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NTCLG100XX103JB

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2322 633 3/5/8....

Vishay BCcomponents

NTC Thermistors, High Temperature Sensors

FEATURES

- Small diameter
- Quick response to temperature change
- High stability over a long life
- Wide temperature range from –40 to +200 °C
- Resistant to corrosive atmospheres and harsh environments

APPLICATIONS

- High temperature measurement control:
  - Domestic appliances
  - Automotive systems
  - Industrial process control

DESCRIPTION

These thermistors have a negative temperature coefficient and are mounted in a glass envelope:

2322 633 5.... (SOD80) without leads and suitable for surface mounting

2322 633 8.... (SOD27) with tinned copper-clad iron leads

2322 633 3.... is the bandoiler version of 2322 633 8.... series

MOUNTING

By soldering

QUICK REFERANCE DATA

PARAMETER	VALUE	
	2322 633 5....	2322 633 8....
Temperature range	–40 to +200 °C	
Resistance value at 25 °C (R_{25})	10 to 100 kΩ	
Tolerance on R_{25}-value	±5% and ±10%	
$B_{25/85}$-value	3977 K	
Tolerance on $B_{25/85}$-value	±1.3%	
Deviation in resistance value due to B-tolerance	see Resistance Values at Intermediate Temperatures table for 2322 633 5.... series	see Resistance Values at Intermediate Temperatures table for 2322 633 8.... series
Ratio R_T/R_{25}		
Rated dissipation	100 mW	
Dissipation factor	2.5 mW/K	
Response time	0.9 s	
Thermal time constant τ	6 s	
Temperature coefficient	see Resistance Values at Intermediate Temperatures table for 2322 633 5.... series	see Resistance Values at Intermediate Temperatures table for 2322 633 8.... series
Climatic category	40/155/56	40/200/56
Mass	≈0.03 g	≈0.14 g

ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (kΩ)	$B_{25/85}$-VALUE	CATALOG NUMBER 2322 633			
		SOD27 (leaded) 8.... tinned-copper		SOD80 (MELF)[1] 5....	
		R_{25} ±10%	R_{25} ±5%	R_{25} ±10%	R_{25} ±5%
10	3977 K ±1.3%	2103	3103	2103	3103
20	3977 K ±1.3%	2203	3203	2203	3203
30	3977 K ±1.3%	2303	3303	2303	3303
100	3977 K ±1.3%	2104	3104	2104	3104
220	3977 K ±1.3%	2224	3224	2224	3224

Note

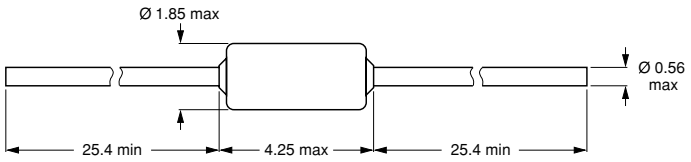
1. Only available in blister tape.

2322 633 3/5/8....

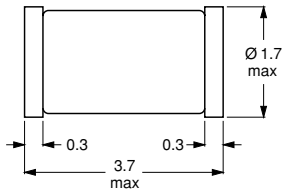
Vishay BCcomponents NTC Thermistors, High Temperature Sensors

DIMENSIONS in millimeters

Component outline for 2322 633 8.... (SOD27).

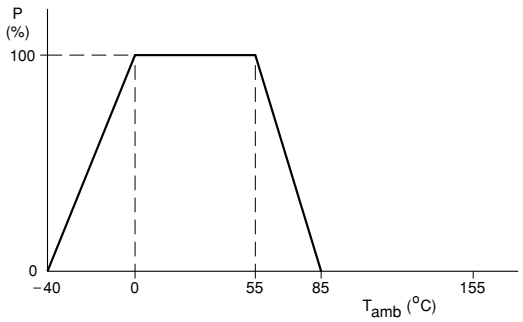


Component outline for 2322 633 5.... (SOD80).

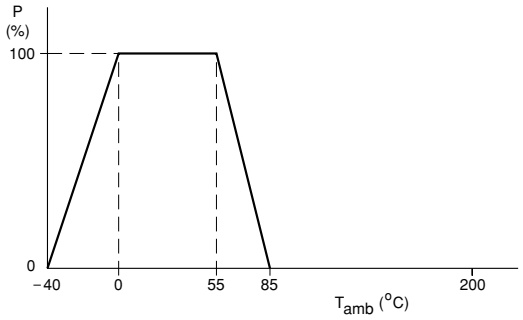


DERATING

Derating curve for 2322 633 5.... series.

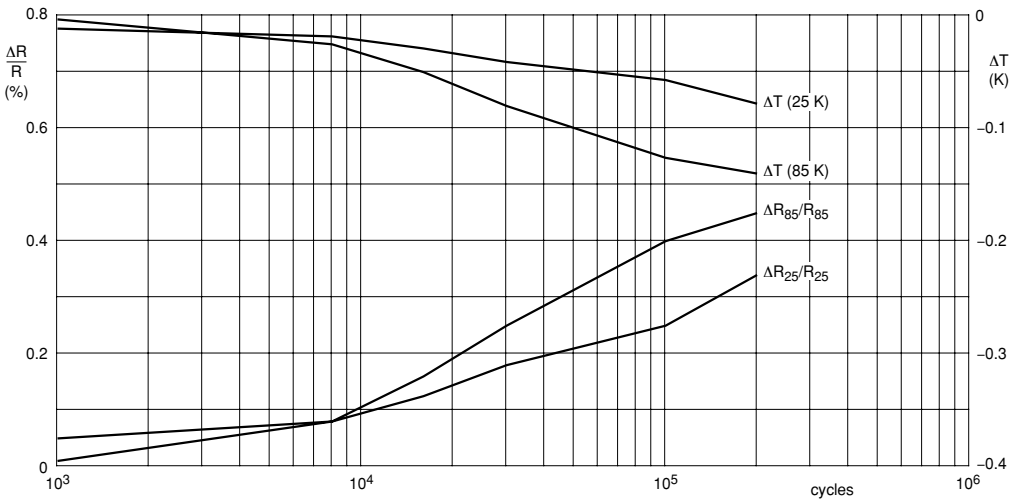


Derating curve for 2322 633 8.... series.

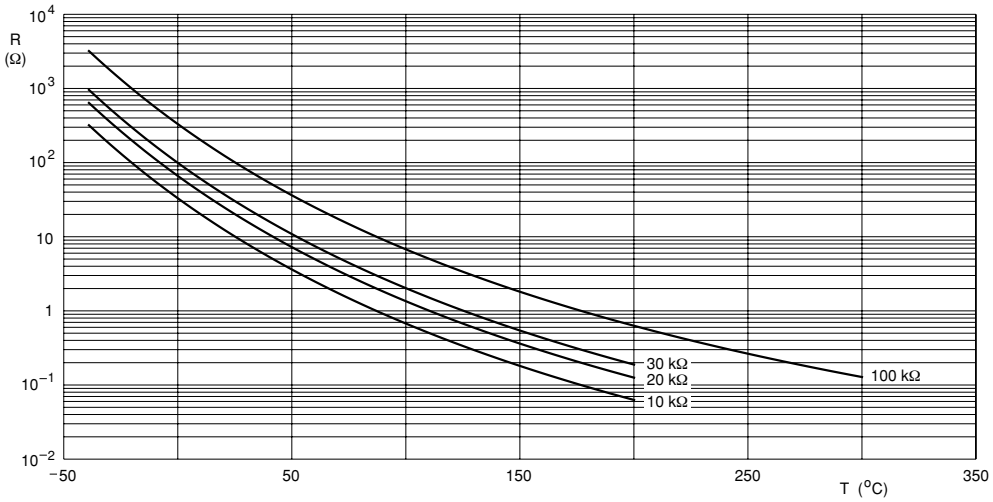


STABILITY AND R-T CHARACTERISTICS

Stability of glass encapsulated NTCs after thermal shock test.



STABILITY AND R-T CHARACTERISTICS



RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES FOR 2322 633 5.... SERIES

T_{oper} (°C)	R_T/R_{25}	ΔR DUE TO B-TOLERANCE (%)	TC (%/K)	R_{25}				
				2322 633 ..... (see note 1)				
				5.103	**5.203**	**5.303**	**5.104**	**5.224**
−40	33.06	4.65	6.59	330.6	661.2	991.8	3306	-
−35	23.90	4.21	6.37	239.0	478.1	717.1	2390	-
−30	17.47	3.79	6.16	174.7	349.4	524.1	1747	-
−25	12.90	3.38	5.96	129.0	258.0	387.0	1290	-
−20	9.621	2.99	5.77	96.21	192.4	288.6	962.1	-
−15	7.242	2.61	5.59	72.42	144.8	217.3	724.2	-
−10	5.501	2.24	5.41	55.01	110.0	165.0	550.1	-
−5	4.214	1.89	5.24	42.14	84.28	126.4	421.4	-
0	3.255	1.55	5.08	32.55	65.09	97.64	325.5	-
5	2.534	1.22	4.93	25.34	50.67	76.01	253.4	-
10	1.987	0.90	4.78	19.87	39.74	59.62	198.7	-
15	1.570	0.59	4.64	15.70	31.40	47.10	157.0	-
20	1.249	0.29	4.51	12.49	24.98	37.46	124.9	-
25	1.000	0.00	4.38	10.00	20.00	30.00	100.0	220000
30	0.8059	0.28	4.25	8.059	16.12	24.18	80.59	179500
35	0.6534	0.55	4.13	6.534	13.07	19.60	65.34	-
40	0.5329	0.82	4.02	5.329	10.66	15.99	53.29	121300
45	0.4371	1.08	3.91	4.371	8.742	13.11	43.71	-
50	0.3604	1.34	3.80	3.604	7.209	10.81	36.04	83630
55	0.2988	1.58	3.70	2.988	5.976	8.963	29.88	-
60	0.2489	1.82	3.60	2.489	4.978	7.467	24.89	58710
65	0.2084	2.06	3.51	2.084	4.168	6.251	20.84	-
70	0.1753	2.29	3.42	1.753	3.505	5.258	17.53	41920
75	0.1481	2.51	3.33	1.481	2.961	4.442	14.81	-
80	0.1256	2.73	3.24	1.256	2.512	3.769	12.56	30410
85	0.1070	2.95	3.16	1.070	2.141	3.211	10.70	-
90	0.09156	3.16	3.08	0.9156	1.831	2.747	9.156	22390
95	0.07862	3.36	3.01	0.7862	1.572	2.359	7.862	-
100	0.06777	3.56	2.93	0.6777	1.355	2.033	6.777	16720
105	0.05863	3.76	2.86	0.5863	1.173	1.759	5.863	-
110	0.05089	3.95	2.79	0.5089	1.018	1.527	5.089	12630
115	0.04433	4.13	2.73	0.4433	0.8865	1.330	4.433	-
120	0.03873	4.32	2.66	0.3873	0.7747	1.162	3.873	9663
125	0.03395	4.50	2.60	0.3395	0.6791	1.019	3.395	-
130	0.02985	4.67	2.54	0.2985	0.5971	0.8956	2.985	7478
135	0.02633	4.84	2.49	0.2633	0.5265	0.7898	2.633	-
140	0.02328	5.01	2.43	0.2328	0.4656	0.6984	2.328	5851
145	0.02065	5.17	2.38	0.2065	0.4129	0.6194	2.065	-
150	0.01836	5.33	2.32	0.1836	0.3671	0.5507	1.836	4625

2322 633 3/5/8....

Vishay BCcomponents NTC Thermistors, High Temperature Sensors

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES FOR 2322 633 8.... SERIES

T_{oper} (°C)	R_T/R_{25}	ΔR DUE TO B-TOLERANCE (%)	TC (%/K)	R_{25} (kΩ) 2322 633 ..... (see note 1)				
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−15	7.242	2.61	5.59	72.42	144.8	217.3	724.2	-
−10	5.501	2.24	5.41	55.01	110.0	165.0	550.1	-
−5	4.214	1.89	5.24	42.14	84.28	126.4	421.4	-
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145	0.02065	5.17	2.38	0.2065	0.4129	0.6194	2.065	-
150	0.01836	5.33	2.32	0.1836	0.3671	0.5507	1.836	4625
155	0.01636	5.49	2.27	0.1636	0.3273	0.4909	1.636	-
160	0.01455	5.65	2.23	0.1455	0.2910	0.4365	1.455	3691
165	0.01303	5.80	2.18	0.1303	0.2606	0.3909	1.303	-
170	0.01169	5.95	2.14	0.1169	0.2339	0.3508	1.169	2973
175	0.01052	6.10	2.09	0.1052	0.2104	0.3156	1.052	-
180	0.00948	6.24	2.05	0.09484	0.1897	0.2845	0.9484	2415
185	0.00857	6.38	2.01	0.08569	0.1714	0.2571	0.8569	-
190	0.00776	6.52	1.97	0.07757	0.1551	0.2327	0.7757	1978
195	0.00704	6.66	1.93	0.07037	0.1407	0.2111	0.7037	-
200	0.00640	6.79	1.89	0.06396	0.1279	0.1919	0.6396	1632

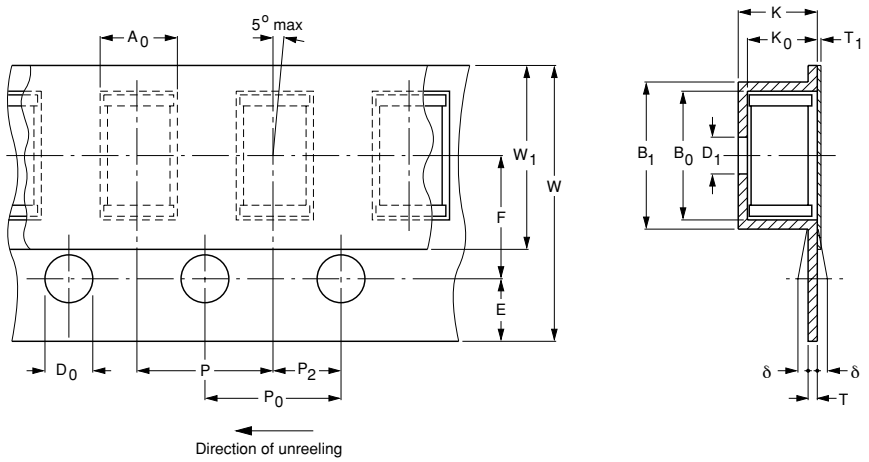
Note

1. Replace dot in last 5-digits of catalog number by a number according to the following list and depending on tolerance on required R_{25}-value:
   a) 3 for a tolerance of ±5%.
   b) 2 for a tolerance of ±10%.

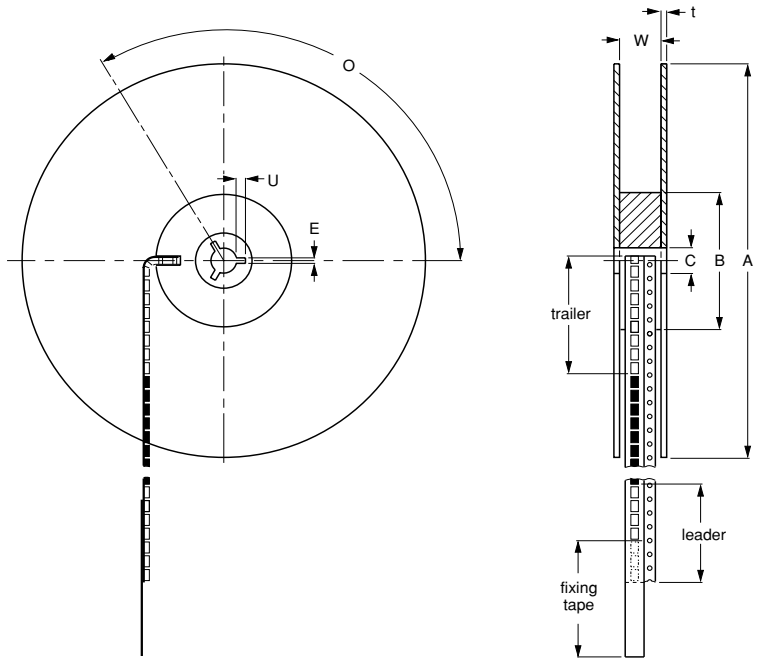
PACKAGING

BLISTER TAPE AND REEL (2322 633 5....)

Blister tape



Reel



BLISTER TAPE AND REEL DIMENSIONS				
SYMBOL	PARAMETER	NOMINAL DIMENSIONS	TOLERANCE	UNIT
Blister tape				
K	overall thickness	<2.5	–	mm
POCKET				
A_0	length	2.1	+0.3	mm
B_0	width	>3.8	–	mm
K_0	depth	2.1	+0.3	mm

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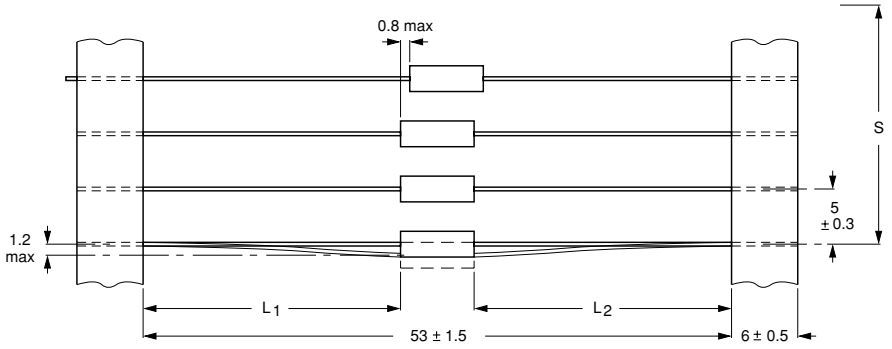
Vishay BCcomponents NTC Thermistors, High Temperature Sensors

SYMBOL	PARAMETER	NOMINAL DIMENSIONS	TOLERANCE	UNIT
B_1	outside width	<4.5	–	mm
P	pitch	4.0	±0.1	mm
D_1	hole diameter	1.0	±0.1	mm
FEED-HOLE				
D_0	diameter	1.5	±0.1	mm
P_0	pitch	4.0	±0.1	mm
E	distance	1.75	±0.1	mm
	cumulative pitch error over 10 positions	0	±0.1	mm
CENTRE LINE				
P_2	length	2.0	±0.05	mm
F	width	3.5	±0.1	mm
FIXING TAPE				
W_1	width	<5.5	–	mm
T_1	thickness	<0.1	–	mm
CARRIER TAPE				mm
W	thickness	8.0	±0.2	mm
δ	bending	<0.3	–	mm
T	thickness	<0.4	–	mm
Reel				
FLANGE				
A	diameter	180	+0	mm
t	thickness	1.5	+0.5	mm
W	space between flanges	9.5	±0.5	mm
HUB				
B	diameter	62.0	±1.5	mm
C	spindle hole	12.75	+0.15/–0	mm
KEY SLIT				
E	width	2.0	±0.5	mm
U	depth	4.0	±0.5	mm
O	location	120	–	°

THERMISTORS ON BANDOLIER (2322 633 3....)



The components are centred so that $|L_1 - L_2| = 1.2$ mm max.
The cumulative space (S) measured over 10 spacings = 50 ±2 mm.

Note

The bandolier of a 180 mm reel contains at least 2500 devices with no more than 0.5% empty positions.
Three consecutive empty places may be found provided this gap is followed by 6 consecutive devices.
The carrier tape starts (leader) and ends (trailer) with at least 75 empty positions (equivalent to 300 mm); the covering foil is at least 300 mm. In order to fix the carrier tape a self-adhesive tape of 20 to 50 mm width is applied.