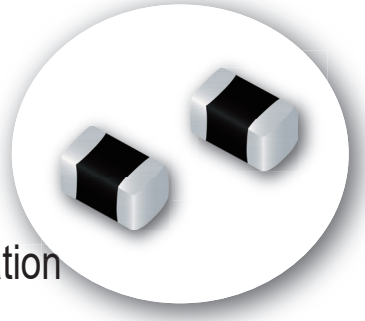
Panasonic
INDUSTRY

Document

2025.1

NTC Thermistor (Chip type) for Automotive



Components for temperature sensing and temperature compensation

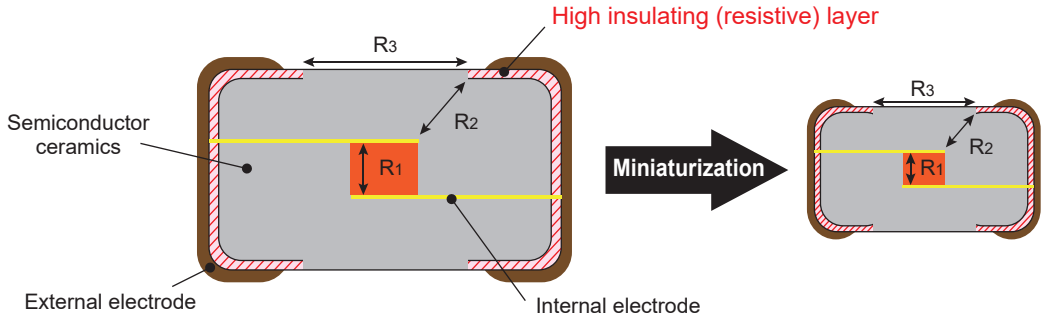
P/N: ERTJ□□□□□□□M

Product summary

- Surface-mount type (0402 and 0603 sizes) that can be replaced or miniaturized from other companies' products
- High reliability is achieved by the laminated structure and unique external electroforming technology
- Excellent solderability due to lead-free plated terminal electrodes
- 150 ℃
- ISO/TS16949
- RoHS compliant
- Automotive grade (This Product can be tested under the conditions according to AEC-Q200 and the test results can be submitted.)

Proprietary technology

By forming a high insulating layer using our unique electrode formation technology, we suppress the deterioration of reliability due to miniaturization



1/Thermistor resistance = 1/R1+1/R2+1/R3

High insulating layer allows R2 and R3 to have large resistance = 1/R2, 1/R3 to be small

- Since R2 and R3 become smaller due to miniaturization, the fluctuation effect of 1/R2 and 1/R3 on the resistance value of the thermistor increases
- The resistance value of the element surface changes depending on the usage environment (= R2 and R3 change)

R2 and R3 change, but 1/R2 and 1/R3 are small due to the high insulating layer, so they are not easily affected by changes in R2 and R3

= **Suppression of deterioration in reliability due to miniaturization**

Features

- Small / Lightweight ⇒ Since it is possible to reduce the size with the same characteristics, it contributes to the miniaturization and weight reduction of in-vehicle equipment
- Low cost ⇒ Maintaining cost competitiveness into the future and contributing to the reduction of the cost of in-vehicle equipment
- High reliability ⇒ Suppression of deterioration in reliability due to miniaturization and contributing to long-term reliability of in-vehicle devices
- Short lead time ⇒ Short production lead times contribute to efficiency until delivery

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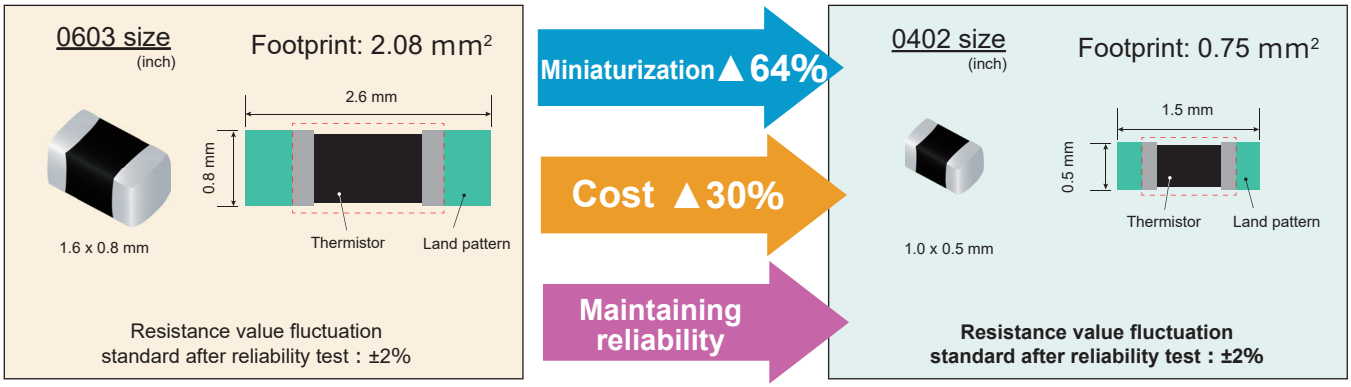
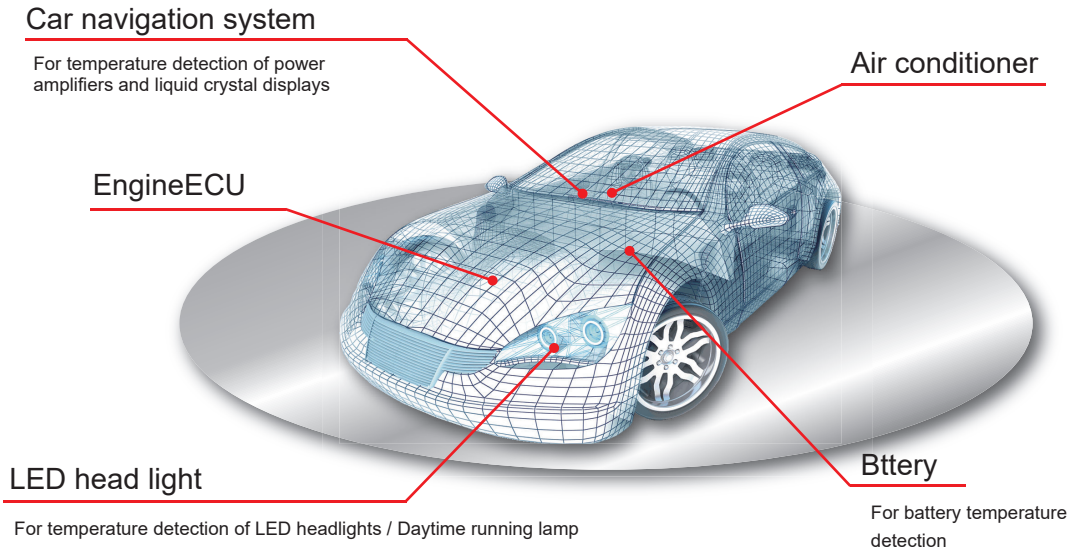
Examples of miniaturization proposals



Case studies

- For automotive



- For various temperature detection
  - Electric pump
  - IPM (Intelligent Power Module)
  - DC/DC converters
  - Regenerative braking

Automotive product lineup

Size (inch)	Part number	Resistance (at 25℃) (kΩ)	Resistance tolerance (%)	B constant (B25/50) (K)	B constant (B25/85) (K)
0402	ERTJ0EG103□M	10	±1,2,3,5	3380 ± 1%	3435 ± 1%
	ERTJ0EP473□M	47	±1,2,3,5	4050 ± 1%	(4100)
	ERTJ0ER104□M	100	±1,2,3,5	4250 ± 1%	(4300)
	ERTJ0ET104□M	100	±1,2,3,5	4485 ± 1%	(4550)
	ERTJ0EV104□M	100	±1,2,3,5	4700 ± 1%	(4750)
	ERTJ0EV474□M	470	±1,2,3,5	4700 ± 1%	(4750)
0603	ERTJ1VG103□M	10	±1,2,3,5	3380 ± 1%	3435 ± 1%
	ERTJ1VP473□M	47	±1,2,3,5	4100 ± 1%	(4150)
	ERTJ1VR104□M	100	±1,2,3,5	4200 ± 1%	(4250)
	ERTJ1VV104□M	100	±1,2,3,5	4700 ± 1%	(4750)
	ERTJ1VT224□M	220	±1,2,3,5	4485 ± 1%	(4550)