

Application: Designing Laptop Gigabit using LAN switch Pericom Device: PI3L301D, Gigabit LAN switch

Overview

Many Laptops have Gigabit Ethernet designs using two MACs, one in both Laptop and docking station. Using the PI3L301D Gigabit LAN switch will cancel the MAC in the docking station and substantially reduce the cost (Figure 1).

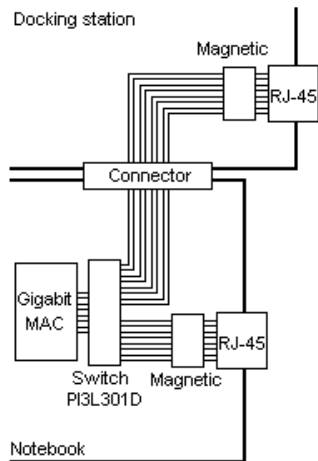


Figure 1: the application of using Gigabit LAN switch

Innovational design with excellent performance of return-loss

PI3L301D is designed using Pericom's advanced technology with lowest combination of R-on and C-on achieving excellent return-loss, better than any competitive solution. Figure 2 shows the comparison of return-loss against IEEE 802.3ab Gigabit PHY conformance tests spec. The bottom curve is for the original Gigabit circuit without switch. The middle curve is for PI3L301D, it only adds a small amount of return-loss with plenty of room per IEEE spec, compared to the higher curve of a normal switch out-off spec at 40 MHz.

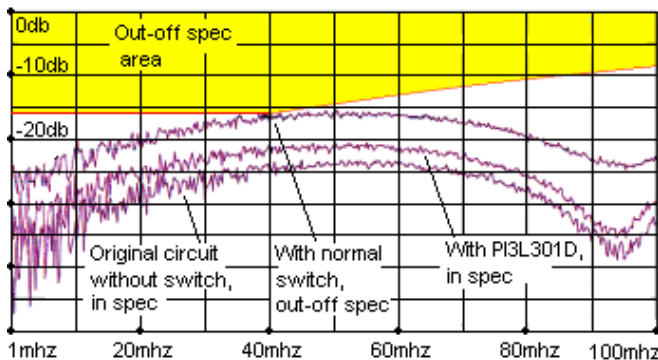


Figure 2: the return-loss comparison

Ultra low R-on

The 4.2-Ohm to 4.9-Ohm R-on (typical) of PI3L301D is the lowest in the LAN market today (Figure 3), with good flatness, together generating excellent return-loss results.

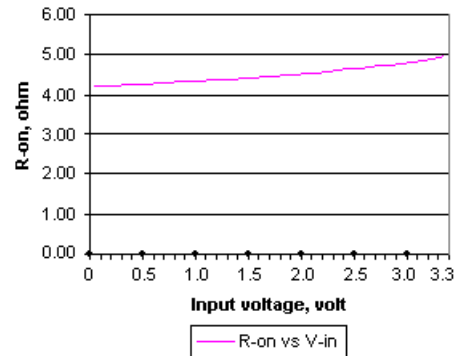


Figure 3: R-on (typical) versus input voltage

Very low C-on and C-off

The C-on and C-off of PI3L301D are also very low (Figure 4), for excellent return-loss result.

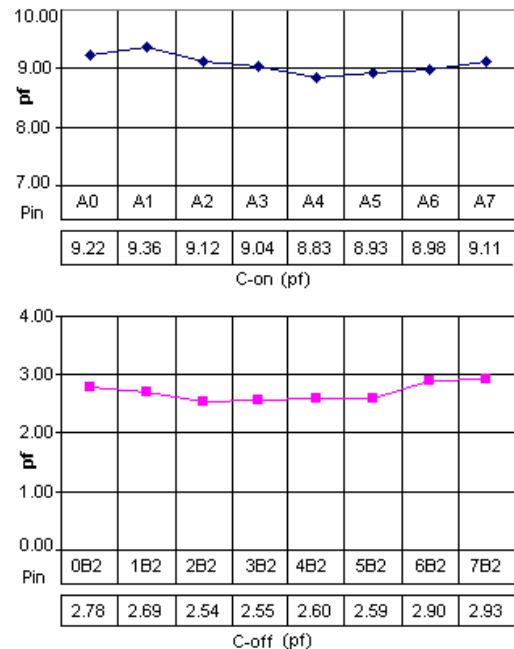


Figure 4: the typical C-on and C-off of PI3L301D

Wide low-R-on range

PI3L301D has wide low-R-on range (see Figure 5) for wide analog input signal swing range.

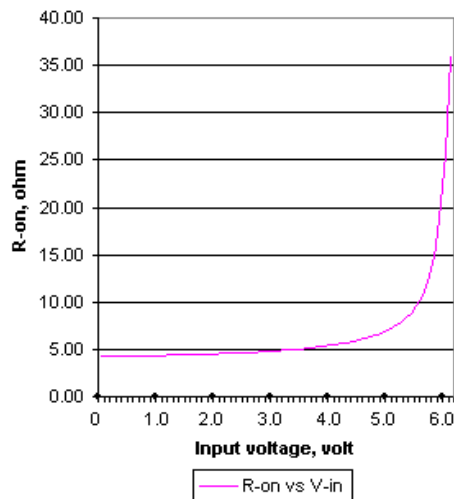


Figure 5: wide low-R-on range versus input voltage

Key Features & Specifications

- Single Device
- Differential 16-bit to 8-bit Mux/Demux Switching
- Package and pinout created for this application
 - Standard TSSOP & reduced pin pitch TVSOP
- Low On-Resistance for maximum signal transfer and low distortion
 - 4-Ohms with a 3V supply
 - 1-Ohm On-Resistance flatness
- Operating Voltage: 3.3V +/-10%
- Excellent Isolation & unwanted signal rejection
 - Off Isolation: -75dB at 250 MHz
 - Crosstalk: -90dB at 250 MHz
- Low bit-to-bit output skew (100ps)
- Near-Zero Propagation Delay: 250ps
- Switching Speed: 9ns
- Channel Off-Capacitance: 6pF
- Bandwidth/Data Frequency: >350 MHz

Key Benefits

- Integrated 10/100/1000-BaseT Solution
- Lower Cost Solution
- Easy layout

Competition

- Currently none at the Gigabit performance level.

Product Status

- Samples: Available Today
- Production: Available Today
- Pricing: Available Today

Budgetary Pricing

PI3L301D: \$1.66 per 500 pieces

Additional Information

- On the Public Website
 - [Application Note](#)
 - [Datasheet](#)
 - [Customer Power Point Presentation](#)

Contact Information

Please contact your local Pericom Sales Representative or franchised distributor. Contact list provided on the web: <http://www.pericom.com/partners/index.php>

Or

Application Support:

<http://www.pericom.com/support/apps.php>

Or

Product Marketing:

Paul Bryant

Phone: 408-435-0800 x218

Email: pbryant@pericom.com