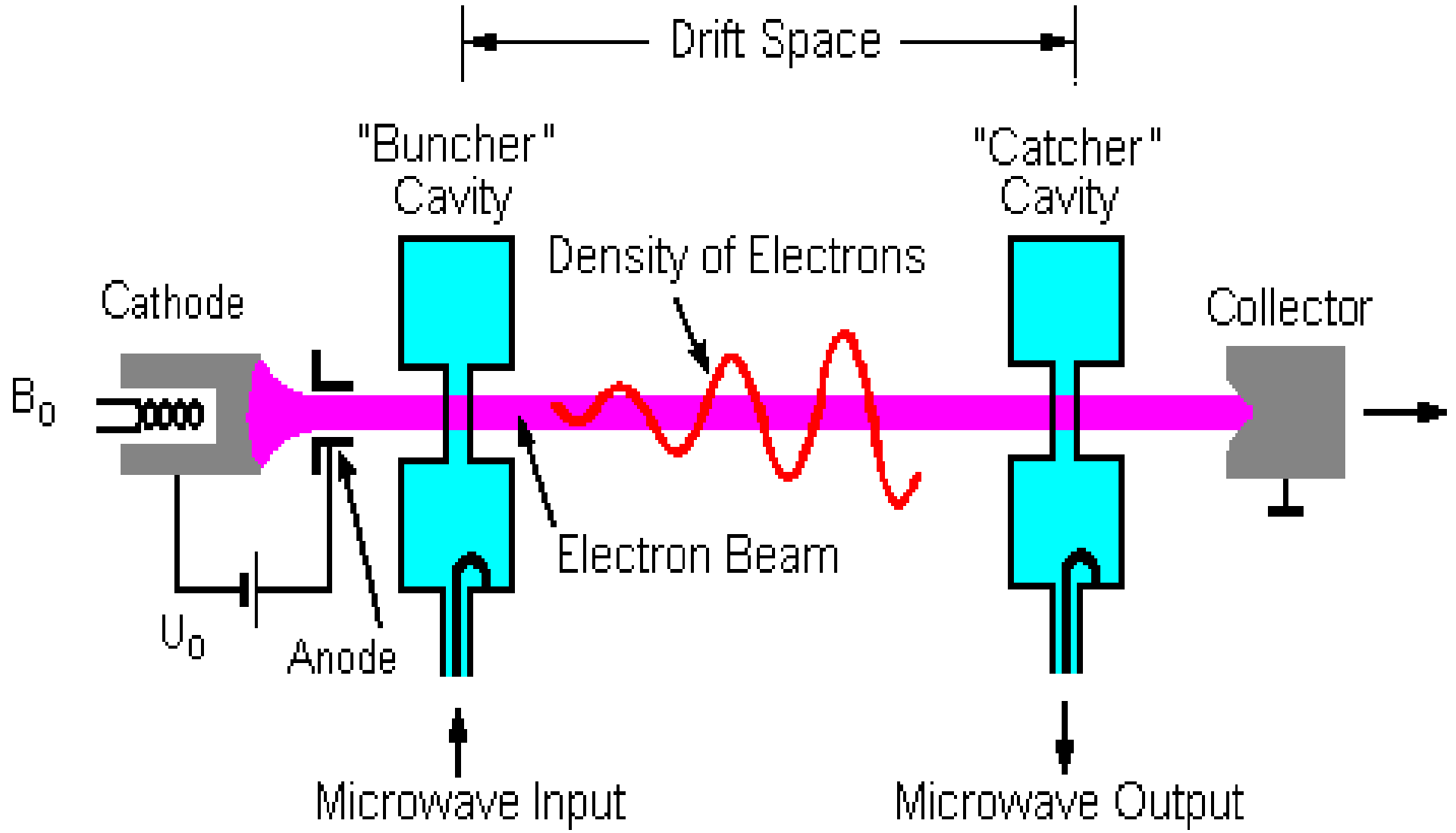
Microwave Engineering

Unit-3

Multicavity Klystron

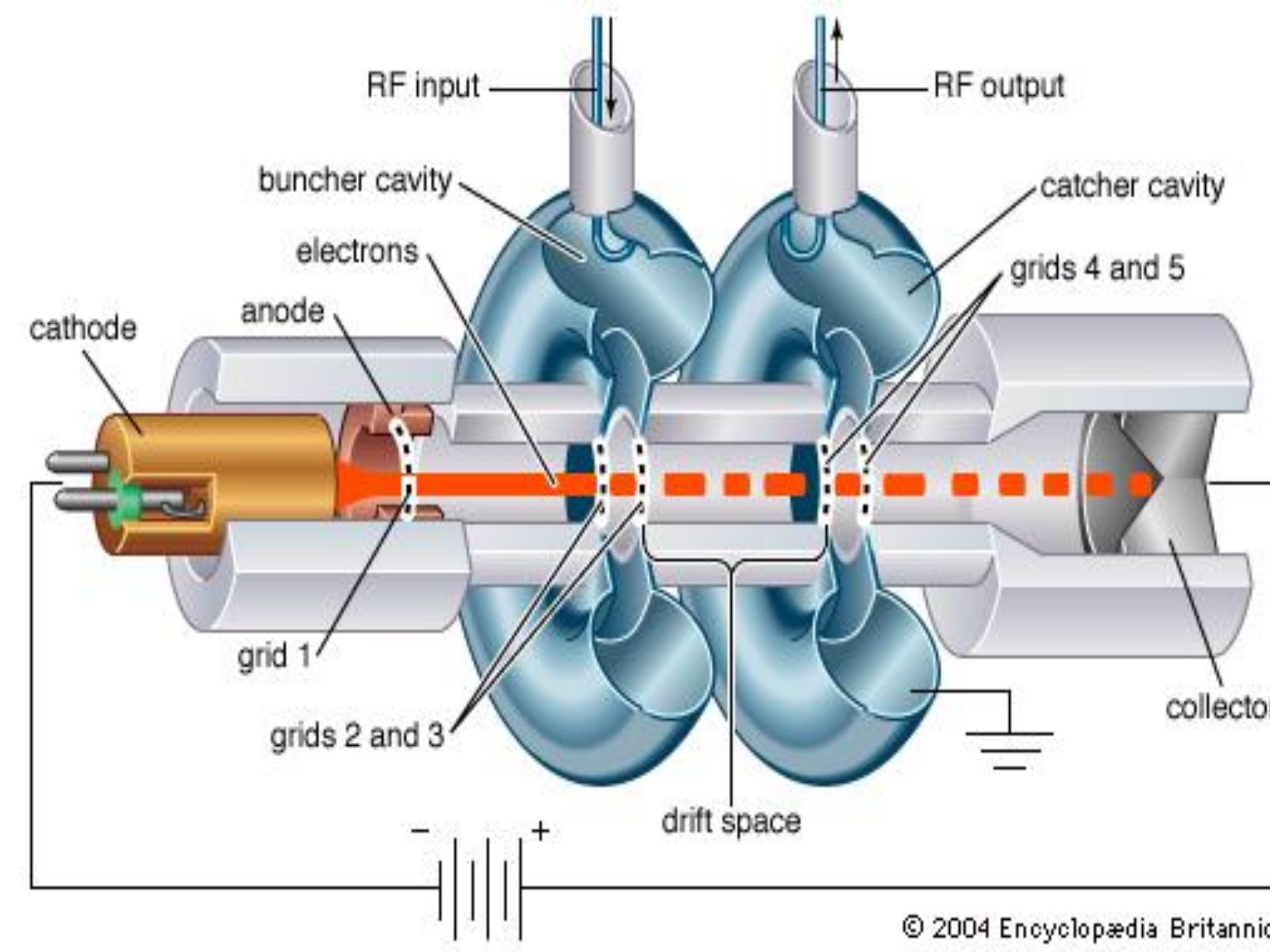
Two Cavity Klystron Amplifier



Principle

- Velocity modulated tube
- High velocity electron beam is generated by an electron gun and sent down along a gas tube through an input cavity (BUNCHER), drift space (FIELD FREE) and an output cavity (CATCHER) to a collector electrode anode.
- The anode is kept positive to receive the electrons, while the output is taken from the tube via resonant cavities with the aid of coupling loops

- Two grids of the buncher cavity are separated by a small gap A while the two grids of the catcher cavity are separated by a small gap B.


RF input
RF output
buncher cavity
catcher cavity
electrons
grids 4 and 5
anode
cathode
grid 1
grids 2 and 3
drift space
collecto
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OPERATION

- The input buncher cavity is exited by the RF signal, (the signal to be amplified) which will produce an alternating voltage of signal frequency across the gap A.
- This voltage generated at the gap A is responsible to produce bunching of electrons or velocity modulation of the electron beam.

Applegate Diagram