TELEFUNKEN
Semiconductors

Radiation Test Summary

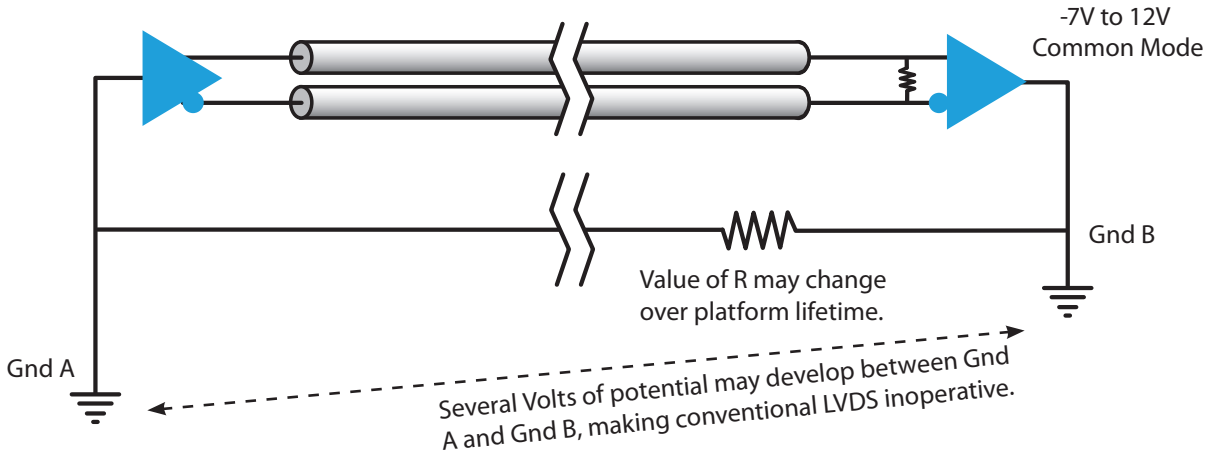
TF90LVDS031 / TF90LVDS032
Quad LVDS Line Drivers and Receivers

Product Overview

The TF90LVDS031 and TF90LVDS032 are quad LVDS drivers (031) and receivers (032). These devices meet or exceed the TIA/EIA-644A standard for LVDS and combine high bandwidth with low power consumption. The differential receiver is also available with internal 100ohm terminations, designated LVDT032. One unique feature of the LVDS receiver is an extra wide input common mode.

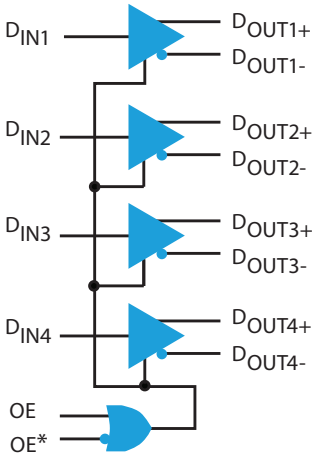
Extended Common Mode

The "common mode" specifies the range of input voltages for which device operation is guaranteed. The LVDS specification is 0 to 2.4V indicating any input signal in that range will be correctly recognized by the LVDS receiver. In some applications signals may travel a significant distance and local ground may vary between driver and receiver. This local ground variation may be due to instantaneous current demands or steady state IR drops but in either case experience has shown conventional LVDS can be vulnerable to common mode variation. The TF90LVDS032 and TF90LVDT032 receivers are guaranteed over a very wide common mode of from -7V to 12V, the same specification as the RS-422/485 standard. A flow-thru version (the TF90LVDS048) is also available.

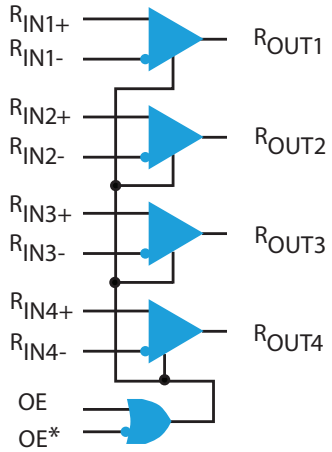


Function Diagrams

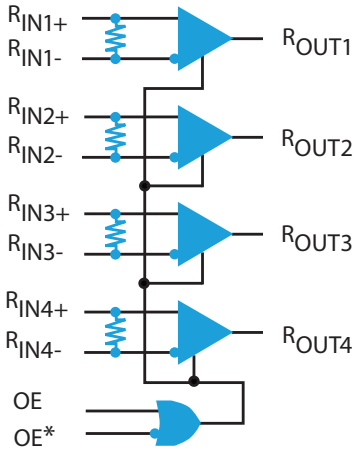
TF90LVDS031



TF90LVDS032



TF90LVDT032



Radiation Test Results Summary

TF90LVDS031 Total Dose Radiation Testing Summary. All parameters stayed well within datasheet specification up to an equivalent total dose of 100Krads. IOZL was the parameter with the largest post-radiation delta from pre-rad exhibiting typical readings at 100Krads of 3.5µA compared to a maximum specification of 14µA. IOZL is a leakage test where the device outputs are placed in high impedance and zero Volts forced on the outputs. After a one week anneal readings moved slightly back towards pre-rad levels.

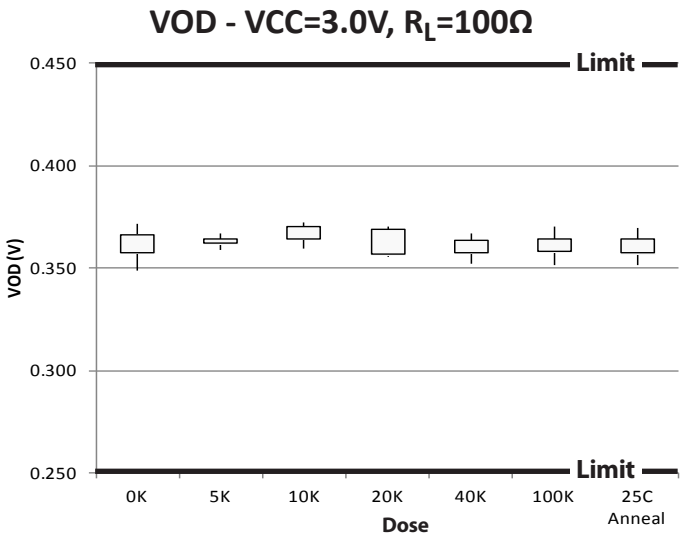
TF90LVDT032 Total Dose Radiation Testing Summary. All parameters stayed well within datasheet specification up to an equivalent total dose of 100Krads. A one week anneal had no appreciable effect.

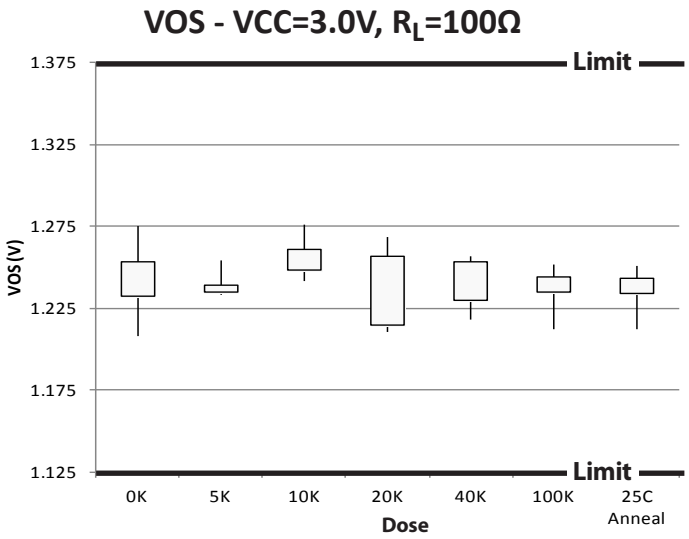
Sample Data shown below (for a complete analysis, contact your local Telefunken Representative).

Irradiation Test Conditions

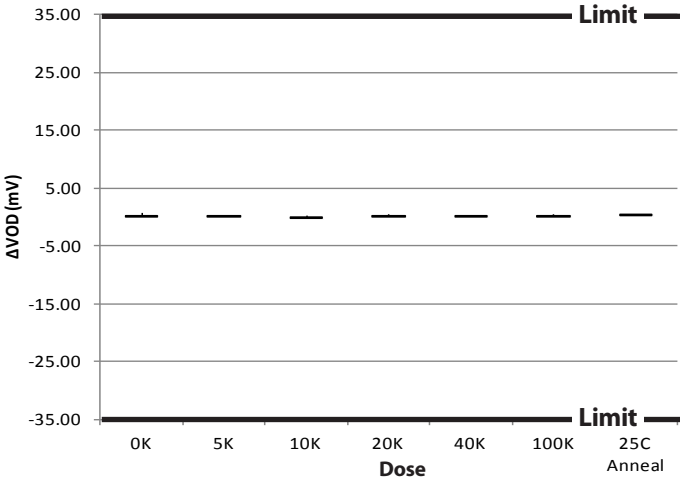
Irradiation was performed March 7, 2012 at the ESTEC facility in Noordwijk using a CO_{60} source on five unbiased units. Dose rate was approximately 1.25 rads/sec. Radiation levels were approximately 5, 10, 20, 40 and 100Krads followed by a one week anneal at room temperature. Parts were fully AC/DC tested using a production test program on an Eagle ETS364 ATE.

TF90LVDS031 Quad LVDS Line Driver

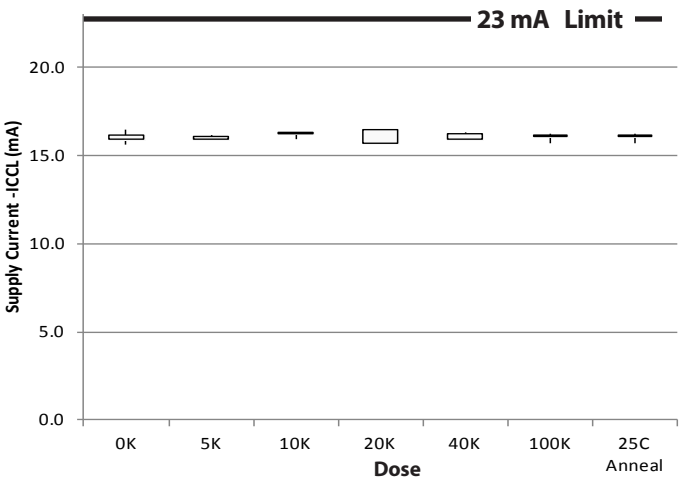




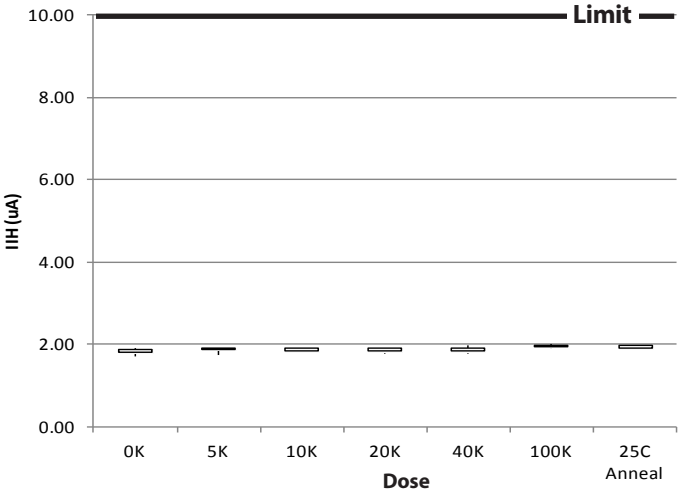
ΔVOD - VCC=3.0V, R_L=100Ω



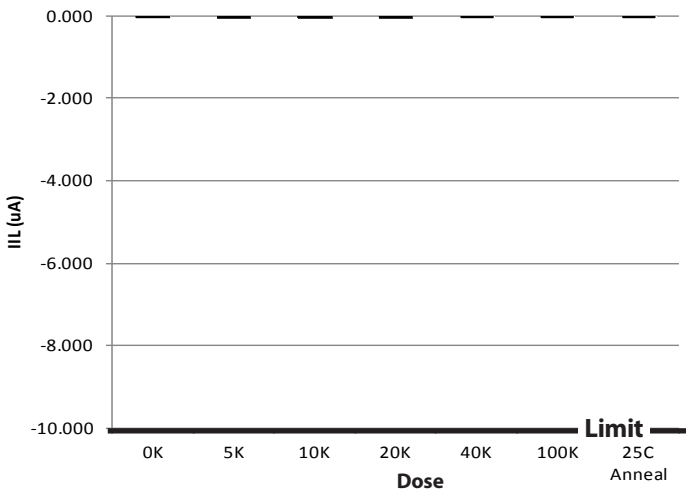
Supply Current (ICCL) @ 3.6V



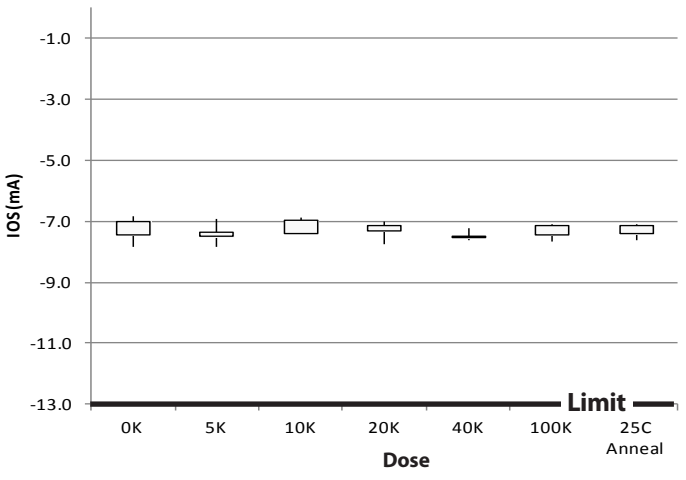
Input Leakage (IIH) @ 3.6V



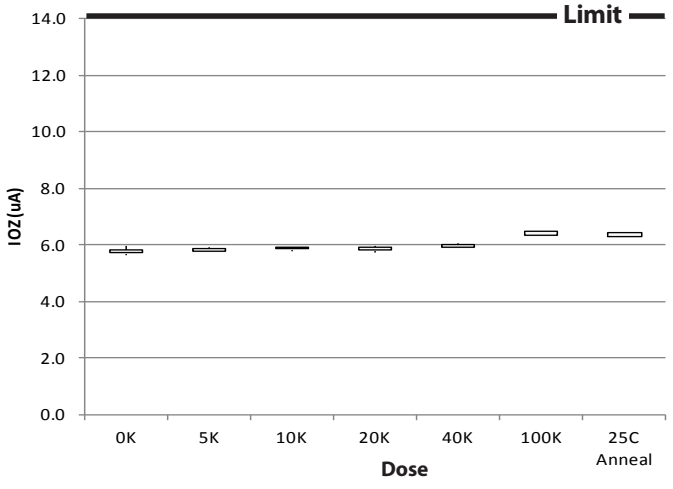
Input Leakage (IIL) @ 0V



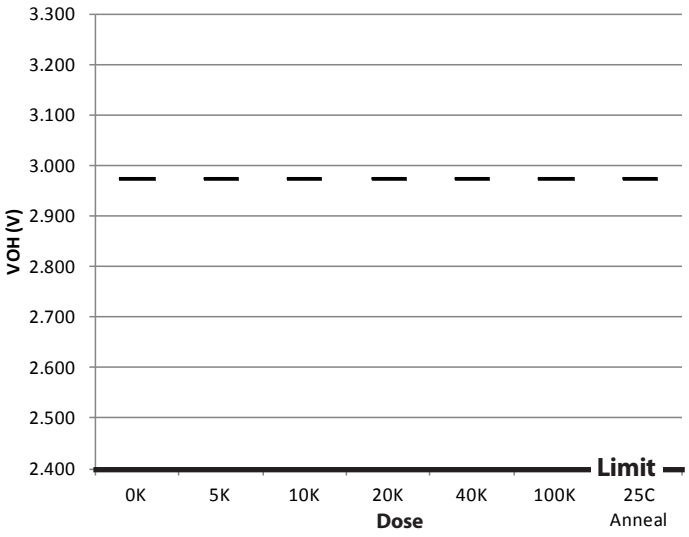
Output Short Circuit Current (IOS) @ 0V



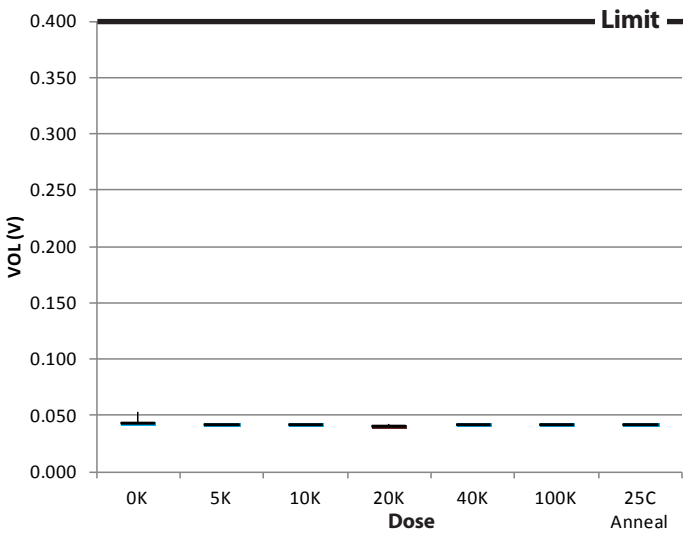
Tristate Output Leakage (IOZ) @ 3.6V



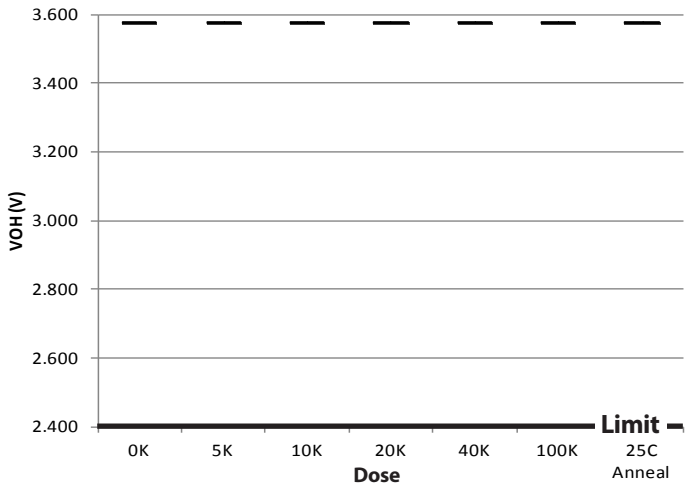
VOH @ IOH=-0.4mA, VCC=3.0V



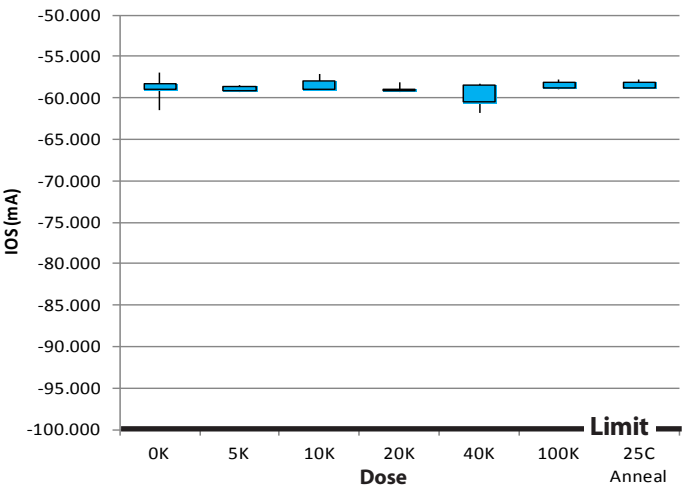
VOL @ IOL=2mA, VCC=3.0V



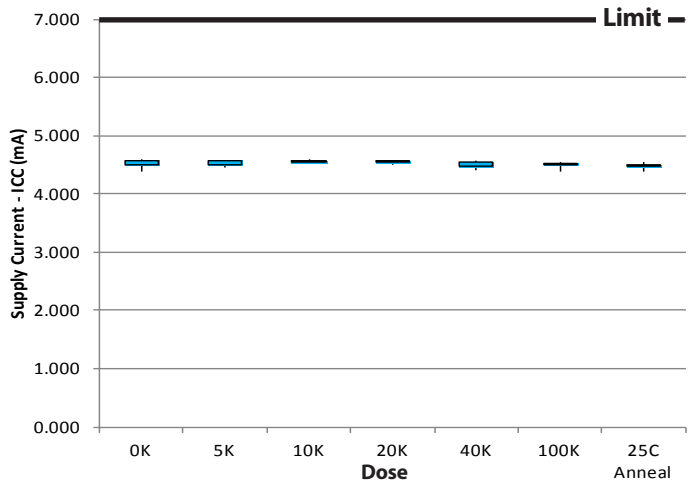
VOH @ IOH=-0.4mA, VCC=3.6V



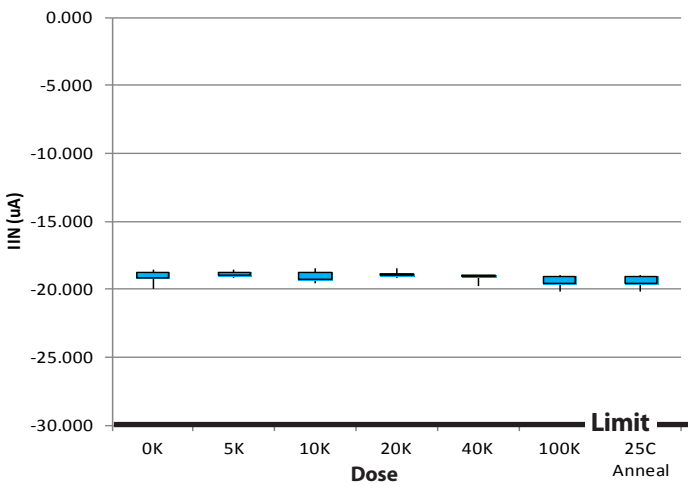
IOS @ 0V, VCC=3.6V

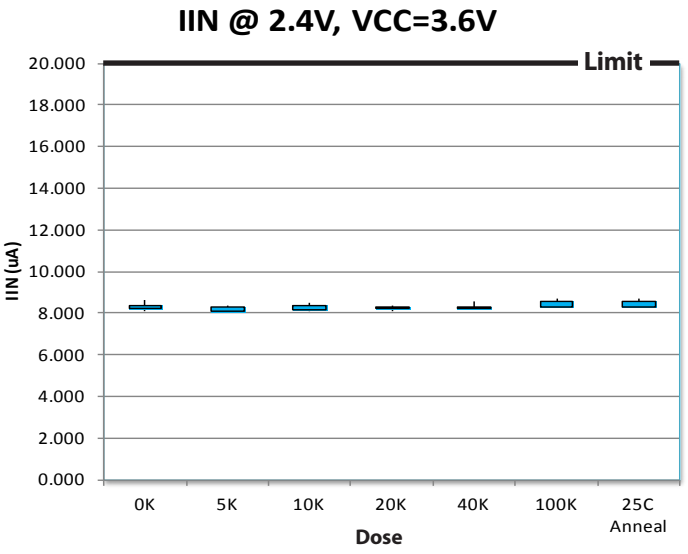


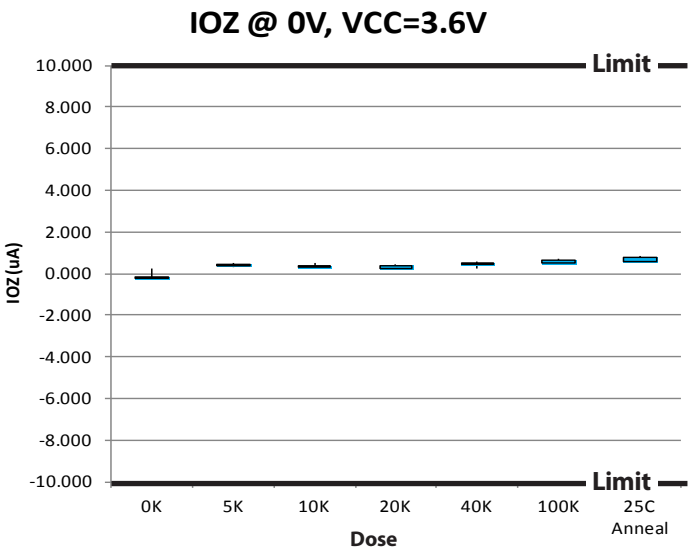
Supply Current (ICC) @ 3.6V



IIN @ 0v, VCC=3.6V







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