067-E105 Semiconductors

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|  |  |  |  |  |  |  |  |  | 1T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  | 2P |  | 3P |  I |  N |  | 4C |  |  |  |  |  |  |  |  |  | 5T |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  H |  |  |  |  N |  |  U |  |  |  |  |  |  |  |  |  |  R |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  O |  |  | 6P |  E |  N |  T |  A |  V |  A |  L |  E |  N |  T |  |  |  I |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  T |  |  |  |  L |  |  O |  |  |  |  |  |  |  |  |  |  V |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  O |  |  |  |  |  |  F |  |  |  |  | 7S |  |  |  |  |  A |  | 8S |  |  |  |  |  |  |
|  |  |  |  |  |  D |  |  |  |  |  |  F |  |  |  |  |  O |  |  | 9G |  |  L |  |  E |  |  |  |  |  |  |
|  |  |  |  |  |  I |  |  |  | 10L |  |  |  | 11R |  |  |  L |  |  |  E |  |  E |  |  M |  |  |  |  |  |  |
|  |  |  |  |  |  O |  |  | 12B |  A |  R |  R |  I |  E |  R |  | 13I |  N |  T |  R |  I |  N |  S |  I |  C |  | 14J |  |  |  |
|  |  |  |  |  |  D |  | 15B |  |  S |  |  |  |  C |  |  |  D |  |  |  M |  |  T |  |  C |  |  |  U |  |  |  |
|  |  |  |  | 16B |  E |  T |  A |  |  E |  | 17F |  E |  T |  S |  |  S |  |  |  A |  |  | 18D |  O |  P |  I |  N |  G |  |  |
|  |  |  |  |  |  |  |  S |  |  R |  |  |  |  I |  |  |  T |  |  |  N |  |  |  |  N |  |  |  C |  |  |  |
|  |  | 19C | 20L |  I |  P |  P |  E |  R |  S |  | 21T |  |  F |  | 22G |  A |  L |  L |  I |  U |  M |  |  D |  |  |  T |  |  |  |
|  |  |  |  E |  |  |  |  |  |  |  |  R |  |  I |  |  |  T |  |  |  U |  |  |  |  U |  |  |  I |  |  |  |
|  |  |  | 23D |  I |  O |  D |  E |  |  | 24V |  A |  L |  E |  N |  C |  E |  |  |  M |  | 25E |  |  C |  |  |  O |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  N |  |  R |  |  |  |  |  |  |  |  M |  |  T |  |  |  N |  |  |  |
|  |  | 26T |  H |  Y | 27R |  I | 28S |  T |  O |  R |  S |  |  |  |  |  |  | 29S |  I |  L |  I |  C |  O |  N |  |  |  |  |  |
|  |  |  |  |  |  U |  |  A |  |  |  |  I |  |  |  |  |  |  |  |  |  |  T |  |  R |  |  |  |  |  |  |
|  |  |  |  |  |  N |  |  T |  | 30A |  R |  S |  E |  N |  I |  C |  |  |  |  |  |  T |  |  S |  |  |  |  |  |  |
|  |  |  |  |  |  A |  |  U |  |  |  |  T |  |  |  |  |  |  |  |  |  |  E |  |  |  |  |  |  |  |  |
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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. |