

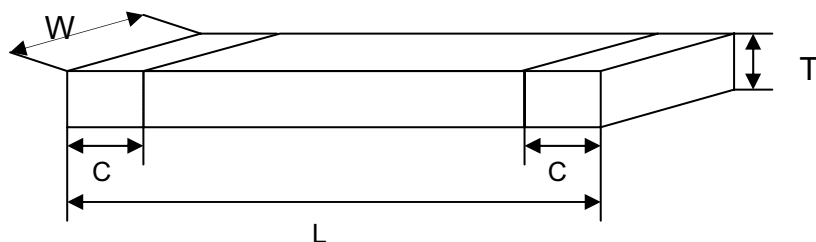
Specification of SMD Chips Thermistor

◆ PART NO. : SMD05-103 H 3970 F

R25 10,000 $\Omega \pm 3 \%$

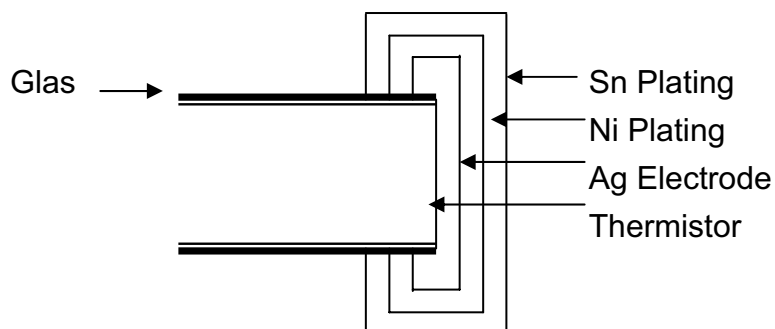
B25-85 3970 $^{\circ}\text{K} \pm 1 \%$

◆ CHIP DIMENSIONS



Item	L(mm)	W(mm)	T(mm)	C(mm)
2125 (0805)	2.00 ±0.20	1.25 ±0.20	1.20±0.20	0.50±0.20

◆ CHIP STRUCTURE



◆ ELECTRICAL CHARACTERISTICS

Style	Symbol	Condition	Specification
Resistance at 25°C	R25	T = 25 ± 0.1°C	100K $\Omega \pm 3 \%$
B Constant	B	25°C to 85°C	4000 $^{\circ}\text{K} \pm 1 \%$
Thermal Time Constant	T	T = 25 ± 0.1°C	Approx. 7.5 sec
Thermal Dissipation Constant	C	T = 25 ± 0.1°C	Approx. 4 mW/°C
Maximum Power Rating*	Pw	T = 25 ± 0.1°C	400 mW
Operation Temp. Range	--	--	-40°C ~ 125°C

*Maximum Power Rating = Thermal Dissipation Constant × (125°C-25°C)

Resistance-Temperature Characteristics

Part No. : SMD05-103 H 3970 F

R : 10,000 ohms ± 3%
B : 3970 °K ± 1%

Temperature (°C)	Resistance (Ω)			Temp. Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
-40	314428	335745	358185	-6.65	-6.35	6.68	-1.01	0.95
-39	294463	314218	334997	-6.60	-6.29	6.61	-1.00	0.95
-38	275891	294206	313455	-6.56	-6.23	6.54	-1.00	0.95
-37	258606	275593	293433	-6.51	-6.16	6.47	-0.99	0.95
-36	242511	258274	274814	-6.47	-6.10	6.40	-0.99	0.94
-35	227519	242151	257493	-6.42	-6.04	6.34	-0.99	0.94
-34	213547	227135	241371	-6.38	-5.98	6.27	-0.98	0.94
-33	200519	213143	226358	-6.34	-5.92	6.20	-0.98	0.93
-32	188367	200100	212372	-6.29	-5.86	6.13	-0.97	0.93
-31	177027	187935	199336	-6.25	-5.80	6.07	-0.97	0.93
-30	166440	176585	187181	-6.21	-5.75	6.00	-0.97	0.93
-29	156551	165991	175842	-6.17	-5.69	5.93	-0.96	0.92
-28	147310	156097	165259	-6.12	-5.63	5.87	-0.96	0.92
-27	138672	146854	155378	-6.08	-5.57	5.80	-0.95	0.92
-26	130593	138214	146149	-6.04	-5.51	5.74	-0.95	0.91
-25	123034	130136	137524	-6.00	-5.46	5.68	-0.95	0.91
-24	115959	122579	129461	-5.96	-5.40	5.61	-0.94	0.91
-23	109334	115507	121919	-5.92	-5.34	5.55	-0.94	0.90
-22	103128	108886	114863	-5.88	-5.29	5.49	-0.93	0.90
-21	97311	102685	108258	-5.84	-5.23	5.43	-0.93	0.90
-20	91858	96875	102073	-5.81	-5.18	5.37	-0.92	0.89
-19	86744	91428	96278	-5.77	-5.12	5.30	-0.92	0.89
-18	81945	86321	90847	-5.73	-5.07	5.24	-0.92	0.88
-17	77441	81529	85756	-5.69	-5.01	5.18	-0.91	0.88
-16	73212	77033	80980	-5.65	-4.96	5.12	-0.91	0.88
-15	69238	72811	76499	-5.62	-4.91	5.07	-0.90	0.87
-14	65505	68846	72293	-5.58	-4.85	5.01	-0.90	0.87
-13	61995	65121	68343	-5.54	-4.80	4.95	-0.89	0.87
-12	58694	61619	64632	-5.51	-4.75	4.89	-0.89	0.86
-11	55588	58327	61145	-5.47	-4.70	4.83	-0.88	0.86
-10	52665	55230	57867	-5.44	-4.64	4.78	-0.88	0.85
-9	49913	52316	54784	-5.40	-4.59	4.72	-0.87	0.85

Part No.SMD05-103H3970F

-8	47322	49573	51884	-5.37	-4.54	4.66	-0.87	0.85
-7	44880	46989	49154	-5.33	-4.49	4.61	-0.86	0.84
-6	42579	44556	46584	-5.30	-4.44	4.55	-0.86	0.84
-5	40409	42263	44163	-5.27	-4.39	4.50	-0.85	0.83
-4	38362	40102	41882	-5.23	-4.34	4.44	-0.85	0.83
-3	36431	38064	39733	-5.20	-4.29	4.39	-0.84	0.82
-2	34609	36141	37706	-5.17	-4.24	4.33	-0.84	0.82
-1	32888	34326	35795	-5.13	-4.19	4.28	-0.83	0.82
0	31263	32614	33991	-5.10	-4.14	4.22	-0.83	0.81
1	29728	30996	32289	-5.07	-4.09	4.17	-0.82	0.81
2	28277	29469	30682	-5.04	-4.04	4.12	-0.82	0.80
3	26905	28025	29165	-5.01	-3.99	4.07	-0.81	0.80
4	25608	26660	27731	-4.98	-3.95	4.01	-0.81	0.79
5	24381	25370	26376	-4.95	-3.90	3.96	-0.80	0.79
6	23220	24150	25094	-4.91	-3.85	3.91	-0.80	0.78
7	22120	22995	23883	-4.88	-3.80	3.86	-0.79	0.78
8	21079	21902	22737	-4.85	-3.76	3.81	-0.79	0.77
9	20093	20868	21652	-4.82	-3.71	3.76	-0.78	0.77
10	19159	19888	20626	-4.79	-3.66	3.71	-0.77	0.76
11	18273	18959	19653	-4.77	-3.62	3.66	-0.77	0.76
12	17434	18080	18733	-4.74	-3.57	3.61	-0.76	0.75
13	16637	17246	17860	-4.71	-3.53	3.56	-0.76	0.75
14	15882	16455	17033	-4.68	-3.48	3.51	-0.75	0.74
15	15165	15705	16249	-4.65	-3.44	3.47	-0.75	0.74
16	14485	14993	15506	-4.62	-3.39	3.42	-0.74	0.73
17	13839	14318	14801	-4.60	-3.35	3.37	-0.73	0.73
18	13225	13677	14131	-4.57	-3.30	3.32	-0.73	0.72
19	12642	13068	13496	-4.54	-3.26	3.28	-0.72	0.72
20	12088	12490	12893	-4.51	-3.22	3.23	-0.72	0.71
21	11561	11940	12320	-4.49	-3.17	3.18	-0.71	0.71
22	11061	11418	11776	-4.46	-3.13	3.14	-0.70	0.70
23	10584	10921	11259	-4.43	-3.09	3.09	-0.70	0.70
24	10131	10449	10767	-4.41	-3.04	3.05	-0.69	0.69
25	9700	10000	10300	-4.38	-3.00	3.00	-0.68	0.68
26	9281	9573	9864	-4.36	-3.04	3.04	-0.70	0.70
27	8883	9166	9449	-4.33	-3.08	3.09	-0.71	0.71
28	8504	8779	9054	-4.30	-3.13	3.13	-0.73	0.73
29	8143	8410	8677	-4.28	-3.17	3.18	-0.74	0.74
30	7800	8059	8318	-4.25	-3.21	3.22	-0.76	0.75
31	7473	7724	7976	-4.23	-3.25	3.27	-0.77	0.77
32	7161	7405	7650	-4.21	-3.29	3.31	-0.79	0.78

Part No.SMD05-103H3970F

33	6864	7101	7339	-4.18	-3.33	3.35	-0.80	0.80
34	6581	6811	7042	-4.16	-3.37	3.40	-0.82	0.81
35	6311	6534	6759	-4.13	-3.41	3.44	-0.83	0.83
36	6054	6271	6489	-4.11	-3.45	3.48	-0.85	0.84
37	5809	6019	6231	-4.09	-3.49	3.52	-0.86	0.85
38	5575	5779	5985	-4.06	-3.53	3.57	-0.88	0.87
39	5351	5549	5749	-4.04	-3.57	3.61	-0.89	0.88
40	5138	5330	5525	-4.02	-3.61	3.65	-0.91	0.90
41	4934	5121	5310	-3.99	-3.65	3.69	-0.92	0.91
42	4740	4921	5105	-3.97	-3.69	3.73	-0.94	0.93
43	4554	4730	4908	-3.95	-3.72	3.77	-0.96	0.94
44	4376	4547	4721	-3.93	-3.76	3.81	-0.97	0.96
45	4207	4373	4541	-3.90	-3.80	3.86	-0.99	0.97
46	4044	4206	4370	-3.88	-3.84	3.90	-1.00	0.99
47	3889	4046	4205	-3.86	-3.87	3.94	-1.02	1.00
48	3741	3893	4048	-3.84	-3.91	3.98	-1.04	1.02
49	3599	3747	3897	-3.82	-3.95	4.02	-1.05	1.03
50	3463	3607	3753	-3.80	-3.98	4.06	-1.07	1.05
51	3333	3473	3615	-3.78	-4.02	4.10	-1.08	1.06
52	3209	3345	3483	-3.76	-4.06	4.13	-1.10	1.08
53	3090	3222	3356	-3.73	-4.09	4.17	-1.12	1.10
54	2976	3104	3235	-3.71	-4.13	4.21	-1.13	1.11
55	2867	2991	3118	-3.69	-4.16	4.25	-1.15	1.13
56	2762	2883	3007	-3.67	-4.20	4.29	-1.17	1.14
57	2662	2779	2899	-3.65	-4.23	4.33	-1.18	1.16
58	2565	2680	2797	-3.63	-4.27	4.37	-1.20	1.17
59	2473	2584	2698	-3.61	-4.30	4.40	-1.22	1.19
60	2385	2493	2604	-3.59	-4.34	4.44	-1.24	1.21
61	2300	2405	2513	-3.58	-4.37	4.48	-1.25	1.22
62	2219	2321	2426	-3.56	-4.41	4.52	-1.27	1.24
63	2141	2240	2342	-3.54	-4.44	4.55	-1.29	1.26
64	2066	2162	2262	-3.52	-4.47	4.59	-1.30	1.27
65	1994	2088	2184	-3.50	-4.51	4.63	-1.32	1.29
66	1925	2016	2110	-3.48	-4.54	4.66	-1.34	1.30
67	1858	1947	2039	-3.46	-4.57	4.70	-1.36	1.32
68	1795	1881	1970	-3.44	-4.61	4.74	-1.38	1.34
69	1733	1818	1905	-3.43	-4.64	4.77	-1.39	1.35
70	1675	1757	1841	-3.41	-4.67	4.81	-1.41	1.37
71	1618	1698	1780	-3.39	-4.70	4.84	-1.43	1.39
72	1564	1642	1722	-3.37	-4.74	4.88	-1.45	1.40
73	1512	1587	1665	-3.35	-4.77	4.91	-1.46	1.42

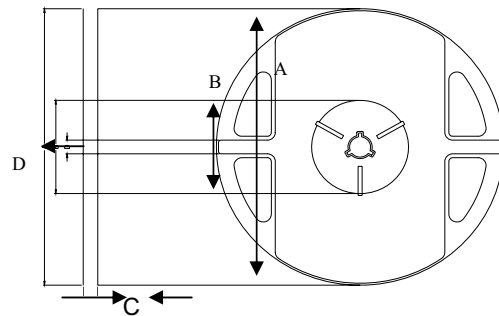
Part No. SMD05-103H3970F

74	1461	1535	1611	-3.34	-4.80	4.95	-1.48	1.44
75	1413	1485	1559	-3.32	-4.83	4.98	-1.50	1.46
76	1367	1437	1509	-3.30	-4.86	5.02	-1.52	1.47
77	1322	1390	1460	-3.28	-4.90	5.05	-1.54	1.49
78	1279	1345	1414	-3.27	-4.93	5.09	-1.56	1.51
79	1238	1302	1369	-3.25	-4.96	5.12	-1.58	1.53
80	1198	1261	1326	-3.23	-4.99	5.16	-1.59	1.54
81	1159	1221	1284	-3.22	-5.02	5.19	-1.61	1.56
82	1122	1182	1244	-3.20	-5.05	5.22	-1.63	1.58
83	1087	1145	1205	-3.18	-5.08	5.26	-1.65	1.60
84	1052	1109	1168	-3.17	-5.11	5.29	-1.67	1.61
85	1019	1075	1132	-3.15	-5.14	5.32	-1.69	1.63
86	987	1041	1097	-3.14	-5.17	5.36	-1.71	1.65
87	957	1009	1064	-3.12	-5.20	5.39	-1.73	1.67
88	927	978	1031	-3.10	-5.23	5.42	-1.75	1.68
89	899	948	1000	-3.09	-5.26	5.45	-1.77	1.70
90	871	920	970	-3.07	-5.29	5.49	-1.79	1.72
91	844	892	941	-3.06	-5.32	5.52	-1.81	1.74
92	819	865	913	-3.04	-5.35	5.55	-1.82	1.76
93	794	839	886	-3.03	-5.37	5.58	-1.84	1.78
94	770	814	860	-3.01	-5.40	5.62	-1.86	1.79
95	747	790	835	-3.00	-5.43	5.65	-1.88	1.81
96	725	767	810	-2.98	-5.46	5.68	-1.90	1.83
97	704	744	787	-2.97	-5.49	5.71	-1.92	1.85
98	683	723	764	-2.95	-5.52	5.74	-1.94	1.87
99	663	702	742	-2.94	-5.54	5.77	-1.96	1.89
100	644	681	721	-2.92	-5.57	5.80	-1.99	1.91
101	625	662	700	-2.91	-5.60	5.84	-2.01	1.92
102	607	643	681	-2.90	-5.63	5.87	-2.03	1.94
103	589	625	661	-2.88	-5.65	5.90	-2.05	1.96
104	572	607	643	-2.87	-5.68	5.93	-2.07	1.98
105	556	590	625	-2.85	-5.71	5.96	-2.09	2.00
106	540	573	608	-2.84	-5.73	5.99	-2.11	2.02
107	525	557	591	-2.83	-5.76	6.02	-2.13	2.04
108	510	542	575	-2.81	-5.79	6.05	-2.15	2.06
109	496	527	559	-2.80	-5.81	6.08	-2.17	2.08
110	482	512	544	-2.79	-5.84	6.11	-2.19	2.10
111	469	498	529	-2.77	-5.87	6.14	-2.21	2.12
112	456	485	515	-2.76	-5.89	6.17	-2.24	2.14
113	444	472	501	-2.75	-5.92	6.19	-2.26	2.16
114	431	459	487	-2.73	-5.94	6.22	-2.28	2.18

Part No. SMD05-103H3970F

115	420	446	474	-2.72	-5.97	6.25	-2.30	2.20
116	408	434	462	-2.71	-5.99	6.28	-2.32	2.22
117	397	423	450	-2.69	-6.02	6.31	-2.34	2.24
118	387	412	438	-2.68	-6.05	6.34	-2.36	2.26
119	376	401	426	-2.67	-6.07	6.37	-2.39	2.28
120	367	390	415	-2.66	-6.10	6.40	-2.41	2.30
121	357	380	405	-2.64	-6.12	6.42	-2.43	2.32
122	347	370	394	-2.63	-6.15	6.45	-2.45	2.34
123	338	361	384	-2.62	-6.17	6.48	-2.47	2.36
124	330	351	374	-2.61	-6.19	6.51	-2.50	2.38
125	321	342	365	-2.59	-6.22	6.54	-2.52	2.40

◆ REEL DIMENSIONS



Unit: mm

Item	A	B	C	D
Dimension	178.0 ±1.0	60.0 ±1.0	9.0 ±0.1	13.0 ±0.1

◆ ORDERING INFORMATION

SMD 05 103 H 3970 F
 ① ② ③ ④ ⑤ ⑥

1. Series SINLOON SMD Thermistor. (TH - Lead (Pb) ; TF – Lead Free)

2. Dimension : 06 (1206) , 05 (0805) , 03 (0603) , 02 (0402)

3. Resistance : 104 = $10 \times 10^4 = 100,000$ ohm

4. R Tolerance : F:±1% ; G:±2% ; H:±3% ; J:±5% ; K:±10%

5. B value : 3215, 3435, 3700, 7970, 4000, 4100,.....etc.

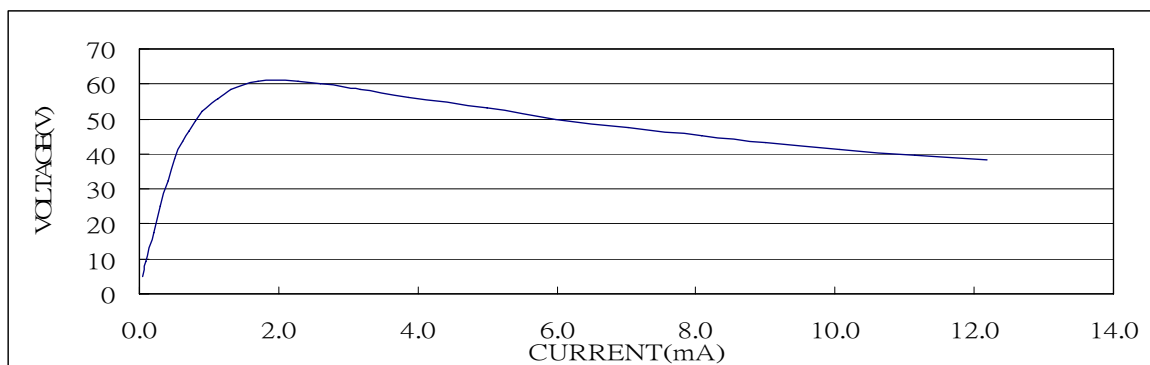
6. B Tolerance : F:±1% ; G:±2% ; H:±3%

● ACCESSORY : RESISTANCE-TEMPERATURE CHARACTERISTICS

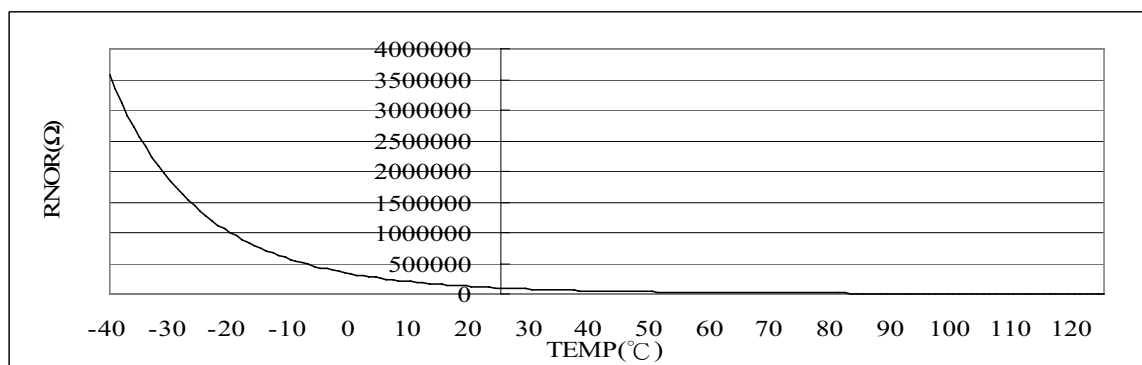
◆ RELIABILITY TEST

PERFORMANCE	TEST METHOD	APPRAISE
Life	MIL – STD – 202F , Method 108A 1000 hours at 125°C NTC WV intermittent	Within ±3 %
Humidity	MIL – STD – 202F , Method 103B 1000 hours at Temperature: 40°C Humidity: 95%	Within ±3 %
Thermal Shock	MIL – STD – 202F , Method 107 10 cycles, -40°C to +125°C	Within ±3 %
Solderability	MIL – STD – 202F , Method 208 235°C for 2 seconds	95% min. coverage
Resistance to Soldering Heat	MIL – R – 55342D , Para 4.7.7 Soldered to test board at 260°C for 10 seconds	Within ±3 %
Bending Strength	JIS C 5202 6.1.4 Pressurizing rod at a rate at 1mm/sec for 1mm	Within ±3 %
Resistance to flexure of Substrate	JIS C 5202 6.2.1 Pressurizing force shall be 3kg (min.)	Over 3 kg
Insulation Resistance	MIL – STD – 202F , Method 302 DC 250V For 10 seconds	Over 1000MΩ
Dielectric Withstand Voltage	MIL – STD – 202F , Method 301 DC 250V For 10 seconds	Not Short

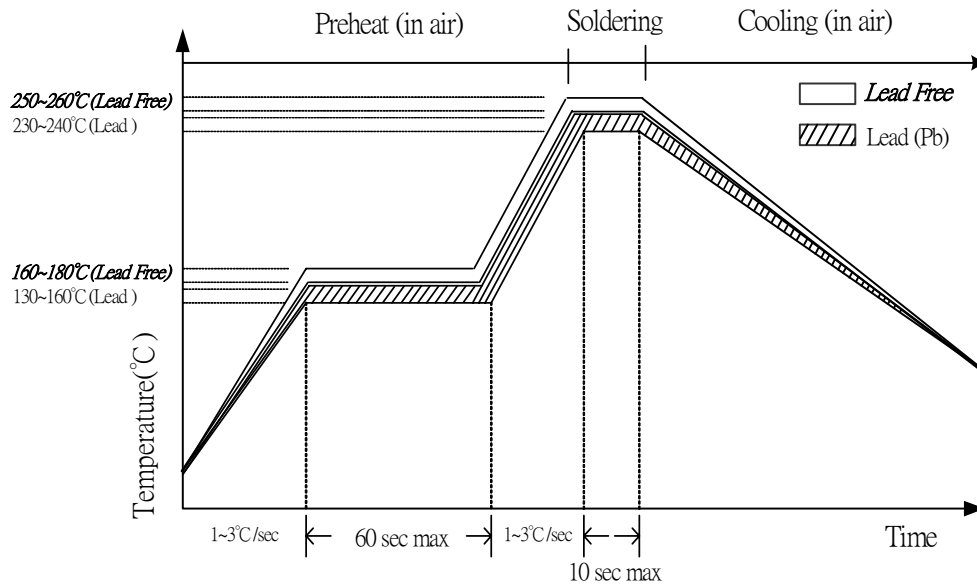
◆ VOLTAGE – CURRENT CURVE



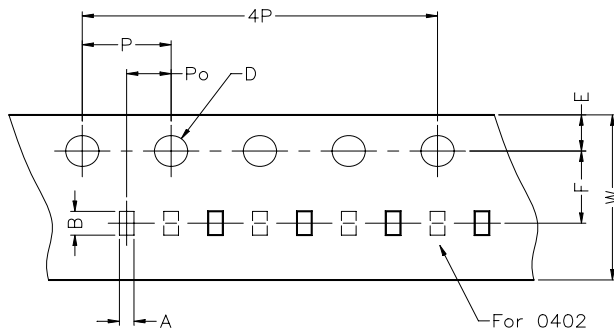
◆ RESISTANCE – TEMP CURVE



◆ REFLOW SOLDERING PROFILE



◆ TAPING DIMENSIONS



Unit: mm

Dimension	1206	0805	0603	0402
A	2.00 ± 0.05	1.50 ± 0.05	1.08 ± 0.05	0.66 ± 0.03
B	3.57 ± 0.05	2.30 ± 0.05	1.85 ± 0.05	1.15 ± 0.03
W	8.00 ± 0.02	8.00 ± 0.05	8.00 ± 0.05	8.00 ± 0.05
D	1.55 ± 0.05	1.50 ± 0.10	1.50 ± 0.10	1.50 ± 0.10
E	1.75 ± 0.10	1.75 ± 0.05	1.75 ± 0.05	1.75 ± 0.05
F	3.50 ± 0.05	3.50 ± 0.05	3.50 ± 0.05	3.50 ± 0.05
P	4.00 ± 0.10	4.00 ± 0.05	4.00 ± 0.05	4.00 ± 0.05
Po	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05
4P	16.00 ± 0.05	16.00 ± 0.05	16.00 ± 0.05	16.00 ± 0.05

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