



Application Note

AS1741 and AS1751

**Use single, dual or quad analog
switch**

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1 What is needed in application?

Most analogue switches are single or dual, and just some of them are quad, what means that one integrated circuit has one, two or four internal analog switches (channels). Especially in applications like audio or video signal routing, there is a need for more channels. This paper is a comparison in price and use in application if the quad switch is used instead of two dual switches, when the functionality is completely the same.

2 AS1741 vs. AS1751

AS1751 is high-speed, low-voltage, low-resistive, quad single-pole/single-through (SPST) analog switch. SPST means that there are 4 internal switches, and each of them has one input and one output.

AS1741 has almost the same characteristics, only this is a dual SPST switch. This means that there are 2 internal switches, and each of them has one input and one output.

So, if a designer needs four switches (channels), it is possible to use one AS1751 or two AS1741 (or even four one-channel switches), and have completely same result. But what is less expensive and what is easier to implement? What is better for the application?

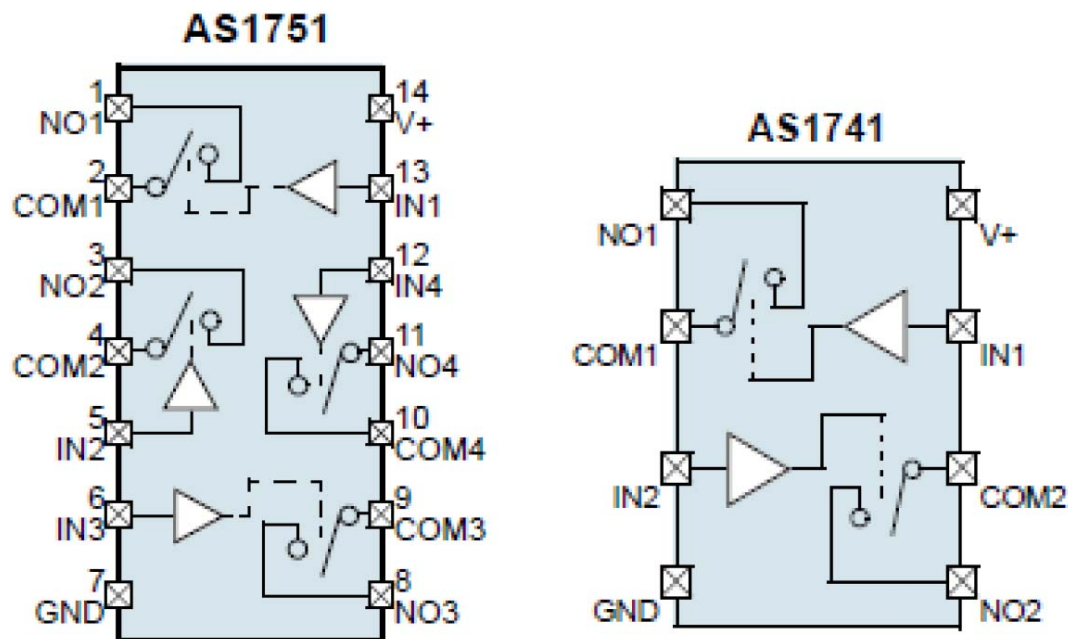


Figure 1: Block Diagrams of AS1751 and AS1741

* Costs

The silicon of the AS1751 is almost double size the one from the AS1741, because most of the area of the chip is filled with switching transistors, and they are the same. So for this part of the costs, there is almost no difference.

However the AS1751 needs only one package and one test, while two AS1741 need two packages and two tests. This makes a big difference in price. Therefore the solution with the AS1751 is much cheaper (about 30%).

* Board considerations

The solution using one integrated circuit, like in the AS1751, is for sure the smaller alternative and easier to implement in most applications, because only one chip is needed. Only in the case of the system needing more switches and them being far apart the solution using two AS1741 would be better and probably the only possible solution, because of the need for long routing if the AS1751 is used.

3 Conclusion

The solution using the AS1751 would be much cheaper, smaller and easier to implement for the described application. Using four one-channel switches was not in comparison, because this would be very expensive for this kind of application. This gives a big recommendation for using the analog switches with implemented multiple channels inside, such as the AS1751 (quad switch).

The ON-resistance parameter for switches AS1741 and AS1751 is presented in Fig. 2 and Fig. 3, where it is easy to see that this parameter is almost the same for these devices.

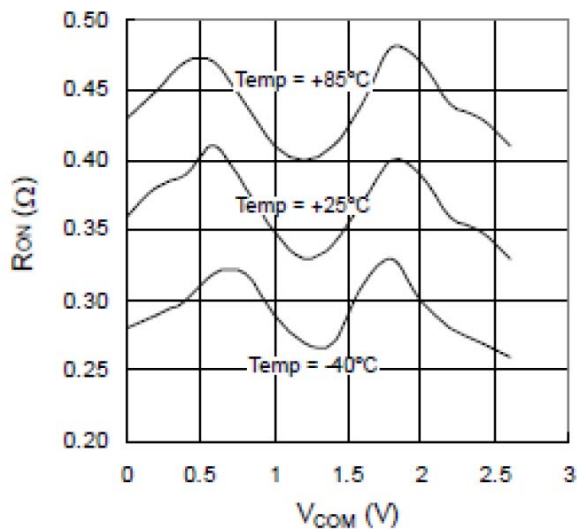


Figure 2: RON for AS1741

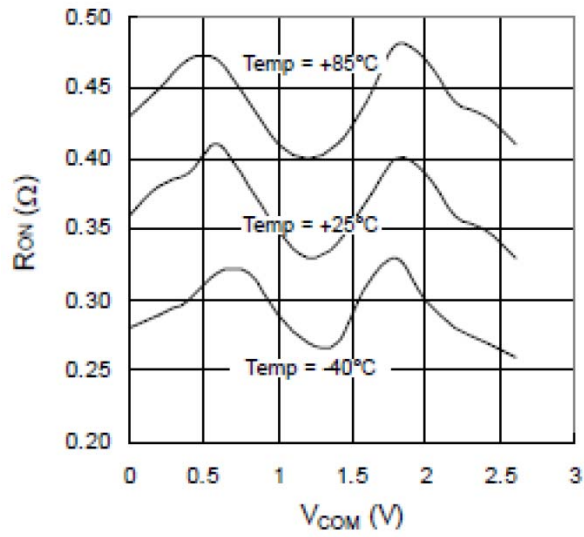


Figure 3: RON for AS1751

4 Contact Information

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6 Revision Information

Changes from 0.1 to current revision 0-10 (2014-Jul-18)	Page
Content updated to latest ams design	

Note: Page numbers for the previous version may differ from page numbers in the current revision.