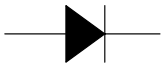
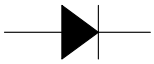
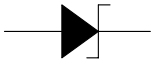
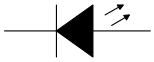
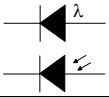
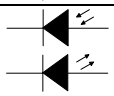
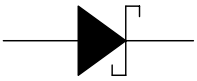
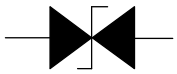
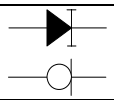
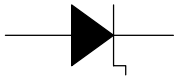
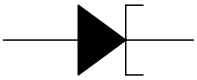
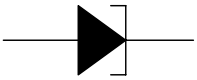
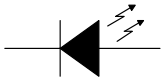
DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CAMBRIDGE, MASSACHUSETTS 02139

Types of Diodes

Diode Name	Diode Symbol	Used for:	Special Characteristics
Rectifier Diode, Fast Switching Rectifier		Converting AC to DC; Linear and switching power supplies	Can be had in very high current capacities, too slow for hf signal use.
Signal Diode		HF rectification, detection	Small t_r = few ns
Zener Diode		Voltage reference, regulation	Used in reverse breakdown
Light-emitting Diode [LED]		Indication, 7-segment displays	V_F 's vary with color
Photodiode		Light detection, mech.-electrical conversion; solar cell	Reverse current is increased by light; in FWD direction=solar cell
Optocoupler		Electrical isolation	LED and photodiode in an opaque package
Schottky Diode		VHF rectification, detecting small signals	No stored charges, >300 MHz, 0.25V V_F [metal jn]
Varactor Diode		Tuning radio and TV receivers	Fairly linear C with V_R
Varistor		AC line spike protection	2 back-back zeners
Current Regulator		Constant current source	
Step-recovery Diode		"snap" diode generates harmonics, f multipliers	Exploits reverse-current phenomenon
Back Diode		Very small signal rectification	V_R smaller than V_F
Tunnel Diode		High frequency oscillators	Part of forward char. has negative resistance
Laser Diode		Reading, writing CD, DVD etc.	
PIN Diode		RF switching diode	