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STUDY OF MOSFET CHOPPER TRAINER,

(MOSFET Based Chopper Controlled of DC Motor)

MODEL - MC - 110 D

A Chopper is a (static) device, used to obtain variable DC Voltage from a constant voltage source. The variable DC is obtained by ON / OFF operation of chopping device, which can be treated as switch. This device (Chopper) is triggered (Gated) periodically and is kept conducting for a period T_{on} , and is kept off for a period T_{off} . Therefore output at load side is pulsating (generally rectangular wave) DC voltage, which is equal to $V_L = V_s \{T_{on} / \{T_{on} + T_{off}\}\}$ where V_s is input source voltages.

The MOSFET, is such a device, which can be used for this operation successfully, as this diode not required commutation circuitry. In present set - up, a DC series wound motor (1/12 HP) used as load, and to control the speed MOSFET chopper is used. The set - up has builtin gate drive circuit with pulse generator, regulated DC supply and sockets given to observe / measure the waveforms / voltages.

1.1. THE D.C. SUPPLY :

A regulated DC voltage obtained by thyristor half controlled bridge rectifier, which is smoothed by capacitive filter. The controlled rectifier is in close loop to obtain DC voltage about 150 ± 5 Volt D.C.

1.2. THE GATE DRIVE SIGNAL GENERATOR :

In present type of control straregy, the on time (T_{on}) period is varied, but the total period T ($t_{on} + T_{off}$) is kept constant. A ramp generator produce/

EXPERIMENTS :

To study MOSFET Chopper operation.

ACCESSORIES REQUIRED :

1. Digital Multimeter.
1. Dual Trace, Oscilloscope.
2. D.C. Motor Unit, Capacity : 1 HP.

There may be any change in specification due to continuous R & D without notice.