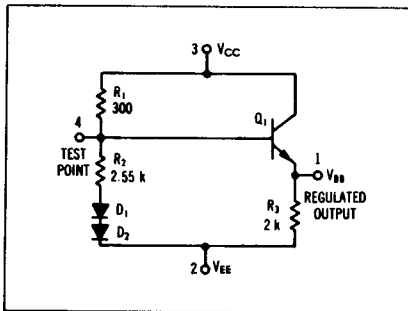


BIAS DRIVER

MECL MC350 series

MC354

Bias driver that compensates for changes in circuit parameters with temperature.



ELECTRICAL CHARACTERISTICS

| Characteristic | V _{EE} Pin No | I _b Pin No | Ground Pin No | Symbol Pin No in () | Test Conditions | | | | | | Unit |
|----------------------------|---------------------------|--------------------------|------------------|----------------------------|----------------------|-------|-------|-------|-------|-------|-----------------|
| | | | | | V _{dc} ± 1% | | | | | | |
| | | | | | @ Test Temperature | | | | | | |
| | | | | | 0°C | +25°C | +75°C | | | | |
| | | | | | Min | Max | Min | Max | Min | Max | |
| Power Supply Brake Current | 2 | — | 3 | I _s (2) | — | 4.8 | — | 4.4 | — | 4.0 | mAdc |
| Output Voltage | 2 | 1 ⊕ | 3 | V _{out} | -1.14 | -1.27 | -1.09 | -1.22 | -1.04 | -1.18 | V _{dc} |

Pins not listed are left open.

⊕ Current test conditions: no load = 0; full load = -2.5 mAdc ± 5%.

CIRCUIT DESCRIPTION

Circuit Operation:

The divider network R_1 , R_2 , D_1 , D_2 compensates for temperature variations of the base-emitter voltages of Q_1 , and of the driven gates, producing a bias voltage for the MECL logic circuits that maintains a constant set of dc operating conditions over the temperature range of 0 to +75°C. In addition, compensation for power supply variations is achieved, since the bias output voltage is derived from the system supply.

Either of the supply voltage nodes may be used as ground, however the ground potential of the bias driver must coincide with that of the logic system. Thus, if V_{CC} is grounded in the logic system, then —

$$\begin{aligned}
 V_{CC} &= 0; & V_{EE} &= -5.2 \text{ V}; \\
 V_{out} &= -1.15 \text{ nominal output voltage at } 25^\circ\text{C}
 \end{aligned}$$