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1N60 diode is germanium or silicon?

5-6 minutes

If I put "1N60 diode" in the googler, it comes up "germanium". But Tayda Electronics list a "1N60 Schottky diode", whose datasheet's only reference to construction says "Silicon epitaxial planar". Does the 1N60 come in both flavors? Does "Schottky" always mean one or the other?

- #2

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- #4

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I guess if you nail two things together you can call it whatever you want. I don't think such companies give much of a care for standards and second sourcing. I would say that this raises the premium on knowing your suppliers. Thanks to the TS for raising this curious conundrum.

So if I just buy some of these with my next order, can I determine that it's germanium by the forward voltage? If it's less than 0.6V it must be germanium?

- #6

There are many threads how to distinguish a Germanium from a Schottky diode.

It involves reverse current. At 25C, Germanium usually has perhaps two or three orders of magnitude higher reverse current as compared to a Schottky.
And it gets worse with higher temperature!!

Check this video, for instance:

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- #7

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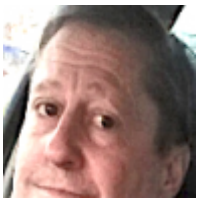
> determine that it's germanium by the forward voltage? If it's less than 0.6V it must be germanium?

No, it could also be Schottky, which also have a low forward voltage drop.

Okay, cool. Turns out I have some of these from a previous order. I'll test them today.



- #9

I like the reverse leakage method. The temperature coefficient of junction voltage is also very different between the two.

The 1n60P is a fine Schottky diode. I have used it on a few projects thought I suspect the 1N60 (not P) version of the diode would make a better high frequency detector.

In 1961 I drove the staff at Sunnyvale Electronics nuts by pestering them all afternoon one day trying to find the optimum diode for a crystal set. They eventually (at the cost of great agitation) sold me a 1N34 diode, which after buying I brought back asking if it was really the most sensitive. I do not remember what I did with that diode, so it must have not been that important after all.

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That video from **schmitt trigger** nailed it. I got the same results. It's a 1N60P Schottky diode. To be fair, Tayda Electronics doesn't advertise it as germanium. They do have 1N34 germanium diodes, but those could be the same fake 1N34 germanium ones tested in the video. I'll order some next time.

- #11

  As a newcomer I have a question about germanium versus Schottky diode choice. If the key advantage in the Schottky is the low forward voltage and since it is more resistant to leak, why is it necessary to find a germanium diode for the purpose if the same forward voltage can be obtained?

  

- #12

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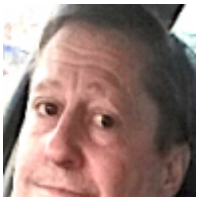
  Generally you can use the Schottky.
  But if it's an old circuit that specifies a germanium diode, then it would be best to use that.

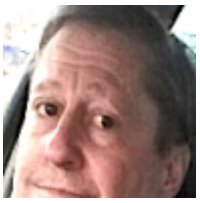
- #13

  I can understand why you might be confused:
  https://www.nikom.biz/pdf/1N60_DEC.pdf
  The first ten words of the datasheet say "Germanium diode. Features: metal silicon junction, majority carrier conduction".
  I think I'd steer clear of the 1N60 and choose a 1N34 if I wanted

germanium and a BAT42 if I wanted schottky.
I suppose it is hypothetically possible to make a germanium schottky diode, as schottky refers to a metal-semiconductor junction.
As the 1N and 2N numbers were just allocated in numerical order, generally anything with a low number is germanium.



- #14
- #15



- #16

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- #17

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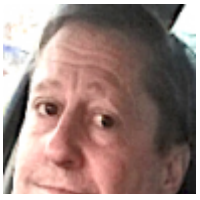
doesn't that rather defeat the object of part numbers? Why not call all small diodes 1N60?
A 1N4148 is also similar, but with a different forward voltage drop and temperature coefficient.



- #18

  Let's not compare our ideal with what is. Tomato, tomahto, potato, potahto...

  It is what is it, No point in arguing about what is vs what should be.