

NTC Thermistor

Temperature Sensing/Compensation
 Φ3 mm Lead Type



NTS3 Series

MERITEK

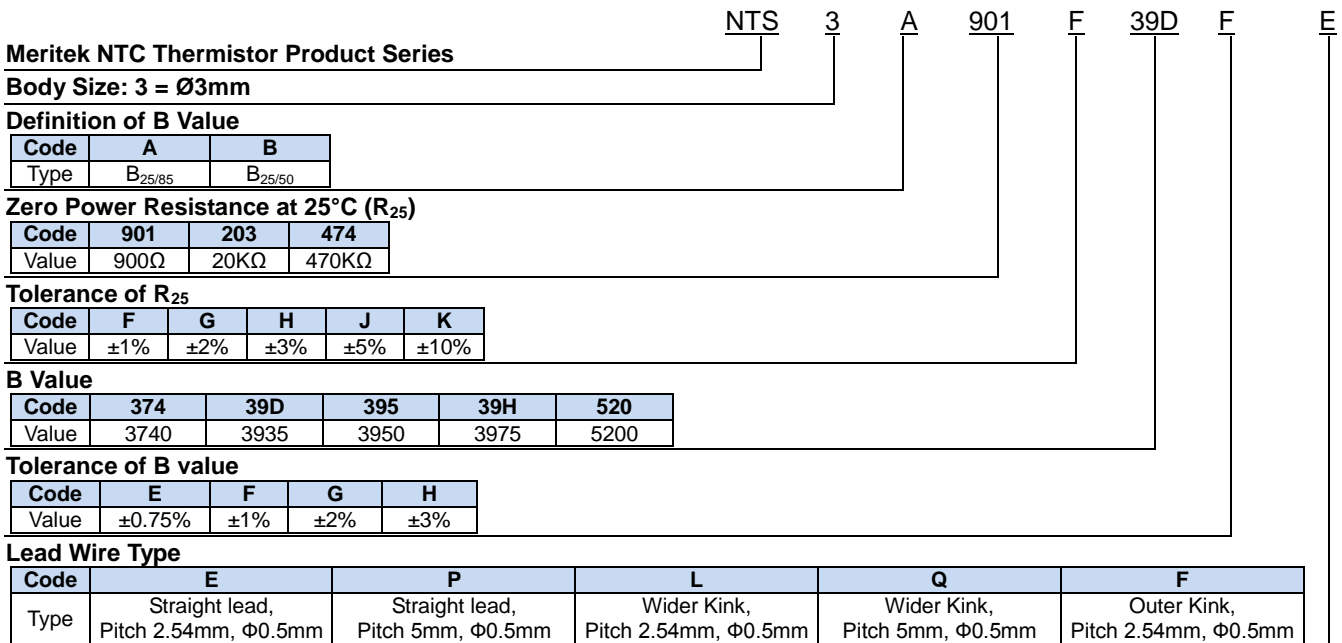
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FEATURES

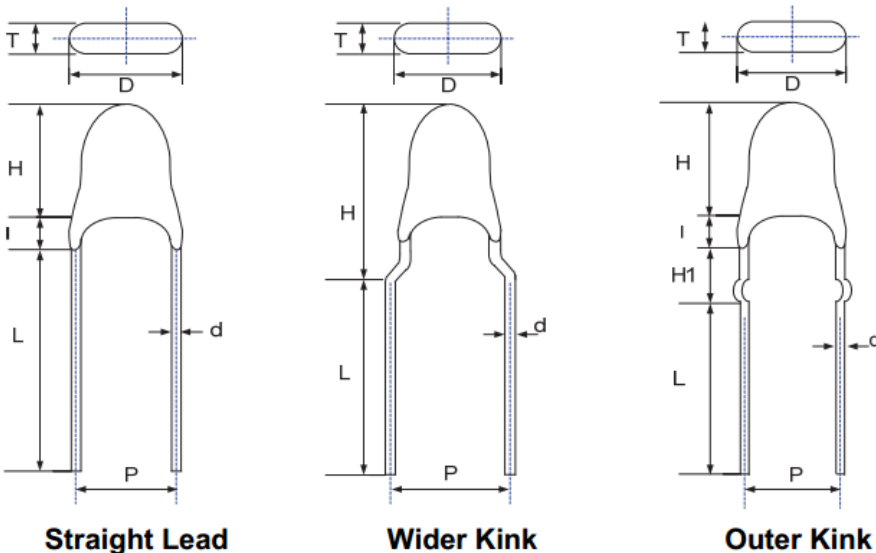
- RoHS compliant
- Halogen-Free (HF) series are available
- Radial lead resin coated
- Operating temperature range: -40°C~+125°C
- Wide resistance range
- Cost effective
- Agency recognition: UL



PART NUMBERING SYSTEM



DIMENSIONS



Lead Type	Straight Lead		Wider Kink		Outer Kink
P (±1)	2.54	5	2.54	5	2.54
D _{MAX}	4	6.5	4	4	4
T _{MAX}	3	5	3	3	3
H _{MAX}	5	7	6	10	5
H1 _{MAX}	-	-	-	-	5.5
I _{MAX}	3	3	-	-	3
L	30~40				24.5~34.5
d	0.5±0.02				

(Unit: mm)

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ELECTRICAL CHARACTERISTICS

Part No.	Zero Power Resistance at 25°C	Tolerance of R25	B Value		Tolerance of B value	Max. Power Dissipation at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	R ₂₅ (KΩ)	(±%)	(K)		(±%)	P _{MAX} (mW)	δ(mW/°C)	τ (Sec.)	T _L ~T _U (°C)
NTS3A901□39D*	0.9	±1% ±2% ±3% ±5%	25/85	3935	±2% ±3%	150	≥2.5	≤18	-40~+125
NTS3A102□39D*	1			3935					
NTS3A152□39D*	1.5			3935					
NTS3A202□39H*	2			3975	±1% ±2% ±3%				
NTS3A222□39H*	2.2			3975					
NTS3A272□39H*	2.7			3975					
NTS3A302□39H*	3			3975					
NTS3A332□39H*	3.3			3975					
NTS3A472□39H*	4.7			3975					
NTS3A482□395*	4.8			3950					
NTS3A482□39H*	4.8			3975					
NTS3A502□39H*	5			3975					
NTS3A682□39H*	6.8			3975					
NTS3A103□34D*	10			3435	±2% ±3%				
NTS3A103□374*	10			3740					
NTS3A103□39H*	10			3975					
NTS3A123□374*	12			3740	±1% ±2% ±3%				
NTS3A153□374*	15			3740					
NTS3A203□374*	20			3740					
NTS3A203□426*	20			4260	±2% ±3%				
NTS3A223□374*	22			3740					
NTS3A333□409*	33			4090					
NTS3A473□409*	47			4090	±1% ±2% ±3%				
NTS3A503□39H*	50			3975					
NTS3A503□406*	50			4060					
NTS3A683□419*	68	4190	±2% ±3%						
NTS3A104□419*	100	4190							
NTS3A104□436*	100	4360							
NTS3A154□437*	150	4370							
NTS3A204□385*	200	3850							
NTS3A224□437*	220	4370							
NTS3A334□457*	330	4570							
NTS3A474□457*	470	4570							
NTS3A474□520*	470	5200							
NTS3B202□350*	2	3500		±2%/±3%					
NTS3B473□39D*	47	3935	±1%/±2%/±3%						
NTS3B503□440*	50	4400	±2%						
NTS3B434□507*	430	5070	±3%						
NTS3B474□520*	470	5200	±3%						

Note 1: □ = Tolerance of R₂₅

* = Tolerance of B value

Note 2: Special specifications are available upon request.

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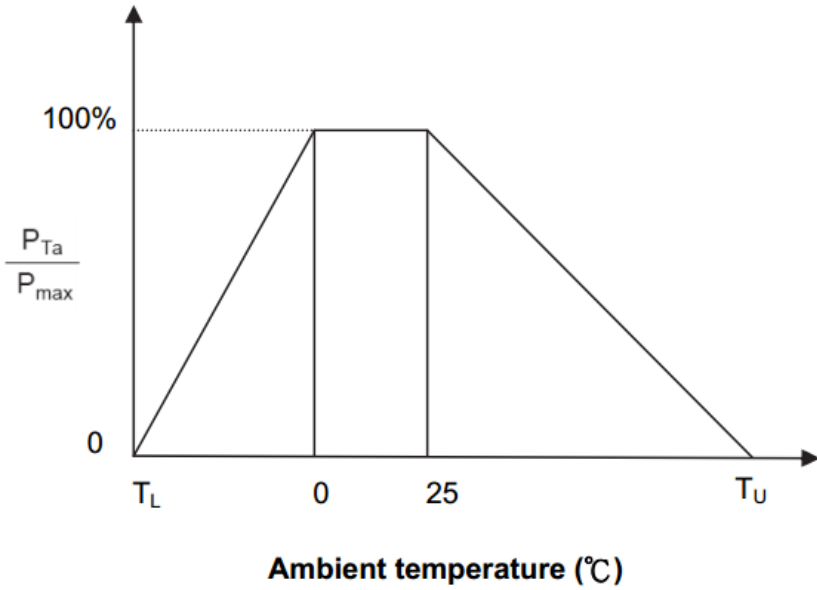
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MAX POWER DISSIPATION DERATING CURVE



T_U : Maximum operating temperature (°C)

T_L : Minimum operating temperature (°C)

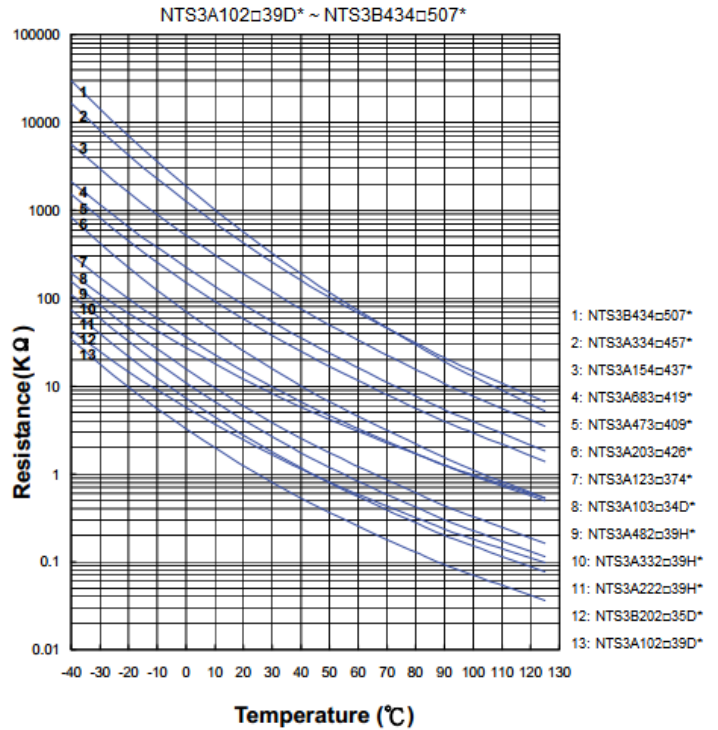
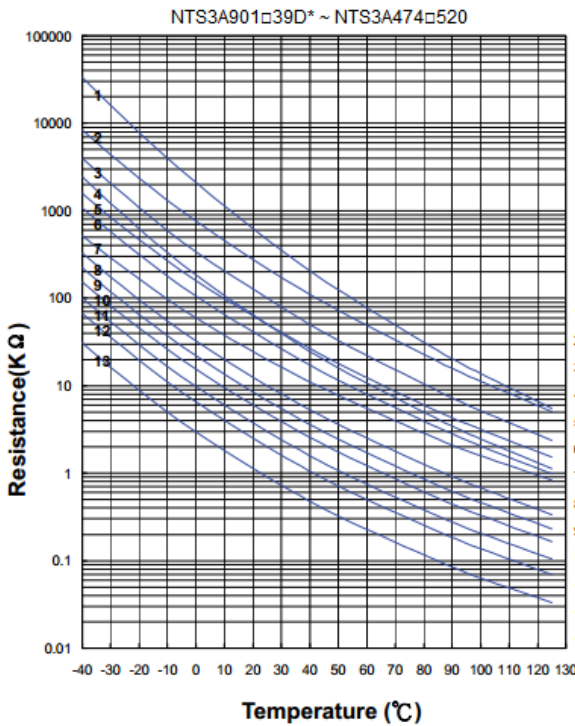
For example:

Ambient temperature(T_a) = 55°C

Maximum operating temperature(T_U) = 125°C

$$P_{Ta} = (T_U - T_a) / (T_U - 25) \times P_{max} = 70\% P_{max}$$

R-T CHARACTERISTIC CURVE



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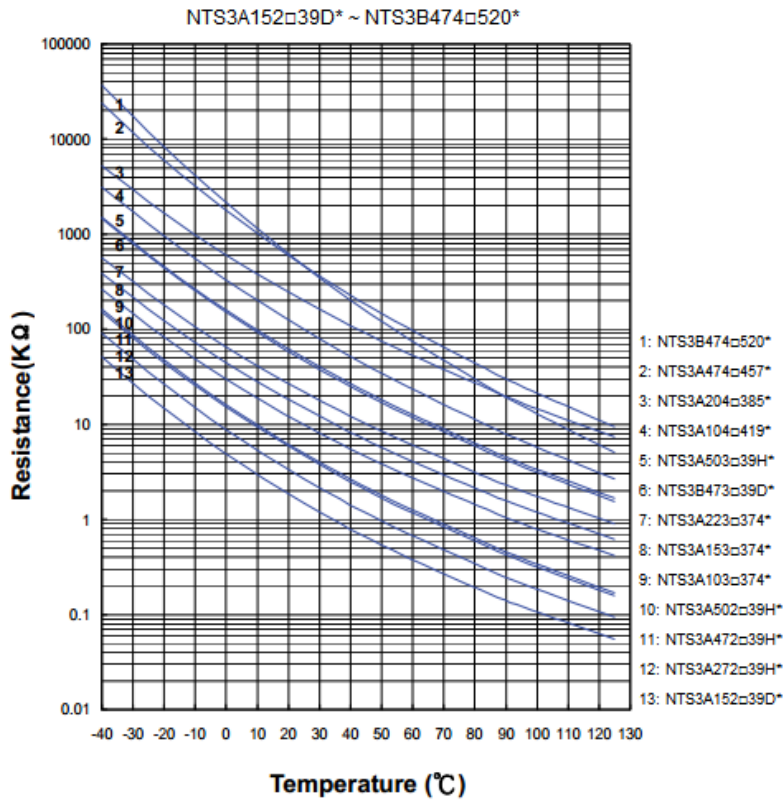
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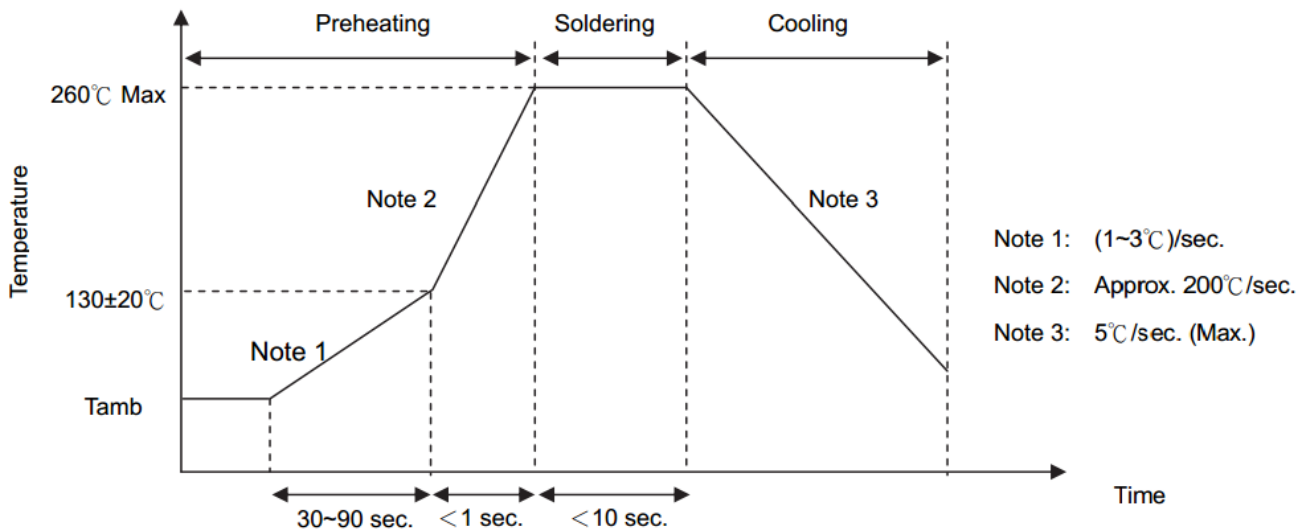
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R-T CHARACTERISTIC CURVE (Cont'd)



SOLDERING RECOMMENDATION

•Wave Soldering Profile



•Recommended Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360°C MAX
Soldering Time	3 sec. MAX
Distance from Thermistor	2 mm MIN

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RELIABILITY

Item	Standard	Test conditions / Methods	Specifications															
Tensile Strength of Terminations	IEC 60068-2-21	Gradually apply the specified force and keep the unit fixed for 10±1 sec. <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 50%;">Terminal diameter</td> <td style="text-align: center; width: 50%;">Force</td> </tr> <tr> <td style="text-align: center;">(mm)</td> <td style="text-align: center;">(Kg)</td> </tr> <tr> <td style="text-align: center; border-top: 1px solid black;">$0.3 < d \leq 0.5$</td> <td style="text-align: center; border-top: 1px solid black;">0.5</td> </tr> </table>	Terminal diameter	Force	(mm)	(Kg)	$0.3 < d \leq 0.5$	0.5	No Visible Damage									
Terminal diameter	Force																	
(mm)	(Kg)																	
$0.3 < d \leq 0.5$	0.5																	
Bending Strength of Terminations	IEC 60068-2-21	Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°, and then return to the original position. Repeat the procedure in the opposite direction. <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 50%;">Terminal diameter</td> <td style="text-align: center; width: 50%;">Force</td> </tr> <tr> <td style="text-align: center;">(mm)</td> <td style="text-align: center;">(Kg)</td> </tr> <tr> <td style="text-align: center; border-top: 1px solid black;">$0.3 < d \leq 0.5$</td> <td style="text-align: center; border-top: 1px solid black;">0.25</td> </tr> </table>	Terminal diameter	Force	(mm)	(Kg)	$0.3 < d \leq 0.5$	0.25	No Visible Damage									
Terminal diameter	Force																	
(mm)	(Kg)																	
$0.3 < d \leq 0.5$	0.25																	
Solderability	IEC 60068-2-20	245 ± 5°C, 3 ± 0.3 sec.	At least 95% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	IEC 60068-2-20	260 ± 5°C, 10 ± 1 sec.	No Visible Damage $ \Delta R_{25}/R_{25} \leq 3\%$															
High Temperature Storage	IEC 60068-2-2	125 ± 5°C, 1000 ± 24 hrs	No Visible Damage $ \Delta R_{25}/R_{25} \leq 5\%$															
Damp Heat, Steady State	IEC 60068-2-3	40 ± 2°C, 90~95% RH, 1000 ± 24 hrs	No Visible Damage $ \Delta R_{25}/R_{25} \leq 3\%$															
Rapid Change of Temperature	IEC 60068-2-14	The conditions shown below shall be repeated 5 cycles. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Duration (minutes)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">-40 ± 5</td> <td style="text-align: center;">30 ± 3</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Room Temperature</td> <td style="text-align: center;">5 ± 3</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">125 ± 5</td> <td style="text-align: center;">30 ± 3</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Room Temperature</td> <td style="text-align: center;">5 ± 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Duration (minutes)	1	-40 ± 5	30 ± 3	2	Room Temperature	5 ± 3	3	125 ± 5	30 ± 3	4	Room Temperature	5 ± 3	No Visible Damage $ \Delta R_{25}/R_{25} \leq 3\%$
Step	Temperature (°C)	Duration (minutes)																
1	-40 ± 5	30 ± 3																
2	Room Temperature	5 ± 3																
3	125 ± 5	30 ± 3																
4	Room Temperature	5 ± 3																
Max. Power Dissipation	IEC 60539-1	25 ± 5°C, P _{MAX} , 1000 ± 24 hrs	No Visible Damage $ \Delta R_{25}/R_{25} \leq 5\%$															

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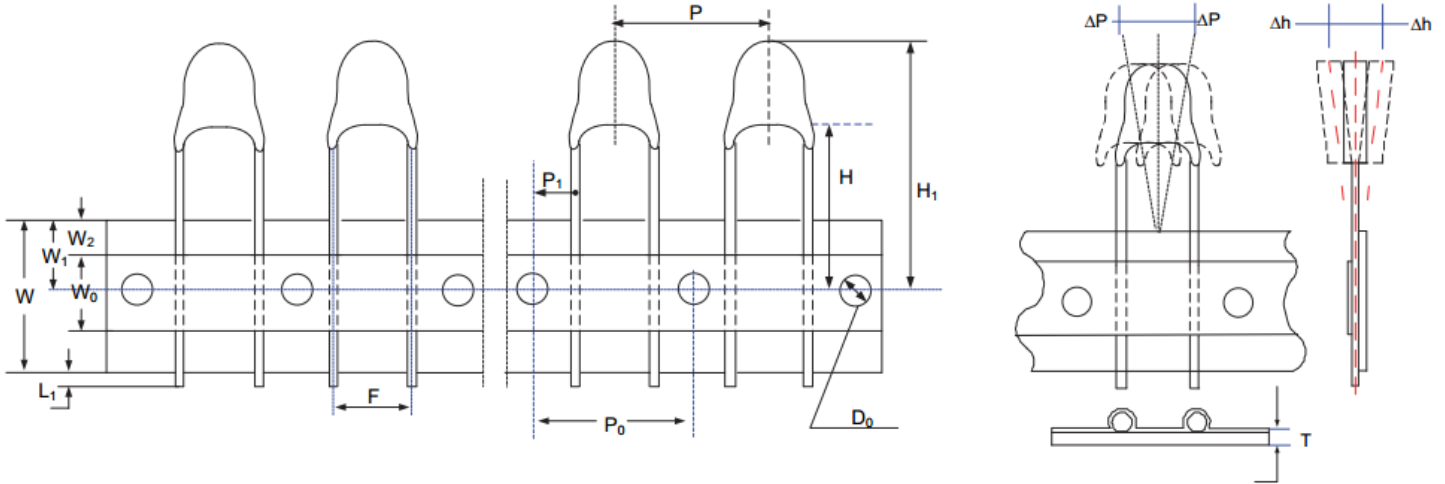
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Package

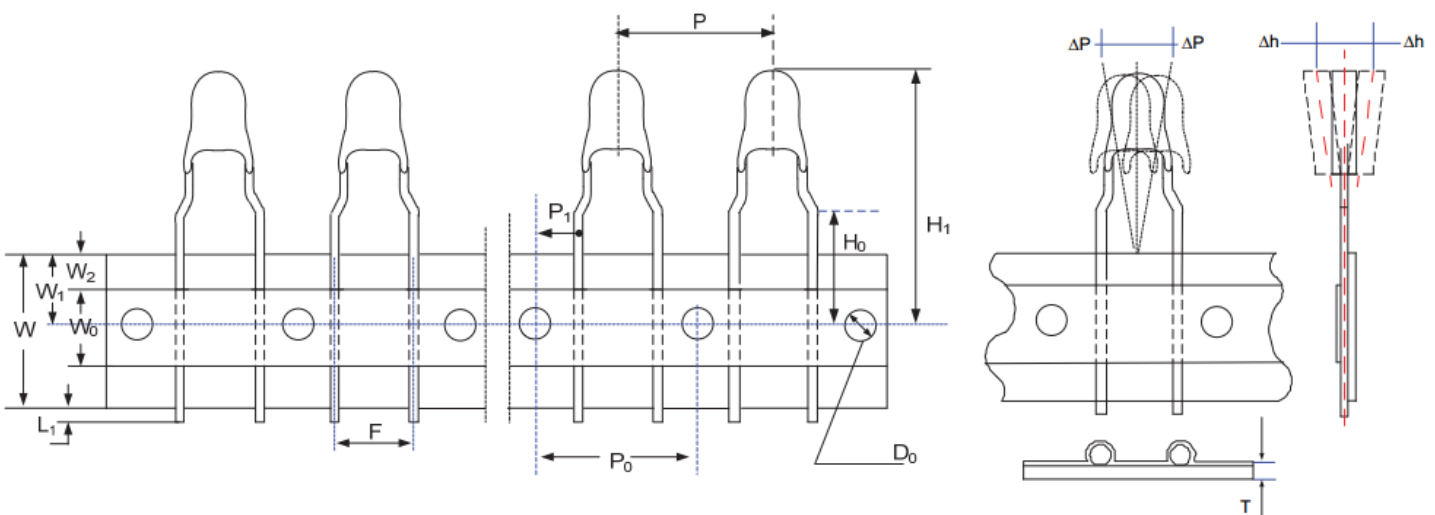
•Taping Specification

Straight Lead



Dimension (Unit:mm)	P ₀	F	P	P ₁	H	H ₁	d	W ₀	W ₁	W ₂	W	ΔP	Δh	L ₁	D ₀	T
	±0.3	±1	±1	±0.7	+2/-0	MAX	±0.02	±1	+0.75 /-0.5	MAX	+1/ -0.5	MAX	MAX	MAX	±0.2	±0.2
P ₀ =12.7	12.7	2.54	12.7	5.08	18	25	0.5	12	9	3	18	1	2	0.5	4	0.6
	12.7	5	12.7	3.85	18	25	0.5	12	9	3	18	1	2	0.5	4	0.6
P ₀ =15.0	15	2.54	15	6.23	18	25	0.5	12	9	3	18	1	2	0.5	4	0.6
	15	5	15	5.00	18	25	0.5	12	9	3	18	1	2	0.5	4	0.6

Wider Kink



Dimension (Unit:mm)	P ₀	F	P	P ₁	H ₀	H ₁	d	W ₀	W ₁	W ₂	W	ΔP	Δh	L ₁	D ₀	T
	±0.3	±1	±1	±0.7	±0.5	MAX	±0.02	±1	+0.75 /-0.5	MAX	+1/ -0.5	MAX	MAX	MAX	±0.2	±0.2
P ₀ =12.7	12.7	2.54	12.7	5.08	16	26	0.5	12	9	3	18	1	2	0.5	4	0.6
	12.7	5	12.7	3.85	16	26	0.5	12	9	3	18	1	2	0.5	4	0.6

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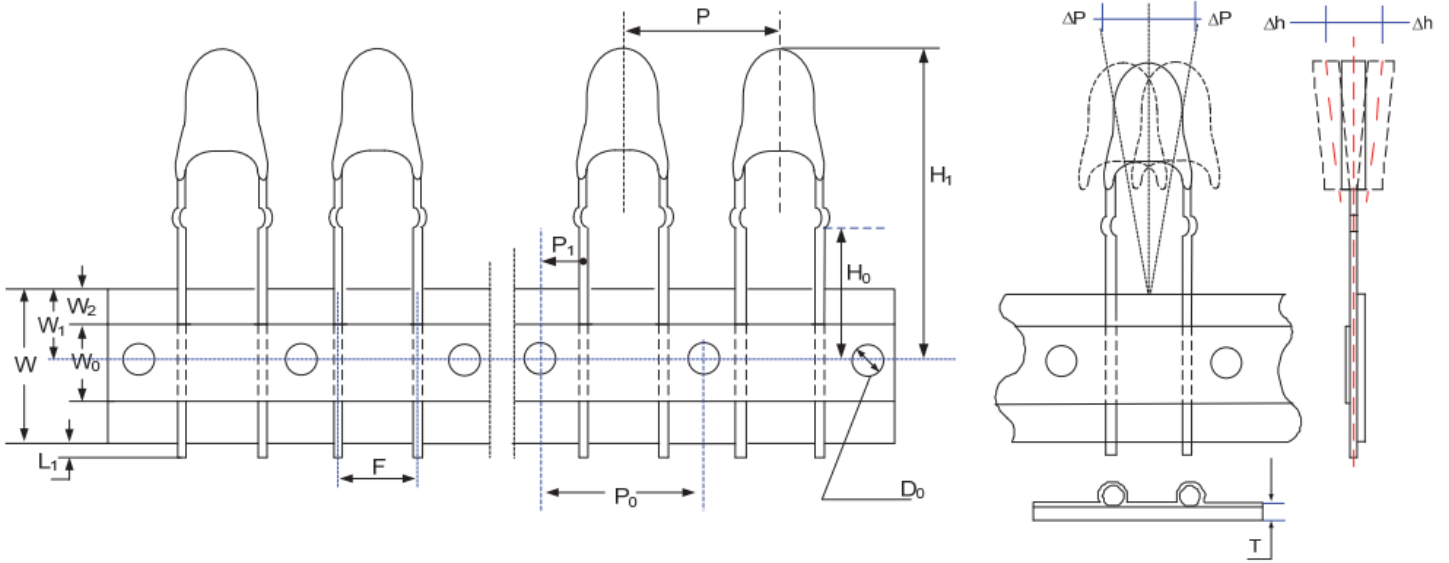
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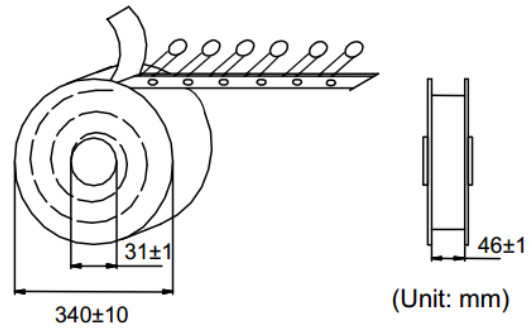
Outer Kink



Dimension (Unit:mm)	P ₀	F	P	P ₁	H ₀	H ₁	d	W ₀	W ₁	W ₂	W	ΔP	Δh	L ₁	D ₀	T
	±0.3	±1	±1	±0.7	±0.5	MAX	±0.02	±1	+0.75 /-0.5	MAX	+1/ -0.5	MAX	MAX	MAX	±0.2	±0.2
P ₀ =12.7	12.7	2.54	12.7	5.08	16	26	0.5	12	9	3	18	1	2	0.5	4	0.6

•Quantity

Packaging	Quantity
Bulk	500pcs / bag
Tape / Reel	2500pcs / reel
Tape / Ammo	2500pcs / box



(Unit: mm)

