

## Fast Facts

### ULR3N – Metal Element Inverse Chip Resistors

ULR3N is the latest addition to TT Electronics' portfolio of metal element current sense shunt resistors. It is designed in inverse format with terminations on the long sides, which gives good resistance to thermal and board flex stresses and supports the use of wide current traces.

With a precision of down to 1% tolerance and 100ppm/°C, ULR3N offers a choice of 15 ohmic values from 100 $\mu\Omega$  to 3m $\Omega$ . Rated at 3W, this product is suitable for sensing currents at levels up to 170A, and is therefore in most cases restricted only by the current carrying capacity of the PCB traces. The bulk metal technology used for these parts gives high energy capacity for current surge events, compared to film or foil alternative technologies.



#### Market Segments

- Industrial
- Automotive
- Medical

#### Applications

- Power supplies
- Motor control
- Actuator control
- DC-DC convertors

#### Features

- Inverse 1225 chip format
- Values from 100 $\mu\Omega$  to 3m $\Omega$
- Down to 1% tolerance and 100ppm/°C
- High surge bulk metal technology
- AEC-Q200 pending

#### Benefits

- Ultra-low ohmic values support high energy efficiency in the end product.
- Inverse format allows current traces to be kept wide, avoiding a current crowding hotspot and improving product reliability.
- Bulk metal technology withstands high current surges for improved reliability.

#### Our Advantage

For circuit designers who need to guarantee stable and accurate sensing of AC and DC currents up to 170A in SMD assemblies we provide ULR3N which has limited competition as shown in Appendix 1.

**BI Technologies IRC Welwyn**

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### Appendix 1 Competitor Cross Reference

There is limited competition for ULR3N. Competition exists for 1225 thick-film low value, but bulk metal ULR3N has a lower ohmic range and far higher surge withstand performance. KOA and SEI have no inverse format bulk metal shunts, whilst Vishay, Isabellenhütte and Yageo have them only in smaller sizes & lower ratings.

### Appendix 2 Search Keywords

current sense shunt	smt shunt	surface mount shunt
current sense resistor	metal element shunt	high power shunt
smd shunt	inverse chip resistor	metal strip resistor