

RELIABILITY DATA FOR FIXED CHIP RESISTOR TYPE AN3- (ALUMINUM NITRIDE w/PtAg)

VALUE DRIFT DATA

Description

The below table depicts typical drift data for IMS resistors on an aluminum nitride (AlN) substrate. The table specifically depicts the value drift over a period of time greater than 15,000 hrs for a sampling of our 0.25 X 0.25 size resistor. The resistor type is a 'single wrap to groundplane' with PtAg terminations.

Test Method and apparatus

The resistors were soldered onto copper traces that were attached to a FR-4 board. The board with resistors was then baked full duration (they are still in the oven as of January, 2002) beginning in August of 1999 at a constant temperature of 150C. At 1000 hrs a resistance value was determined for each chip using a HP 3478A multimeter. At about 15,000 hrs the value determination was done once again with values as tabulated below. The value drift column shows the percentage change over the 15,000 hour value from the initial value.

Results

chip #	Ω init.	Ω at 1000 hrs	Ω at 15,000 hrs	value drift (%)
1	33.4	33.4	33.3	-0.30
2	36.1	36	36.2	0.28
3	39.5	39.4	39.4	-0.25
4	37.7	37.7	37.7	-0.00
5	34.6	34.6	34.7	0.29
6	33.3	33.2	33.1	-0.60
7	33.6	33.6	33.6	0.00
8	34	34	33.8	-0.59
9	36.5	36.5	36.6	0.27
10	40.4	40.4	40.3	-0.25
11	36	36.1	35.8	-0.56
12	34.7	34.6	34.6	-0.29
13	35.4	35.3	35.4	0.00
14	38.7	38.7	38.6	-0.26
15	33.8	33.6	33.6	-0.59
16	39.4	39.4	39.4	0.00
17	37.6	37.6	37.6	0.00
18	39.3	39.4	39.4	0.25
19	35.1	35.2	35.1	0.00
20	40.2	40.1	40.2	0.00