

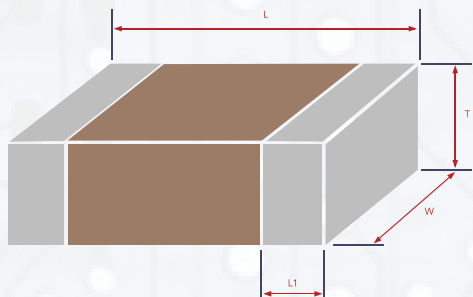
# SMD THERMISTOR AUTOMOTIVE

## - TSN SERIES -

### FEATURES

- RoHS / Halogen-Free (HF) compliant
- Highly reliable structure
- Operating Temperature Range -40°C ~ +150°C
- Qualified based on AEC-Q200

### DIMENSIONS



### APPLICATIONS

- IT Equipment
- Mobile Devices
- Battery Packs
- Office Automation Equipment
- Automotive

TYPE (mm)	L (mm)	W (mm)	T (MAX) (mm)	L1 (mm)
TSN04 (0402)	1.00 ± 0.15	0.50 ± 0.15	0.50 ± 0.15	0.25 ± 0.10
TSN10 (0603)	1.60 ± 0.15	0.80 ± 0.15	0.80 ± 0.15	0.30 ± 0.20
TSN21 (0805)	2.00 ± 0.20	1.25 ± 0.20	0.85 ± 0.20	0.50 ± 0.30

### PART NUMBER

<b>TSN</b>	<b>10</b>	<b>103</b>	<b>F</b>	<b>344</b>	<b>F</b>	<b>B</b>
PRODUCT TYPE	SIZE	ZERO POWER RESISTANCE @25°C	TOLERANCE of R25	B VALUE	TOLERANCE OF B VALUE	DEFINITION OF B VALUE
TSN	04 - 0402 10 - 0603 21 - 0805	103 - 10KΩ 104 - 100KΩ	D: ± 0.5% E: ± 0.7% F: ± 1% G: ± 2% H: ± 3% J: ± 5% K: ± 10%	344 = 3435K 405 = 4050K	D: ± 0.5% E: ± 0.7% F: ± 1% G: ± 2% H: ± 3% J: ± 5%	A: 25/50 B: 25/85 C: 25/100

### ELECTRICAL CHARACTERISTICS

PART NUMBER	ZERO POWER RESISTANCE AT 25 °C	TOL. OF R25	B 25/50 VALUE	TOL OF B VALUE	DISSIPATION FACTOR	THERMAL TIME CONSTANT	MAX POWER RATING AT 25°C
	R 25 (Ω)	±(%)	(k)	(± %)	(mW / °C)	T (sec.)	(mW)
TSN04103(X)338(Y)A	10,000	10,5,3,2,1	3380	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN04473(X)395(Y)A	47,000	10,5,3,2,1	3950	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN04104(X)405(Y)A	100,000	10,5,3,2,1	4050	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN04104(X)420(Y)A	100,000	10,5,3,2,1	4200	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN04104(X)425(Y)A	100,000	10,5,3,2,1	4250	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN10103(X)338(Y)A	10,000	10,5,3,2,1	3380	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10103(X)344(Y)A	10,000	10,5,3,2,1	3435	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10103(X)395(Y)A	10,000	10,5,3,2,1	3950	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10473(X)390(Y)A	47,000	10,5,3,2,1	3900	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10473(X)405(Y)A	47,000	10,5,3,2,1	4050	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)395(Y)A	100,000	10,5,3,2,1	3950	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)420(Y)A	100,000	10,5,3,2,1	4200	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)425(Y)A	100,000	10,5,3,2,1	4250	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)436(Y)A	100,000	10,5,3,2,1	4360	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)440(Y)A	100,000	10,5,3,2,1	4400	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN21103(X)390(Y)A	10,000	10,5,3,2,1	3900	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21473(X)390(Y)A	47,000	10,5,3,2,1	3900	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)395(Y)A	100,000	10,5,3,2,1	3950	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)405(Y)A	100,000	10,5,3,2,1	4050	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)420(Y)A	100,000	10,5,3,2,1	4200	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)425(Y)A	100,000	10,5,3,2,1	4250	5,3,2,1	Approx. 2.4	Approx. 7.5	240

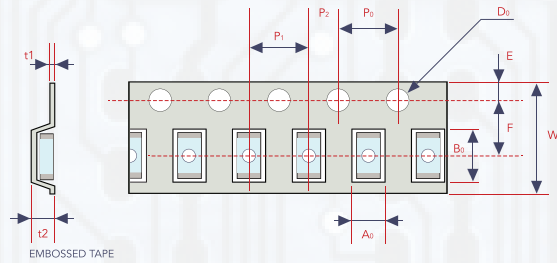
(X): R TOLERANCE | (Y) B VALUE TOLERANCE

## ELECTRICAL CHARACTERISTICS

PART NUMBER	ZERO POWER RESISTANCE AT 25 ° C	TOL. OF R25	B 25/85 VALUE	TOL OF B VALUE	DISSIPATION FACTOR	THERMAL TIME CONSTANT	MAX POWER RATING AT 25°C
	R 25 (Ω)	±(%)	(k)	(± %)	— (mW / °C)	T (sec.)	(mW)
TSN04103(X)344(Y)B	10,000	10,5,3,2,1	3435	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN04473(X)405(Y)B	47,000	10,5,3,2,1	4050	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN04104(X)410(Y)B	100,000	10,5,3,2,1	4100	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN04104(X)430(Y)B	100,000	10,5,3,2,1	4300	5,3,2,1	Approx. 1.7	Approx. 3.0	170
TSN10103(X)344(Y)B	10,000	10,5,3,2,1	3435	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10103(X)361(Y)B	10,000	10,5,3,2,1	3610	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10103(X)399(Y)B	10,000	10,5,3,2,1	3990	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10473(X)395(Y)B	47,000	10,5,3,2,1	3950	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10473(X)410(Y)B	47,000	10,5,3,2,1	4100	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)398(Y)B	100,000	10,5,3,2,1	3980	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)405(Y)B	100,000	10,5,3,2,1	4050	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)410(Y)B	100,000	10,5,3,2,1	4100	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)430(Y)B	100,000	10,5,3,2,1	4300	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)436(Y)B	100,000	10,5,3,2,1	4360	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)440(Y)B	100,000	10,5,3,2,1	4400	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10104(X)449(Y)B	100,000	10,5,3,2,1	4490	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN10204(X)406(Y)B	200,000	10,5,3,2,1	4060	5,3,2,1	Approx. 2.1	Approx. 3.1	210
TSN21103(X)334(Y)B	10,000	10,5,3,2,1	3435	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21103(X)394(Y)B	10,000	10,5,3,2,1	3940	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21473(X)395(Y)B	47,000	10,5,3,2,1	3950	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)398(Y)B	100,000	10,5,3,2,1	3980	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)405(Y)B	100,000	10,5,3,2,1	4050	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)410(Y)B	100,000	10,5,3,2,1	4100	5,3,2,1	Approx. 2.4	Approx. 7.5	240
TSN21104(X)430(Y)B	100,000	10,5,3,2,1	4300	5,3,2,1	Approx. 2.4	Approx. 7.5	240

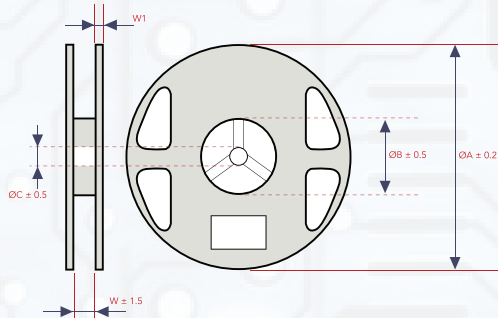
(X): R TOLERANCE | (Y) B VALUE TOLERANCE

## PACKING



UNIT: mm

SIZE	A <sub>0</sub> ± 0.1	B <sub>0</sub> ± 0.1	E	F	W	P <sub>0</sub>	P <sub>1</sub> ± 0.1	P <sub>2</sub>	t <sub>1</sub> / t <sub>2</sub>	D <sub>1</sub>	QTY / REEL (PCS)
TSN04 (0402)	0.65	1.15	1.75 ± 0.1	3.5 ± 0.05	8 ± 0.03	4 ± 0.1	4	2.0 ± 0.05	1.0 MAX / 1.1 MAX	Ø1.55 ± 0.05	10000
TSN10 (0603)	1.10	1.90	1.75 ± 0.1	3.5 ± 0.05	8 ± 0.03	4 ± 0.1	4	2.0 ± 0.05	1.0 MAX / 1.1 MAX	Ø1.55 ± 0.05	4000
TSN21 (0805)	1.50	2.35	1.75 ± 0.1	3.5 ± 0.05	8 ± 0.03	4 ± 0.1	4	2.0 ± 0.05	1.0 MAX / 1.1 MAX	Ø1.55 ± 0.05	4000



UNIT: mm

SIZE	A ± 2.0	B ± 0.5	C ± 0.5	W ± 1.5	W <sub>1</sub>
TSN04 (0402)	178	60	13	10	1.6
TSN10 (0603)	178	60	13	10	1.6
TSN21 (0805)	178	60	13	10	1.6

