



### ◆ Features

- Power rating up to 15 W
- Excellent long-term stability
- Ideal for mounting on DCB/IMS substrate
- RoHS compliant
- AEC-Q200 qualified

### ◆ Applications

- Current sensor for power hybrid applications
- Frequency converters
- Power modules
- Automatic control power supply
- High current applications for the automotive market

### ◆ Technical Date

|  |      |                 |
|--|------|-----------------|
| Resistance                               | mOhm | 0.1 to 5        |
| Tolerance                                | %    | 1、2、5           |
| Power $P_{70°C}$                         | W    | 3~15            |
| Recommended applicable temperature range | °C   | -65°C to +170°C |

### ◆ Ordering Code

| ASR          | M  | 3                                 | 1       | F                       |
|--------------|--|-----------------------------------|---------|-------------------------|
| Product Type | Material   | Dimension                         | R Value | R Tolerance             |
|              | M: Manganin<br>K: Kamar<br>S: CuMn7Sn<br>F: FeCrAl | 3:2512<br>5:3920<br>7:5930<br>... | Unit:mΩ | J:±5%<br>G:±2%<br>F:±1% |



### ◆ Physical Dimensions

| Type          | Size | W/mm    | A/mm    | C/mm    | H/mm    | l  | w    | a   |
|---------------|------|---------|---------|---------|---------|----|------|-----|
| ASR-S/M/K/F-3 | 2512 | 6.3±0.2 | 1.2±0.2 | 3.1±0.3 | 0.5±0.1 | 7  | 3.4  | 1.8 |
| ASR-S/M/K/F-5 | 3920 | 10±0.2  | 2.2±0.2 | 5.1±0.4 | 0.5±0.1 | 11 | 6.2  | 2.7 |
| ASR-S/M/K/F-7 | 5930 | 15±0.3  | 4.2±0.3 | 7.6±0.4 | 0.5±0.1 | 16 | 8.75 | 5.2 |



◆ Electrical Features

| Type    | Resistance/mΩ | D1 /mm | D2 /mm | P70°C /W | TCR /ppm/°C |
|---------|---------------|--------|--------|----------|-------------|
| ASR-S-3 | 0.2           | 1.40   | 1.40   | 6        | 175         |
| ASR-M-3 | 0.3           | 1.50   | 1.50   | 6        | 175         |
|         | 0.5           | 0.88   | 0.88   | 6        | 115         |
|         | 1             | 0.50   | 0.50   | 5        | 100         |
| ASR-K-3 | 2             | 0.65   | 0.65   | 5        | 50          |
|         | 3             | 0.43   | 0.43   | 4        | 50          |
|         | 4             | 0.3    | 0.3    | 3        | 50          |
| ASR-F-3 | 2             | 0.7    | 0.7    | 5        | 50          |
|         | 3             | 0.47   | 0.47   | 4        | 50          |
|         | 4             | 0.35   | 0.35   | 3        | 50          |
|         | 5             | 0.28   | 0.28   | 3        | 50          |
| ASR-M-5 | 0.2           | 1.66   | 1.66   | 12       | 200         |
|         | 0.3           | 1.37   | 1.37   | 10       | 150         |
|         | 0.5           | 0.83   | 0.83   | 9        | 70          |
|         | 1             | 0.40   | 0.40   | 7        | 50          |
| ASR-K-5 | 1             | 1.16   | 1.16   | 8        | 50          |
|         | 2             | 0.56   | 0.56   | 6        | 50          |
|         | 3             | 0.37   | 0.37   | 5        | 50          |
|         | 4             | 0.28   | 0.28   | 5        | 50          |
| ASR-F-5 | 1             | 1.28   | 1.28   | 8        | 50          |
|         | 2             | 0.64   | 0.64   | 6        | 50          |
|         | 3             | 0.43   | 0.43   | 5        | 50          |
|         | 4             | 0.32   | 0.32   | 5        | 50          |
| ASR-S-7 | 0.1           | 2.0    | 2.0    | 15       | 200         |
| ASR-M-7 | 0.2           | 1.50   | 1.50   | 15       | 100         |
|         | 0.3           | 0.98   | 0.98   | 10       | 100         |
|         | 0.5           | 0.60   | 0.60   | 10       | 75          |
|         | 0.75          | 0.41   | 0.41   | 10       | 75          |
| ASR-K-7 | 1             | 0.86   | 0.86   | 9        | 50          |
|         | 2             | 0.40   | 0.40   | 7        | 50          |
|         | 3             | 0.29   | 0.29   | 7        | 50          |
| ASR-F-7 | 1             | 0.96   | 0.96   | 9        | 50          |
|         | 2             | 0.48   | 0.48   | 7        | 50          |
|         | 3             | 0.32   | 0.32   | 7        | 50          |



◆ Power derating curve at 70 °C



Stability < 1.0% (in covered condition)

◆ Performance Date

| Items                        | Additional Requirements  | Reference                  | Limits                 |
|------------------------------|--|----------------------------|------------------------|
| Temperature Cycling          | 1000 Cycles(-55°C to +125°C)<br>Measurement at 24±2hours after test conclusion   | JESD22<br>Method<br>JA-104 | ±0.5%                  |
| High Temperature Exposure    | 1000hrs.@T=125°C.Unpowered.<br>Measurement at 24±2hours after test conclusion  | MIL-STD-202<br>Method 108  | ±0.5%                  |
| Biased Humidity              | 1000hrs 85°C/85%RH。 Note: Specified conditions:<br>10% of operating power.<br>Measurement at 24±2hours after test conclusion | MIL-STD-202<br>Method 103  | ±0.5%                  |
| Operational Life             | Condition D Steady State TA=125°C at rated power.<br>Measurement at 24±2hours after test conclusion                          | MIL-STD-202<br>Method 108  | ±1%                    |
| Solderability                | 245°C±5°C,5s+0.5s/-0   | J-STD-002C                 | 95%<br>Coverage<br>Min |
| Resistance to Soldering Heat | 260°C±5°C, 10s±1s<br>Measurement at 24±2hours after test conclusion  | MIL-STD-202<br>Method 210  | ±0.5%                  |
| Short Time Overload          | 5×Rated power for 5 s<br>Measurement at 24±2hours after test conclusion  | MIL-STD-202<br>Method 301  | ±0.5%                  |



**Marking**

**R001 1%**

**R001:** 1mΩ      **1%:** Tolerance

**包装 Packaging**

**Embossed plastic Tape Specifications**

(Unit: mm)



| Size | A   | B   | W  | E    | F    | P0   | P1  | P2  | D0   | T   | Quantity |
|------|-----|-----|----|------|------|------|-----|-----|------|-----|----------|
| 2512 | 4.3 | 7.6 | 16 | 1.55 | 7.5  | 3.85 | 7.7 | 7.7 | 1.50 | 1.7 | 1000     |
| 3920 | 6   | 11  | 24 | 1.55 | 11.2 | 6    | 12  | 12  | 1.50 | 2.0 | 2500     |
| 5930 | 8.6 | 16  | 24 | 1.55 | 10.8 | 6    | 12  | 12  | 1.50 | 2.4 | 2000     |



| Size     | 2512 | 3920 | 5930 |
|----------|------|------|------|
| $\phi A$ | 330  | 330  | 330  |
| $\phi B$ | 99.5 | 99.5 | 99.5 |
| $\phi C$ | 13   | 13   | 13   |
| W        | 16.5 | 24.5 | 24.5 |
| T        | 21   | 29   | 29   |



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