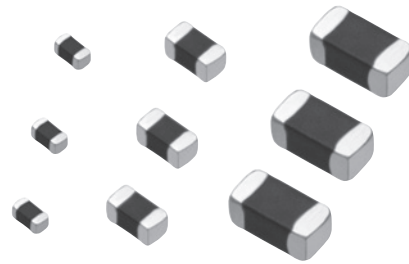


## Multilayer NTC Thermistors

Series: **ERTJ**



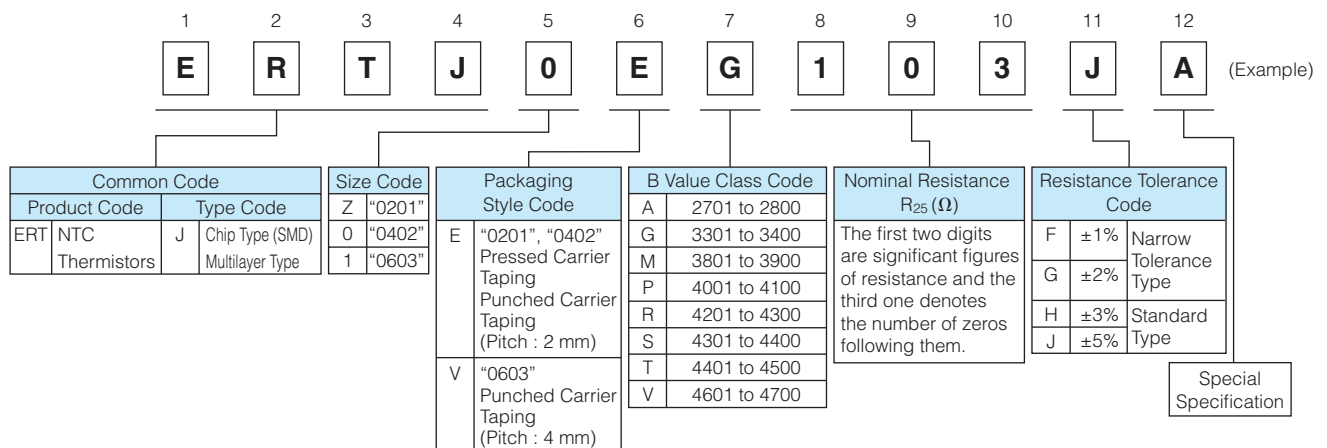
### Features

- Surface Mount Device (0201, 0402, 0603)
- Highly reliable multilayer / monolithic structure
- Wide temperature operating range (-40 to 125 °C)
- Environmentally-friendly lead-free
- RoHS compliant

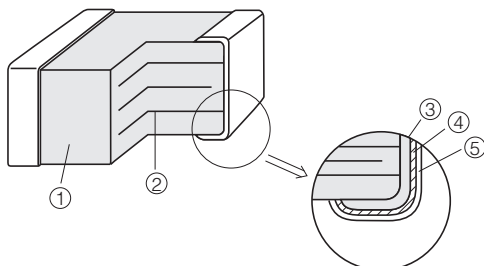
### Recommended Applications

- Mobile Phone
  - Temperature compensation for crystal oscillator
  - Temperature compensation for semiconductor devices
- Personal Computer and Peripheral Device
  - Temperature detection for CPU and memory device
  - Temperature compensation for ink-viscosity (Inkjet Printer)
- Battery Pack (secondary battery)
  - Temperature detection of battery cells
- Liquid Crystal Display
  - Temperature compensation of display contrast
  - Temperature compensation of display backlighting (CCFL)

### Explanation of Part Numbers



### Construction



No.	Name	
①	Semiconductive Ceramics	
②	Internal electrode	
③	Terminal electrode	Substrate electrode
④		Intermediate electrode
⑤		External electrode

## Ratings

Size code (EIA)	Z(0201)	O(0402)	1(0603)
Operating Temperature Range	-40 to 125 °C		
Rated Maximum Power Dissipation*1	33 mW	66 mW	100 mW
Dissipation Factor*2	Approximately 1 mW/°C	Approximately 2 mW/°C	Approximately 3 mW/°C

- \*1 Rated Maximum Power Dissipation : The maximum power that can be continuously applied at the rated ambient temperature.  
 ·The maximum value of power, and rated power is same under the condition of ambient temperature 25 °C or less. If the temperature exceeds 25 °C, rated power depends on the decreased power dissipation curve.  
 ·Please see "Operating Power" for details.
- \*2 Dissipation factor : The constant amount power required to raise the temperature of the Thermistor 1 °C through self heat generation under stable temperatures.  
 ·Dissipation factor is the reference value when mounted on a glass epoxy board (1.6 mmT).

## Part Number List of Narrow Tolerance Type (Resistance Tolerance : ±2 %, ±1 %)

### ● 0201(EIA)

Part Number	Nominal Resistance at 25 °C	Resistance Tolerance	B Value at 25/50(K)	B Value at 25/85(K)
ERTJZEG103□A	10 kΩ	±1 % (F) or ±2 % (G)	(3380 K)	3435 K±1%
ERTJZEP473□	47 kΩ		4050 K±1 %	(4100 K)
ERTJZEP683□	68 kΩ		4050 K±1 %	(4100 K)
ERTJZER683□	68 kΩ		4250 K±1 %	(4300 K)
ERTJZER104□	100 kΩ		4250 K±1 %	(4300 K)
ERTJZET104□	100 kΩ		4500 K±1 %	(4550 K)
ERTJZEV104□	100 kΩ		4700 K±1 %	(4750 K)

□ : Resistance Tolerance Code

### ● 0402(EIA)

Part Number	Nominal Resistance at 25 °C	Resistance Tolerance	B Value at 25/50(K)	B Value at 25/85(K)
ERTJ0EG103□A	10 kΩ	±1 % (F) or ±2 % (G)	(3380 K)	3435 K±1 %
ERTJ0EP333□	33 kΩ		4050 K±1 %	(4100 K)
ERTJ0EP473□	47 kΩ		4050 K±1 %	(4100 K)
ERTJ0EP683□	68 kΩ		4050 K±1 %	(4100 K)
ERTJ0ER104□	100 kΩ		4250 K±1 %	(4300 K)
ERTJ0ES104□	100 kΩ		4330 K±1 %	(4390 K)
ERTJ0EV104□	100 kΩ		4700 K±1 %	(4750 K)
ERTJ0EV224□	220 kΩ		4700 K±1 %	(4750 K)

□ : Resistance Tolerance Code

### ● 0603(EIA)

Part Number	Nominal Resistance at 25 °C	Resistance Tolerance	B Value at 25/50(K)	B Value at 25/85(K)
ERTJ1VG103□A	10 kΩ	±1 % (F) or ±2 % (G)	(3380 K)	3435 K±1 %
ERTJ1VS104□A	100 kΩ		(4330 K)	4390 K±1 %

□ : Resistance Tolerance Code

## Part Number List of Standard Type (Resistance Tolerance : ±5 %, ±3 %)

### ● 0201(EIA)

Part Number	Nominal Resistance at 25 °C	Resistance Tolerance	B Value at 25/50(K)	B Value at 25/85(K)
ERTJZET202□	2.0 kΩ	±3 % (H) or ±5 % (J)	4500 K±2 %	(4450 K)
ERTJZET302□	3.0 kΩ		4500 K±2 %	(4450 K)
ERTJZET472□	4.7 kΩ		4500 K±2 %	(4450 K)
ERTJZEG103□A	10 kΩ		(3380 K)	3435 K±1 %
ERTJZEP473□	47 kΩ		4050 K±2 %	(4100 K)
ERTJZEP683□	68 kΩ		4050 K±2 %	(4100 K)
ERTJZER683□	68 kΩ		4250 K±2 %	(4300 K)
ERTJZER104□	100 kΩ		4250 K±2 %	(4300 K)
ERTJZET104□	100 kΩ		4500 K±2 %	(4550 K)
ERTJZEV104□	100 kΩ		4700 K±2 %	(4750 K)
ERTJZET154□	150 kΩ		4500 K±2 %	(4750 K)
ERTJZET224□	220 kΩ		4500 K±2 %	(4750 K)

□ : Resistance Tolerance Code

● 0402(EIA)

Part Number	Nominal Resistance at 25 °C	Resistance Tolerance	B Value at 25/50(K)	B Value at 25/85(K)
ERTJ0EA220□	22 Ω	±3 % (H) or ±5 % (J)	2750 K±3 %	(2700 K)
ERTJ0EA330□	33 Ω		2750 K±3 %	(2700 K)
ERTJ0EA400□	40 Ω		2750 K±3 %	(2700 K)
ERTJ0EA470□	47 Ω		2750 K±3 %	(2700 K)
ERTJ0EA680□	68 Ω		2800 K±3 %	(2750 K)
ERTJ0EA101□	100 Ω		2800 K±3 %	(2750 K)
ERTJ0EA151□	150 Ω		2800 K±3 %	(2750 K)
ERTJ0ET102□	1.0 kΩ		4500 K±2 %	(4450 K)
ERTJ0ET152□	1.5 kΩ		4500 K±2 %	(4450 K)
ERTJ0ET202□	2.0 kΩ		4500 K±2 %	(4450 K)
ERTJ0ET222□	2.2 kΩ		4500 K±2 %	(4450 K)
ERTJ0ET302□	3.0 kΩ		4500 K±2 %	(4450 K)
ERTJ0ER332□	3.3 kΩ		4250 K±2 %	(4300 K)
ERTJ0ET332□	3.3 kΩ		4500 K±2 %	(4450 K)
ERTJ0ET472□	4.7 kΩ		4500 K±2 %	(4450 K)
ERTJ0ER472□	4.7 kΩ		4250 K±2 %	(4300 K)
ERTJ0ER682□	6.8 kΩ		4250 K±2 %	(4300 K)
ERTJ0EG103□A	10 kΩ		(3380 K)	3435 K±1 %
ERTJ0EM103□	10 kΩ		3900 K±2 %	(3970 K)
ERTJ0ER103□	10 kΩ		4250 K±2 %	(4300 K)
ERTJ0ER153□	15 kΩ		4250 K±2 %	(4300 K)
ERTJ0ER223□	22 kΩ		4250 K±2 %	(4300 K)
ERTJ0EP333□	33 kΩ		4050 K±2 %	(4100 K)
ERTJ0ER333□	33 kΩ		4250 K±2 %	(4300 K)
ERTJ0ET333□	33 kΩ		4500 K±2 %	(4580 K)
ERTJ0EP473□	47 kΩ		4050 K±2 %	(4100 K)
ERTJ0ET473□	47 kΩ		4500 K±2 %	(4550 K)
ERTJ0EV473□	47 kΩ		4700 K±2 %	(4750 K)
ERTJ0EP683□	68 kΩ		4050 K±2 %	(4100 K)
ERTJ0ER683□	68 kΩ		4250 K±2 %	(4300 K)
ERTJ0EV683□	68 kΩ		4700 K±2 %	(4750 K)
ERTJ0EP104□	100 kΩ		4050 K±2 %	(4100 K)
ERTJ0ER104□	100 kΩ		4250 K±2 %	(4300 K)
ERTJ0ES104□	100 kΩ	4330 K±2 %	(4390 K)	
ERTJ0ET104□	100 kΩ	4500 K±2 %	(4580 K)	
ERTJ0EV104□	100 kΩ	4700 K±2 %	(4750 K)	
ERTJ0ET154□	150 kΩ	4500 K±2 %	(4580 K)	
ERTJ0EV154□	150 kΩ	4700 K±2 %	(4750 K)	
ERTJ0EV224□	220 kΩ	4700 K±2 %	(4750 K)	
ERTJ0EV334□	330 kΩ	4700 K±2 %	(4750 K)	
ERTJ0EV474□	470 kΩ	4700 K±2 %	(4750 K)	

□ : Resistance Tolerance Code

● 0603(EIA)

Part Number	Nominal Resistance at 25 °C	Resistance Tolerance	B Value at 25/50(K)	B Value at 25/85(K)
ERTJ1VA220□	22 Ω	±3 %(H) or ±5 %(J)	2750 K±3 %	(2700 K)
ERTJ1VA330□	33 Ω		2750 K±3 %	(2700 K)
ERTJ1VA400□	40 Ω		2800 K±3 %	(2750 K)
ERTJ1VA470□	47 Ω		2800 K±3 %	(2750 K)
ERTJ1VA680□	68 Ω		2800 K±3 %	(2750 K)
ERTJ1VA101□	100 Ω		2800 K±3 %	(2750 K)
ERTJ1VT102□	1.0 kΩ		4500 K±2 %	(4450 K)
ERTJ1VT152□	1.5 kΩ		4500 K±2 %	(4450 K)
ERTJ1VT202□	2.0 kΩ		4500 K±2 %	(4450 K)
ERTJ1VT222□	2.2 kΩ		4500 K±2 %	(4450 K)
ERTJ1VT302□	3.0 kΩ		4500 K±2 %	(4450 K)
ERTJ1VT332□	3.3 kΩ		4500 K±2 %	(4450 K)
ERTJ1VR332□	3.3 kΩ		4250 K±2 %	(4300 K)
ERTJ1VR472□	4.7 kΩ		4250 K±2 %	(4300 K)
ERTJ1VT472□	4.7 kΩ		4500 K±2 %	(4450 K)
ERTJ1VR682□	6.8 kΩ		4250 K±2 %	(4300 K)
ERTJ1VG103□A	10 kΩ		(3380 K)	3435 K±1%
ERTJ1VR103□	10 kΩ		4250 K±2 %	(4300 K)
ERTJ1VR153□	15 kΩ		4250 K±2 %	(4300 K)
ERTJ1VR223□	22 kΩ		4250 K±2 %	(4300 K)
ERTJ1VR333□	33 kΩ		4250 K±2 %	(4300 K)
ERTJ1VP473□	47 kΩ		4100 K±2 %	(4150 K)
ERTJ1VR473□	47 kΩ		4250 K±2 %	(4300 K)
ERTJ1VV473□	47 kΩ		4700 K±2 %	(4750 K)
ERTJ1VR683□	68 kΩ		4250 K±2 %	(4300 K)
ERTJ1VV683□	68 kΩ		4700 K±2 %	(4750 K)
ERTJ1VS104□A	100 kΩ		(4330 K)	4390 K±1%
ERTJ1VV104□	100 kΩ		4700 K±2 %	(4750 K)
ERTJ1VV154□	150 kΩ		4700 K±2 %	(4750 K)
ERTJ1VT224□	220 kΩ		4500 K±2 %	(4580 K)

□ : Resistance Tolerance Code

● Temperature and Resistance value (the resistance value at 25 °C is set to 1)/ Reference values

	ERTJ□□A~	ERTJ□□G~	ERTJ□□M~	ERTJ□□P~	ERTJ□□R~	ERTJ0ES~	ERTJ1VS~	ERTJ□□T~	ERTJ□□T~	ERTJ□□V~	
B <sub>25/50</sub>	2750 K	2800 K	(3375 K)	3900 K	4050 K	4250 K	4330 K	(4330 K)	4500 K	4500 K	4700 K
B <sub>25/85</sub>	(2700 K)	(2750 K)	3435 K	(3970 K)	(4100 K)	(4300 K)	(4390 K)	4390 K	(4450 K)	(4580 K)	(4750 K)
T(°C)									*1	*2	
-40	13.05	13.28	20.52	32.11	33.10	43.10	45.67	45.53	63.30	47.07	59.76
-35	10.21	10.40	15.48	23.29	24.03	30.45	32.08	31.99	42.92	33.31	41.10
-30	8.061	8.214	11.79	17.08	17.63	21.76	22.80	22.74	29.50	23.80	28.61
-25	6.427	6.547	9.069	12.65	13.06	15.73	16.39	16.35	20.53	17.16	20.14
-20	5.168	5.261	7.037	9.465	9.761	11.48	11.91	11.89	14.46	12.49	14.33
-15	4.191	4.261	5.507	7.147	7.362	8.466	8.743	8.727	10.30	9.159	10.31
-10	3.424	3.476	4.344	5.444	5.599	6.300	6.479	6.469	7.407	6.772	7.482
-5	2.819	2.856	3.453	4.181	4.291	4.730	4.845	4.839	5.388	5.046	5.481
0	2.336	2.362	2.764	3.237	3.312	3.582	3.654	3.650	3.966	3.789	4.050
5	1.948	1.966	2.227	2.524	2.574	2.734	2.778	2.776	2.953	2.864	3.015
10	1.635	1.646	1.806	1.981	2.013	2.102	2.128	2.126	2.221	2.179	2.262
15	1.380	1.386	1.474	1.567	1.584	1.629	1.642	1.641	1.687	1.669	1.710
20	1.171	1.174	1.211	1.247	1.255	1.272	1.277	1.276	1.293	1.287	1.303
25	1	1	1	1	1	1	1	1	1	1	1
30	0.8585	0.8565	0.8309	0.8072	0.8016	0.7921	0.7888	0.7890	0.7799	0.7823	0.7734
35	0.7407	0.7372	0.6941	0.6556	0.6461	0.6315	0.6263	0.6266	0.6131	0.6158	0.6023
40	0.6422	0.6376	0.5828	0.5356	0.5235	0.5067	0.5004	0.5007	0.4856	0.4876	0.4721
45	0.5595	0.5541	0.4916	0.4401	0.4266	0.4090	0.4022	0.4025	0.3874	0.3884	0.3723
50	0.4899	0.4836	0.4165	0.3635	0.3496	0.3319	0.3251	0.3254	0.3111	0.3111	0.2954
55	0.4309	0.4238	0.3543	0.3018	0.2881	0.2709	0.2642	0.2645	0.2513	0.2504	0.2356
60	0.3806	0.3730	0.3027	0.2518	0.2386	0.2222	0.2158	0.2161	0.2042	0.2026	0.1889
65	0.3376	0.3295	0.2595	0.2111	0.1985	0.1832	0.1772	0.1774	0.1670	0.1648	0.1523
70	0.3008	0.2922	0.2233	0.1777	0.1659	0.1518	0.1463	0.1465	0.1377	0.1348	0.1236
75	0.2691	0.2600	0.1929	0.1504	0.1393	0.1264	0.1213	0.1215	0.1144	0.1108	0.1009
80	0.2417	0.2322	0.1672	0.1278	0.1174	0.1057	0.1011	0.1013	0.09560	0.09162	0.08284
85	0.2180	0.2081	0.1451	0.1090	0.09937	0.08873	0.08469	0.08486	0.08033	0.07609	0.06834
90	0.1974	0.1871	0.1261	0.09310	0.08442	0.07468	0.07122	0.07138	0.06782	0.06345	0.05662
95	0.1793	0.1688	0.1097	0.07980	0.07200	0.06307	0.06014	0.06028	0.05753	0.05314	0.04712
100	0.1636	0.1528	0.09563	0.06871	0.06166	0.05353	0.05099	0.05112	0.04903	0.04472	0.03939
105	0.1498	0.1387	0.08357	0.05947	0.05306	0.04568	0.04340	0.04351	0.04198	0.03784	0.03308
110	0.1377	0.1263	0.07317	0.05170	0.04587	0.03918	0.03708	0.03718	0.03609	0.03218	0.02791
115	0.1270	0.1153	0.06421	0.04512	0.03979	0.03374	0.03179	0.03188	0.03117	0.02748	0.02364
120	0.1175	0.1056	0.05650	0.03951	0.03460	0.02916	0.02734	0.02742	0.02702	0.02352	0.02009
125	0.1091	0.09695	0.04986	0.03470	0.03013	0.02527	0.02359	0.02367	0.02351	0.02017	0.01712

\*1 Apply to products with a B<sub>25/50</sub> constant of 4500 K and a resistance value of 25 °C less than 10 kΩ. \*2 Applied only to ERTJ0ET104□.

\*2 Apply to products with a B<sub>25/50</sub> constant of 4500 K and a resistance value of 25 °C of 10 kΩ or more. \*2 Applied only to ERTJ0ET104□.

$$B_{25/50} = \frac{\ln(R_{25}/R_{50})}{1/298.15 - 1/323.15}$$

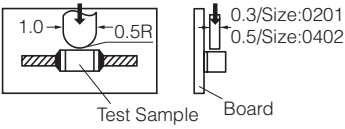
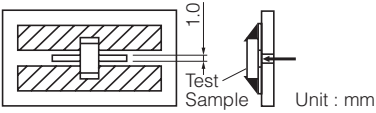
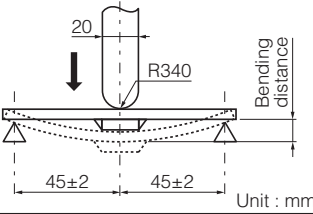
$$B_{25/85} = \frac{\ln(R_{25}/R_{85})}{1/298.15 - 1/358.15}$$

R<sub>25</sub>=Resistance at 25.0±0.1 °C

R<sub>50</sub>=Resistance at 50.0±0.1 °C

R<sub>85</sub>=Resistance at 85.0±0.1 °C

## Specification and Test Method

Item	Specification	Test Method																		
Rated Zero-power Resistance (R <sub>25</sub> )	Within the specified tolerance.	The value is measured at a power that the influence of self-heat generation can be negligible (0.1mW or less), at the rated ambient temperature of 25.0±0.1°C.																		
B Value	Shown in each Individual Specification. * Individual Specification shall specify B <sub>25/50</sub> or B <sub>25/85</sub> .	<p>The Zero-power resistances; R<sub>1</sub> and R<sub>2</sub>, shall be measured respectively at T<sub>1</sub> (deg.C) and T<sub>2</sub> (deg.C). The B value is calculated by the following equation.</p> $B_{T_1/T_2} = \frac{\ln(R_1) - \ln(R_2)}{1/(T_1 + 273.15) - 1/(T_2 + 273.15)}$ <table border="1"> <thead> <tr> <th></th> <th>T<sub>1</sub></th> <th>T<sub>2</sub></th> </tr> </thead> <tbody> <tr> <td>B<sub>25/50</sub></td> <td>25.0 ±0.1 °C</td> <td>50.0 ±0.1 °C</td> </tr> <tr> <td>B<sub>25/85</sub></td> <td>25.0 ±0.1 °C</td> <td>85.0 ±0.1 °C</td> </tr> </tbody> </table>		T <sub>1</sub>	T <sub>2</sub>	B <sub>25/50</sub>	25.0 ±0.1 °C	50.0 ±0.1 °C	B <sub>25/85</sub>	25.0 ±0.1 °C	85.0 ±0.1 °C									
	T <sub>1</sub>	T <sub>2</sub>																		
B <sub>25/50</sub>	25.0 ±0.1 °C	50.0 ±0.1 °C																		
B <sub>25/85</sub>	25.0 ±0.1 °C	85.0 ±0.1 °C																		
Adhesion	The terminal electrode shall be free from peeling or signs of peeling.	<p>Applied force : Size 0201 : 2 N Size 0402, 0603 : 5 N Duration : 10 s</p> <p>Size : 0201, 0402</p>  <p>Size : 0603</p> 																		
Bending Strength	There shall be no cracks and other mechanical damage. R <sub>25</sub> change : within ±5 %	<p>Bending distance : 1 mm Bending speed : 1 mm/s</p> 																		
Resistance to Soldering Heat	There shall be no cracks and other mechanical damage. <table border="0"> <tr> <td></td> <td>Narrow Tol. type</td> <td>Standard type</td> </tr> <tr> <td>R<sub>25</sub> change</td> <td>: within ±2 %</td> <td>within ±3 %</td> </tr> <tr> <td>B Value change</td> <td>: within ±1 %</td> <td>within ±2 %</td> </tr> </table>		Narrow Tol. type	Standard type	R <sub>25</sub> change	: within ±2 %	within ±3 %	B Value change	: within ±1 %	within ±2 %	<p>Soldering bath method Solder temperature : 270 ±5 °C Dipping period : 4.0 ±1 s Preheat condition :</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temp (°C)</th> <th>Period (s)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>80 to 100</td> <td>120 to 180</td> </tr> <tr> <td>2</td> <td>150 to 200</td> <td>120 to 180</td> </tr> </tbody> </table>	Step	Temp (°C)	Period (s)	1	80 to 100	120 to 180	2	150 to 200	120 to 180
	Narrow Tol. type	Standard type																		
R <sub>25</sub> change	: within ±2 %	within ±3 %																		
B Value change	: within ±1 %	within ±2 %																		
Step	Temp (°C)	Period (s)																		
1	80 to 100	120 to 180																		
2	150 to 200	120 to 180																		
Solderability	More than 95 % of the soldered area of both terminal electrodes shall be covered with fresh solder.	<p>Soldering bath method Solder temperature : 230 ±5 °C Dipping period : 4 ±1 s Solder : Sn-3.0Ag-0.5Cu</p>																		

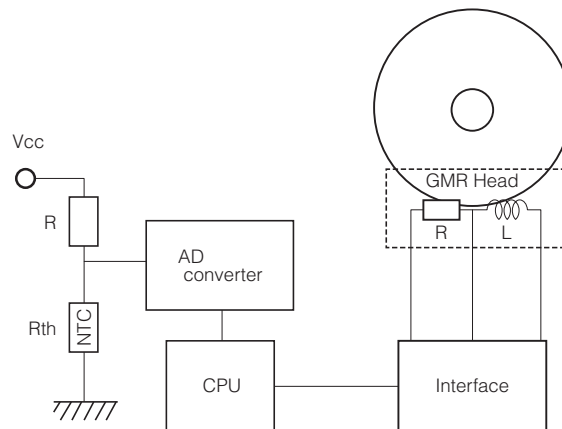
## Specification and Test Method

Item	Specification		Test Method
Temperature Cycling	Narrow Tol. type R <sub>25</sub> change : within ±2 % B Value change : within ±1 %	Standard type within ±3 % within ±2 %	Conditions of one cycle Step 1 : -40 °C, 30±3 min Step 2 : Room temp., 3 min max. Step 3 : 125 °C, 30±3 min. Step 4 : Room temp., 3 min max. Number of cycles: 100 cycles
Humidity	Narrow Tol. type R <sub>25</sub> change : within ±2 % B Value change : within ±1 %	Standard type within ±3 % within ±2 %	Temperature : 85 ±2 °C Relative humidity : 85 ±5 % Test period : 1000 +48/0 h
Biased Humidity	Narrow Tol. type R <sub>25</sub> change : within ±2 % B Value change : within ±1 %	Standard type within ±3 % within ±2 %	Temperature : 85 ±2 °C Relative humidity : 85 ±5 % Applied power : 10 mW(D.C.) Test period : 500 +48/0 h
Low Temperature Exposure	Narrow Tol. type R <sub>25</sub> change : within ±2 % B Value change : within ±1 %	Standard type within ±3 % within ±2 %	Specimens are soldered on the testing board shown in Fig.2. Temperature : -40 ±3 °C Test period : 1000 +48/0 h
High Temperature Exposure	Narrow Tol. type R <sub>25</sub> change : within ±2 % B Value change : within ±1 %	Standard type within ±3 % within ±2 %	Specimens are soldered on the testing board shown in Fig.2. Temperature : 125 ±3 °C Test period : 1000 +48/0 h

## Typical Application

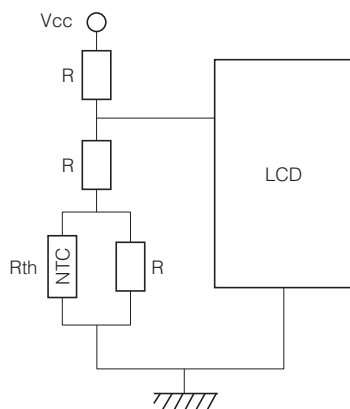
### ● Temperature Detection

Writing current control of HDD



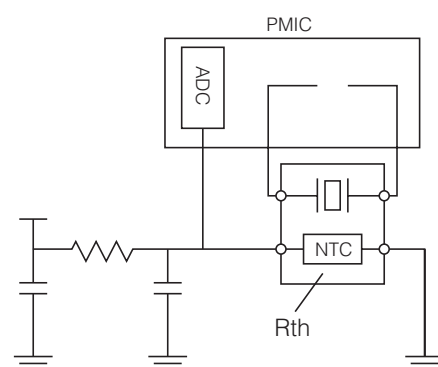
### ● Temperature Compensation (Pseudo-linearization)

Contrast level control of LCD

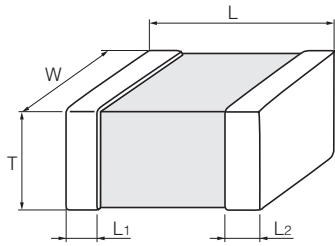


### ● Temperature Compensation (RF circuit)

Temperature compensation of TCXO



## Dimensions in mm (not to scale)



(Unit : mm)

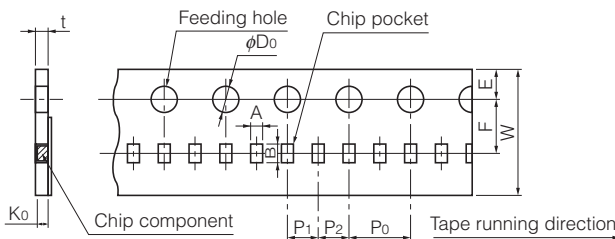
Size Code (EIA)	L	W	T	L <sub>1</sub> , L <sub>2</sub>
Z(0201)	0.60±0.03	0.30±0.03	0.30±0.03	0.15±0.05
0(0402)	1.0±0.1	0.50±0.05	0.50±0.05	0.25±0.15
1(0603)	1.60±0.15	0.8±0.1	0.8±0.1	0.3±0.2

## Packaging Methods

### ● Standard Packing Quantities

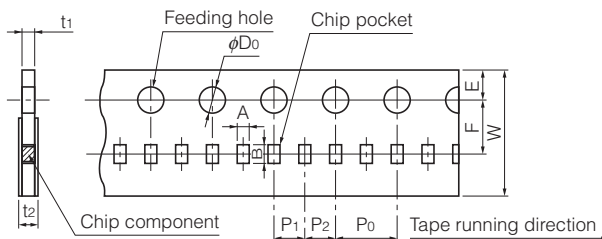
Size Code	Thickness (mm)	Kind of Taping	Pitch (mm)	Quantity (pcs./reel)
Z(0201)	0.3	Pressed Carrier Taping	2	15,000
0(0402)	0.5	Punched Carrier Taping	2	10,000
1(0603)	0.8		4	4,000

### ● Pitch 2 mm (Pressed Carrier Taping) : Size 0201



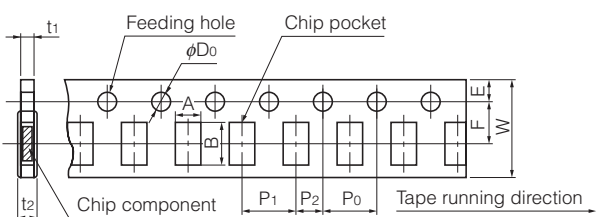
Symbol	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	t	K <sub>0</sub>
Dim. (mm)	0.36 ±0.03	0.66 ±0.03	8.0 ±0.2	3.50 ±0.05	1.75 ±0.10	2.00 ±0.05	2.00 ±0.05	4.0 ±0.1	1.5 <sup>+0.1</sup> <sub>0</sub>	0.55 max.	0.36 ±0.03

### ● Pitch 2 mm (Punched Carrier Taping) : Size 0402



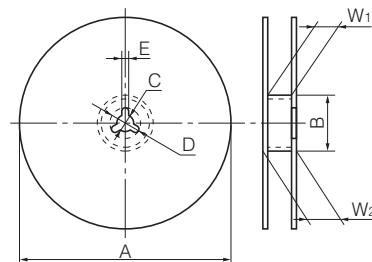
Symbol	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	t <sub>1</sub>	t <sub>2</sub>
Dim. (mm)	0.62 ±0.05	1.12 ±0.05	8.0 ±0.2	3.50 ±0.05	1.75 ±0.10	2.00 ±0.05	2.00 ±0.05	4.0 ±0.1	1.5 <sup>+0.1</sup> <sub>0</sub>	0.7 max.	1.0 max.

### ● Pitch 4 mm (Punched Carrier Taping) : Size 0603



Symbol	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	t <sub>1</sub>	t <sub>2</sub>
Dim. (mm)	1.0 ±0.1	1.8 ±0.1	8.0 ±0.2	3.50 ±0.05	1.75 ±0.10	4.0 ±0.1	2.00 ±0.05	4.0 ±0.1	1.5 <sup>+0.1</sup> <sub>0</sub>	1.1 max.	1.4 max.

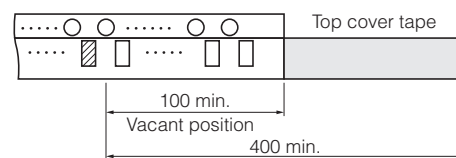
### ● Reel for Taping



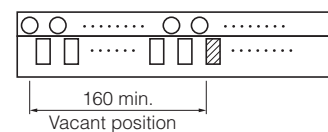
Symbol	φA	φB	C	D	E	W <sub>1</sub>	W <sub>2</sub>
Dim. (mm)	180 <sup>-0.3</sup>	60.0 <sup>+1.0</sup> <sub>0</sub>	13.0±0.5	21.0±0.8	2.0±0.5	9.0 <sup>+1.0</sup> <sub>0</sub>	11.4±1.0

### ● Leader Part and Taped End

#### Leader part



#### Taped end



(Unit : mm)

## Minimum Quantity / Packing Unit

Part Number (Size)	Minimum Quantity / Packing Unit	Packing Quantity in Carton	Carton L×W×H (mm)
ERTJZ (0201)	15,000	300,000	250×200×200
ERTJ0 (0402)	10,000	200,000	250×200×200
ERTJ1 (0603)	4,000	80,000	250×200×200

Part No., quantity and country of origin are designated on outer packages in English.