

Zetex High Voltage MOSFETS in Call Router Circuits

A router is a device that receives data from a telephone line and decides which route the data should be sent. Routers are used extensively in computer networks. They are increasingly being used in devices installed on subscriber's premises to reduce the cost of calls. When used in this application the router performs the following functions:

1) Stops the dialed signals from reaching the telephone line.

2) Analyzes the dialed number and identifies the cheapest provider using stored data.

3) Regenerates and transmits the dialing signal with appropriate prefix denoting the best route.

This note shows the use of Zetex high voltage MOSFETs in this application. The diagram below shows the ZVN4525 in a call router circuit. With different drive circuits the complementary P-channel device ZVP4525 may be used.

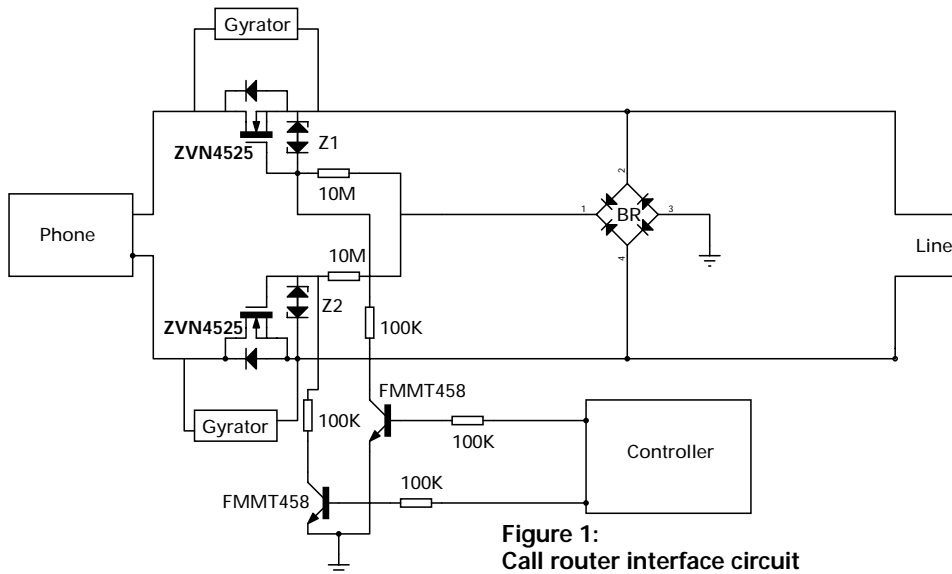


Figure 1:
Call router interface circuit

The circuit is symmetrical and will work when the polarity of the line connections is reversed. MOSFETs are used as the pass element to enable a signal path to be maintained continuously from the line to the telephone circuit through the body diode. Signals from the telephone to the line are controlled by the call router.

The Gyrator is a circuit that maintains a DC path between the telephone and the line while blocking any AC signals. The bridge BR ensures the correct polarity of the MOSFET gate signals. The zener diode pairs Z1 and Z2 provide gate protection for the MOSFETs.

The FMMT458 devices are part of a comprehensive range of Zetex high voltage transistors that can be used to interface controllers to telephone lines.

The ZVN4525 and ZVP4525 250V MOSFET devices indicated in this design note are available in a variety of package outlines and full part numbers and short form details are provided in the table below.

Device Type	BV _{DSS} V	I _D A	P _D W	V _{GS(th)}		R _{DS(on)} @2.4V Ω	Package
				Min V	Max V		
ZVN4525G	250	0.31	2.0	0.8	1.8	9.5	SOT223
ZVN4525Z	250	0.24	1.2	0.8	1.8	9.5	SOT89
ZVN4525E6	250	0.23	1.1	0.8	1.8	9.5	SOT23-6

Device Type	BV _{DSS} V	I _D A	P _D W	V _{GS(th)}		R _{DS(on)} @2.4V Ω	Package
				Min V	Max V		
ZVP4525G	250	0.265	2.0	0.8	2.0	18	SOT223
ZVP4525Z	250	0.205	1.2	0.8	2.0	18	SOT89
ZVP4525E6	250	0.197	1.1	0.8	2.0	18	SOT23-6