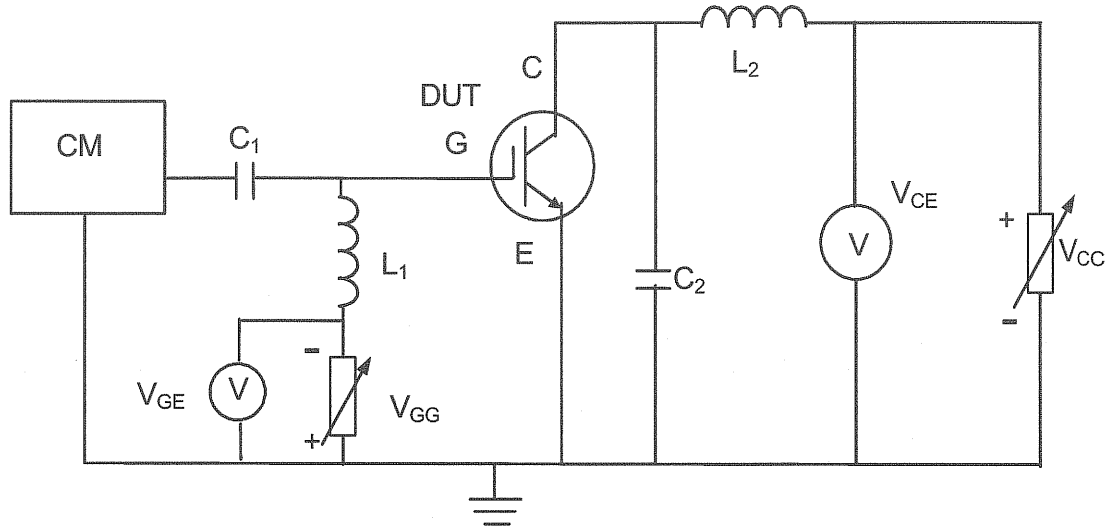


Input capacitance (C_{ies})

Purpose

To measure the input capacitance of an IGBT under specified conditions.

Circuit diagram



Circuit for measuring the input capacitance

Circuit description and requirements

CM is a capacitance meter. V_{CC} and V_{GG} are adjustable d.c. supplies. Capacitances C_1 and C_2 should present short circuit at the measurement frequency, satisfying the following conditions:

$$\begin{aligned} 1/\omega L_1 &\leq |y_{ie}| \text{ and } \omega C_1 \geq |y_{ie}| \\ 1/\omega L_2 &\leq |y_{oe}| \text{ and } \omega C_2 \geq |y_{oe}| \end{aligned}$$

Measurement procedure

CM is set to the specified frequency without the IGBT. The IGBT is inserted into the test socket. The temperature is set to the specified value. The gate-emitter voltage V_{GE} and the collector-emitter voltage V_{CE} are set to their specified values. Capacitance C_{ies} can be read on CM.

Specified conditions

- Ambient or case or virtual junction temperature T_a or T_c or T_{vj}
- Collector-emitter voltage V_{CE}
- Gate-emitter voltage V_{GE}
- Measurement frequency