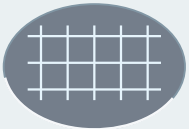
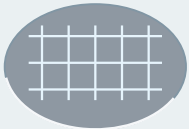
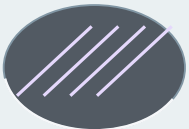
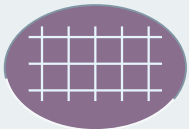
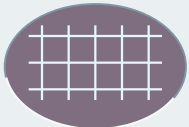
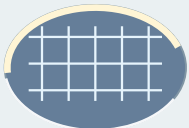
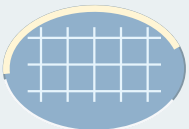


Semiconductor Substrate Materials

Device wafers | epitaxial platforms | semiconductor manufacturing and packaging

	Silicon CMOS, MEMS, sensors and mainstream ICs. Eg 1.12 eV k ~148 W/m·K	Si
	Germanium IR detectors, photonics, SiGe and research dies. Eg 0.66 eV k ~60 W/m·K	Ge
	Silicon carbide High-voltage power electronics; harsh environments. Eg ~3.26 eV k ~370-490 W/m·K	4H-SiC
	Gallium arsenide RF amplifiers, LEDs and high-speed optoelectronics. Eg ~1.42 eV k ~46-55 W/m·K	GaAs
	Gallium nitride RF/power devices; often epitaxial on Si, SiC, sapphire. Eg ~3.4 eV k varies by form	GaN
	Indium phosphide High-speed photonics, lasers and fiber-optic links. Eg ~1.34 eV k ~68 W/m·K	InP
	Sapphire LED/GaN growth, insulating wafers, optical windows. Insulator k ~25-40 W/m·K	Al2O3
	Silicon-on-insulator RF, MEMS, photonics and low-parasitic devices. Si / buried SiO2 / Si device-layer choice	SOI
	Silicon-on-sapphire RF and radiation-tolerant silicon ICs. Thin Si on sapphire insulating base	SOS
	Gallium oxide Emerging ultra-wide-bandgap power devices. Eg ~4.8 eV k ~10-27 W/m·K	beta-Ga2O3

FAST SELECTION: General: Si | Power: SiC / GaN | RF: GaAs / GaN / SOI | Photonics: InP / Ge

Illustrative wafers. Typical room-temp bulk values; anisotropy, doping, defects and substrates affect properties.