INTRODUCTION

This regulator is recommended to bias a two stage, grounded source GaAs FET LNA with constant drain currents. With minor modification, two additional bias stages could be added to this circuit.

SPECIFICATIONS

\[ V_{DS} = 2.8 \text{ to } 3.2 \text{ volts, adjustable} \]
\[ I_D = 8 \text{ to } 20 mA, \text{ adjustable} \]

CIRCUIT DIAGRAM

![Circuit Diagram](image)

A1 and A2: 747 Dual Op-Amp
All Resistors: \( \frac{1}{4} \) Watt

CIRCUIT OPERATION

When the ±15 volt power supply is turned on, integrator A1 ramps on which allows \( V_{DS} \) and \( V_{GS} \) voltages to also ramp on. The drain to source voltage \( (V_{DS}) \) is a constant voltage, which is adjusted by the variable resistor R1. The constant drain current \( (I_D) \) is maintained by the comparator A2 and is adjusted by R2 for stage one and R3 for stage two. Nodal voltages are shown in the circuits of \( I_{D1} = 10 mA \) and \( I_{D2} = 20 mA \). The resistance values for the above conditions are \( R2 = 350 \Omega \) and \( R3 = 10 \Omega \).
REFERENCE