

Automotive Current Sensing Resistors

ALMJ20 Series

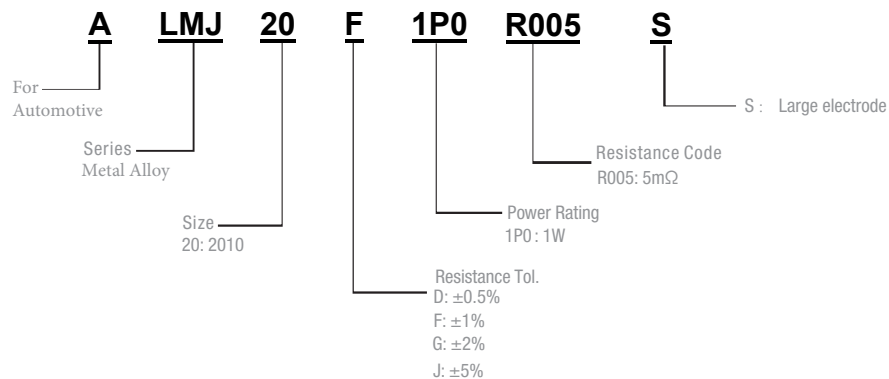
PROSEMI offers AEC-Q200 qualified Current Sensing Resistor



Description

- Thick copper conductor metallized material.
- Ultra long term stability.
- Halogen-free and lead-free RoHS compliant.
- Stable materials.
- Excellent trustworthiness.
- High power rating.
- Ultra-low temperature drift (good TCR).

Part Numbering System



Parameter	Standard
Power Rating	1 & 1.5 W
Resistance Value	1~100mΩ
Operating Temperature Range	-55 to +170°C

Rated Current = $(P / R)^{1/2}$;

P=Power Rating,R=Resistance Value.

Standard Electrical Specifications

Type	Rating Power at 70°C	T.C.R. (ppm/c)	Resistance Range(mΩ) 0.5% (D) 1.0% (F) 2.0% (G) 5.0% (J)	Material	Operating Temperature(°C)
ALMJ20	1&1.5 W	±50	1~3mΩ: S 1~100mΩ	Metal Alloy	-55~+170°C

Automotive Current Sensing Resistors

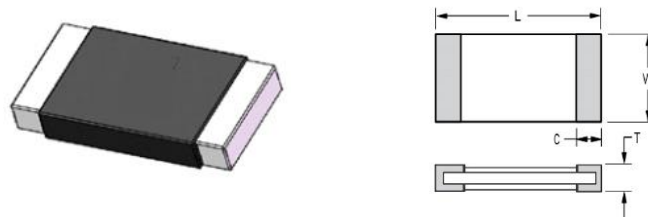
ALMJ20 Series

Construction



Unit: mm

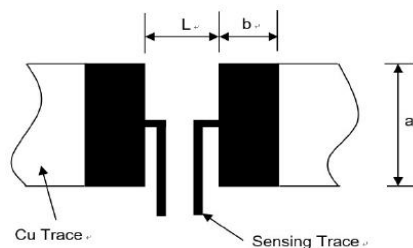
Type	Resistance (mΩ)	L	W	C	T
ALMJ 20-S	1~3	5.0 ± 0.2	2.5 ± 0.2	1.5 ± 0.3	0.6 ± 0.2



Unit: mm

Type	Resistance (mΩ)	L	W	C	T
ALMJ 20	1~100	5.0 ± 0.2	2.5 ± 0.2	0.6 ± 0.3	0.6 ± 0.2

Recommended land pattern

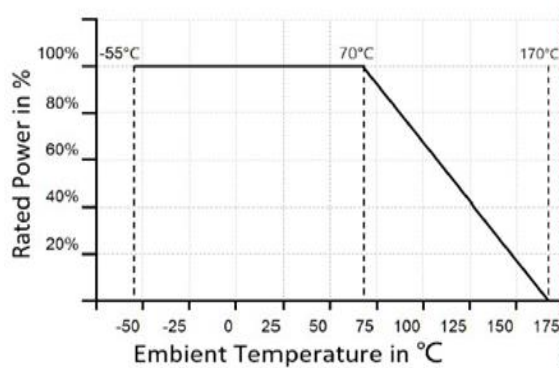


Unit: mm

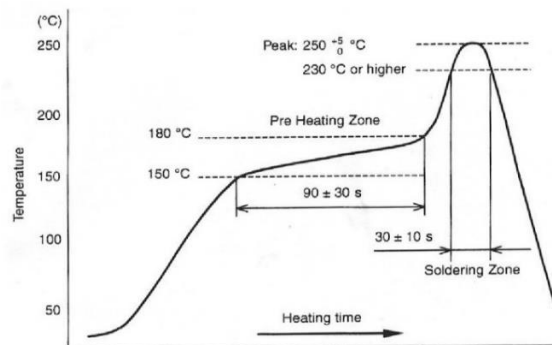
Type	Resistance (mΩ)	a	b	L
ALMJ 20	1~100	3.4 ± 0.2	1.5 ± 0.2	3.5 ± 0.2
ALMJ 20 - S	1~3	3.4 ± 0.3	3.5 ± 0.2	2.0 ± 0.2

Power Derating Curve

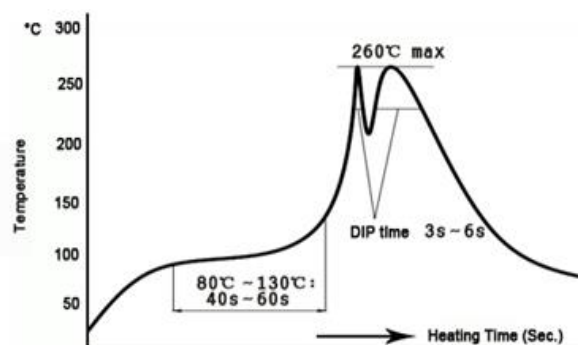
For resistors operated in ambient temperatures 70°C, power rating shall be derated in according with the curve below:



IR Reflow-Soldering Profile



Wave- Soldering Profile



Automotive Current Sensing Resistors

ALMJ20 Series

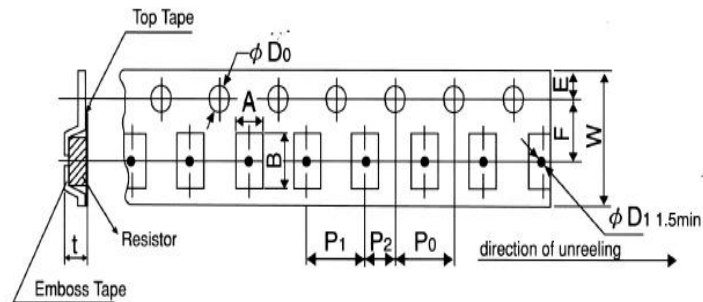
Product Characteristics

Item	Test condition/ Methods	Limited	Standard
Temperature coefficient of resistance	$TCR = (R - R_0) / R_0 (T_2 - T_1) \times 10^6$ R0: resistance of room temperature R: resistance of 125℃ ;T1: Room temperature T2: Temperature at 125℃	Refer to Spec	JIS-C 5201
Short time Overload	5 X rated power for 5s	$\leq \pm 0.5\%$	JIS-C5201-1 4.13
Temperature Cycling	1000 Cycle (-55℃ to 125℃) , 30 min at each extreme	$\leq \pm 0.5\%$	JESD22 Method JA-104
Low temperature Storage	-55℃ for 1000 hours, No power	$\leq \pm 0.5\%$	JIS C 5201
High Temperature Storage	1000 hours at 125℃, No power	$\leq \pm 1\%$	MIL-STD-202 Method 108
Biased Humidity	85℃ $\pm 5^\circ\text{C}$, 85 $\pm 5\%$ RH 10% bias, 1000 hours, at rated power 1.5 hours "ON", 0.5 hours "OFF", after standing 24 ± 4 hours to measure the resistance change rate.	$\leq \pm 0.5\%$	MIL-STD-202 Method 103
Operational life	Apply the rated current to the 125 $\pm 3^\circ\text{C}$ incubator for 1000 hours, and stand for 24 ± 4 hours after removal to measure the resistance change rate.	$\leq \pm 0.5\%$	MIL-STD-202 Method 108
Load Life	70℃ $\pm 2^\circ\text{C}$, 1000 hours, at rated power 1.5 hours "ON", 0.5 hours "OFF", after taking it out and standing for more than 1 hour, the resistance change rate is measured.	$\leq \pm 1\%$	JIS-C5201
Resistance to Solder Heat	260℃ $\pm 5^\circ\text{C}$, time: 10 ± 1 sec, 1000 hours, after taking out and standing for more than 1 hour, measure the resistance change rate.	$\leq \pm 0.5\%$	MIL-STD-202 Method 210
Solderability	Soak in the furnace at 245 $\pm 5^\circ\text{C}$ for 3 ± 1 sec .Take out and observe the solder area under a magnifying glass.	Solder coverage over 95%No Visual damage	J-STD-002
Joint Strength of Solder	◆ Test item (Bendability test) Weld in the bending test plate, place on the bending test machine, press in the center of the test plate, and measure under load.	$\leq \pm 0.5\%$	JIS-C5201-1 4.32
	◆ Experiment item 2 (Fixation test) Weld the resistance in the rigidity test plate, place it on the end electrode test machine, apply the force in the direction of the force with the test probe with the radius of R0.5, and maintain 10 sec, and measure the resistance change rate under the load.	$\leq \pm 0.5\%$	JIS-C5201-1 4.32

Automotive Current Sensing Resistors

ALMJ20 Series

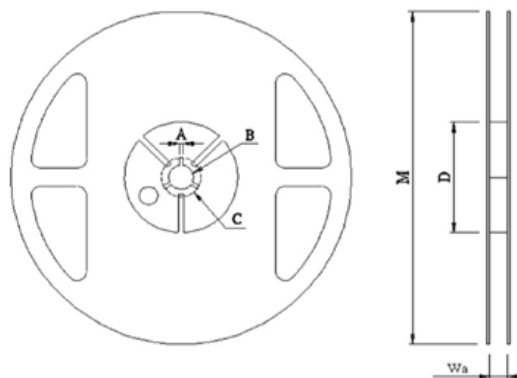
Tapping & Package



Unit: mm

Type	Pack	A ± 0.2	B ± 0.2	D0 $+0.5/-0$	E ± 0.1	F ± 0.05	P0 ± 0.1	P1 ± 0.1	P2 ± 0.1	W ± 0.2	D1 ± 0.05	T ± 0.15
2010	Emboss	2.80	5.30	1.50	1.75	5.50	4.00	4.00	2.00	12.00	1.50	0.85

Reel Specification



Unit: mm

Type	A	B	C	D	M	W
2010	2.00 ± 0.5	13.5 ± 0.5	21.00 ± 0.5	60.00 ± 1.0	178.00 ± 2.0	13.80 ± 0.5

Packaging

Quantity: 4, 000pcs