



AOS Semiconductor Product Reliability Report

AOZ8105CI, rev C

Plastic Encapsulated Device

ALPHA & OMEGA Semiconductor, Inc

www.aosmd.com



This AOS product reliability report summarizes the qualification result for AOZ8105CI. Accelerated environmental tests are performed on a specific sample size, and then followed by electrical test at end point. Review of final electrical test result confirms that AOZ8105CI passes AOS quality and reliability requirements. The released product will be categorized by the process family and be routine monitored for continuously improving the product quality.

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I. Product Description:

The AOZ8105 is a transient voltage suppressor array designed to protect high speed data lines such as HDMI and Gigabit Ethernet from damaging ESD events. This device incorporates eight surge rated, low capacitance steering diodes and a TVS in a single package. During transient conditions, the steering diodes direct the transient to either the positive side of the power supply line or to ground. The AOZ8105 provides a typical line to line capacitance of 0.35pF and low insertion loss up to 3GHz providing greater signal integrity making it ideally suited for HDMI 1.3 applications, such as Digital TVs, DVD players, set-top boxes and mobile computing devices. The AOZ8105 comes in RoHS compliant, tiny SOT-23-6 Package

Detailed information refers to the datasheet on website.

II. Package and Die Information:

Product ID	AOZ8105CI
Package Type	SOT23_6L
Lead Frame	Cu
Die attach material	Ag Epoxy
Bonding	Cu wire
MSL(moisture sensitive level)	Up to Level 1

III. Reliability Stress Test Summary and Results :

Test Item	Test Condition	Test Point	Total Sample size	Number of Failures	Standard
HTRB	Vdd= 80% Vbrmax. Temp = 150°C	168 / 500 1000 hours	924 pcs	0	JESD22-A108
MSL Precondition	168hr 85°C / 85%RH + 3 cycle reflow @260°C (MSL 1)	-	2772 pcs	0	JESD22-A113
Temperature Cycle	-65 °C to +150 °C, air to air	250 / 500 cycles	924 pcs	0	JESD22-A104
Autoclave	121°C, 29.7psi, RH= 100%	96 hours	924 pcs	0	JESD22-A102
HAST	130°C, 85%RH, 33.3 psi, Vdd= 80% Vbrmax.	96 hours	924 pcs	0	JESD22-A110

Note: The reliability data presents total of available generic data up to the published date.

IV. Reliability Evaluation

FIT rate (per billion): 7.04

MTTF = 16216 years

The presentation of FIT rate for the individual product reliability is restricted by the actual burn-in sample size of the selected product. Failure Rate Determination is based on JEDEC Standard JESD 85. FIT means one failure per billion device hours.

Failure Rate = 7.04

MTTF = 16216 years

Chi² = Chi Squared Distribution, determined by the number of failures and confidence interval

N = Total Number of units from burn-in tests

H = Duration of burn-in testing

Af = Acceleration Factor from Test to Use Conditions (Ea = 0.7eV and Tuse = 55°C)

Acceleration Factor [**Af**] = **Exp** [Ea / k (1/Tj u – 1/Tj s)]

Acceleration Factor ratio list:

	55 deg C	70 deg C	85 deg C	100 deg C	115 deg C	130 deg C	150 deg C
Af	259	87	32	13	5.64	2.59	1

Tj s = Stressed junction temperature in degree (Kelvin), K = C+273.16

Tj u = The use junction temperature in degree (Kelvin), K = C+273.16

k = Boltzmann's constant, 8.617164 X 10⁻⁵eV / K