067-E105 Semiconductors

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| **Across**  **3.** Not a needle, but a type of diode.  **6.** Like 30-across; 5 electrons on the outside.  **12.** A voltage wall that must be overcome to move forward.  **13.** Pure semiconductor material.  **16.** Gain, after Greek A.  **17.** These are controlled by voltage, not current.  **18.** Adding impurity to semiconductor material  **19.** Cutoff circuits; hair trimmers; a basketball team  **22.** Element: Ga  **23.** A device like a one-way street for electrons.  **24.** The electrons farthest away from the nucleus  **26.** A whole family of triggers and switches.  **29.** Element: Si  **30.** Element: As  **31.** Too much voltage in the wrong direction.  **32.** It's a diode made to work in breakdown. | **Down**  **1.** There's negative resistance inside this diode. No light at the end of it.  **2.** This device has seen the light.  **4.** When no current flows in a transistor, it's in this mode.  **5.** Like 22-across; 3 electrons on the outside.  **7.** Works like a switch while having no moving parts.  **8.** Materials with conductivity that is better than insulators but poorer than conductors.  **9.** Element: Ge  **10.** A doctor once asked for sharks equipped with these devices.  **11.** Circuit for AC to DC  **14.** Where N and P meet.  **15.** A small signal here on a BJT can have a big effect.  **20.** This device shines. Not bad for three letters.  **21.** It's the T in "BJT"  **25.** On a BJT, where the arrow is.  **27.** When semiconductors can't handle the heat, they \_\_\_\_\_\_.  **28.** When too much current flows in a transistor, it's in this mode. |