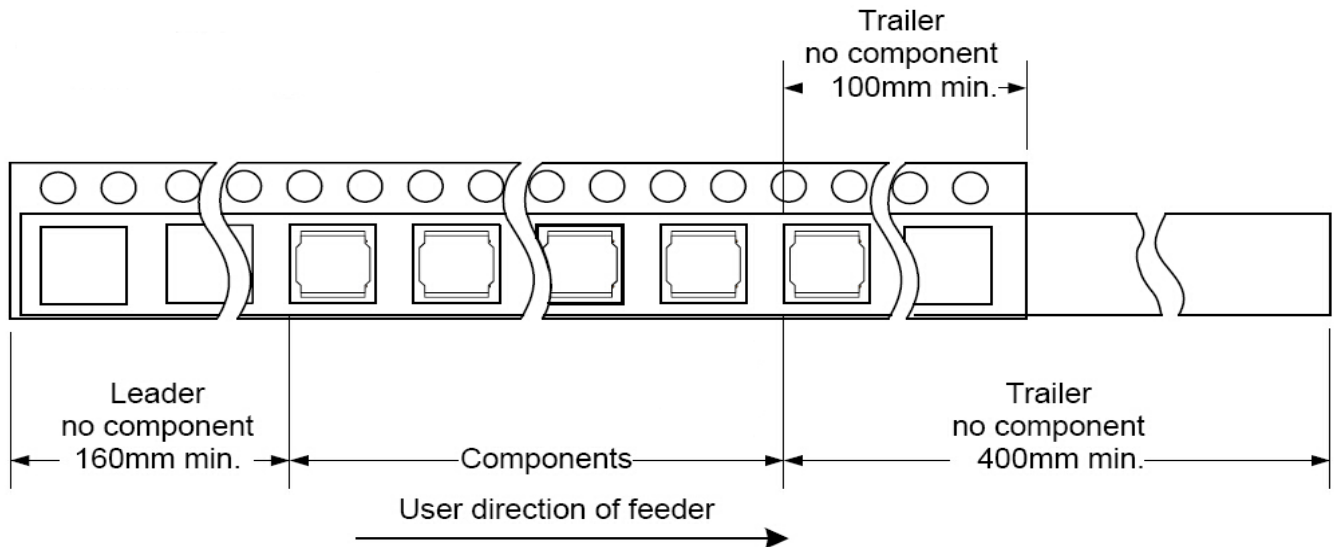
- ※ Solder iron temperature:  $380 \pm 5^\circ\text{C}$
- ※ Soldering time:  $3 \pm 1$  sec

## Taping Dimensions(Unit:mm)

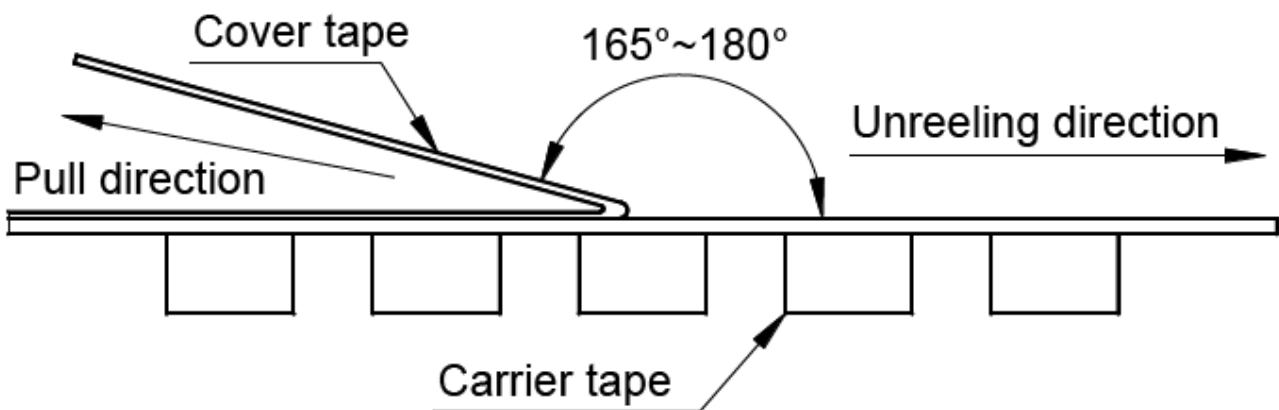


TYPE	A0	B0	K0	P	T	W	$\phi D$	$\phi d$	C	T	MPQ
YSTEP6	7.7	9.1	7.3	16	0.4	24	380	100	30.5	24.5	750

## ■ Direction of rolling



## ■ Cover tape peel off condition



Cover tape peel force shall be 0.1N to 1.3N.

Reference peel speed  $300 \pm 10$  mm/min.