Automatic Retransmitting Makeshift Repeater

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Description:
This circuit will be of interest to the radio amateur and anyone possessing two radios, (one of which must be able to transmit i.e. a transceiver). It is a self powered (audio derived) repeater circuit for receiving a signal and re-transmitting it via the other radio.
Notes:
This little circuit can turn two hand-held radios into a makeshift repeater. Any radio will work fine as Radio 1, but Radio 2 must be a Yaesu, or some other type that also goes on the air when its microphone input is shunted with 1-2 kiloohms.

As soon as a radio signal opens Radio 1's squelch circuit, a tiny amount of energy stolen from the audio signal turns on the MOSFET and it conducts as long as the audio is present. While it conducts, Radio 2 is on the air, retransmitting the content supplied by Radio 1 through C1 and P1.

The BS108 has a conveniently low G-S threshold voltage. The other components' characteristics are not critical, but it would be wise to stay close to the values shown in the picture, or at least take them as a starting point for testing.

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