

Rectifiers

Electrical Engineering

Half-wave, full-wave and bridge, and the ripple each one leaves behind.

Diode count against ripple, for the same input frequency.

Topology	Ripple frequency	Trade-off
Half-wave	f_{in}	One diode, poor transformer use
Full-wave centre-tap	$2 f_{in}$	Two diodes, tapped secondary
Bridge	$2 f_{in}$	Four diodes, two drops in series
With reservoir cap	$2 f_{in}$	Ripple $\approx I/(2 f C)$
Three-phase bridge	$6 f_{in}$	Very low ripple, small filter

Educational reference. Mains rectifiers carry lethal voltages: qualified supervision and local electrical regulations govern practical work.