

## LM103 Reference Diode\*\*

### General Description

The LM103 is a two-terminal monolithic reference diode electrically equivalent to a breakdown diode. The device makes use of the reverse punch-through of double-diffused transistors, combined with active circuitry, to produce a breakdown characteristic which is ten times sharper than single-junction zener diodes at low voltages. Breakdown voltages from 3.0V to 3.9V are available; and, although the design is optimized for operation between 100  $\mu$ A and 1 mA, it is completely specified from 10  $\mu$ A to 10 mA.

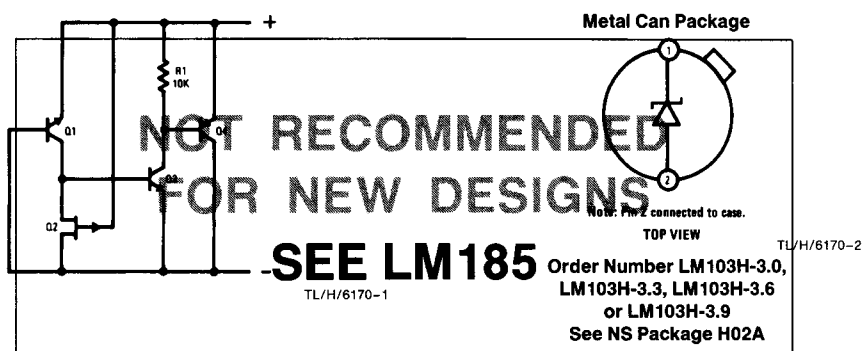
- Performance guaranteed over full military temperature range
- Planar, passivated junctions for stable operation
- Low capacitance.

The LM103, packaged in a hermetically sealed, modified TO-46 header is useful in a wide range of circuit applications from level shifting to simple voltage regulation. It can also be employed with operational amplifiers in producing breakpoints to generate nonlinear transfer functions. Finally, its unique characteristics recommend it as a reference element in low voltage power supplies with input voltages down to 4V.

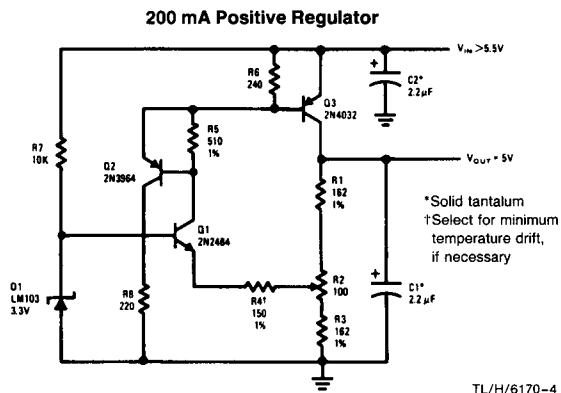
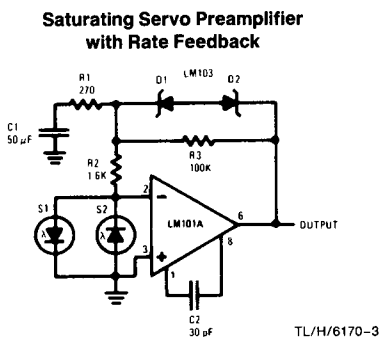
### Features

- Exceptionally sharp breakdown
- Low dynamic impedance from 10  $\mu$ A to 10 mA

### Schematic and Connection Diagrams



### Typical Applications



\*\*Covered by U.S. Patent Number 3,571,630