

MC3340

Electronic Attenuator

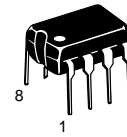
The MC3340 is a simple but very effective electronic attenuator. This device offers up to 80 dB of attenuation control for frequencies to 1.0 MHz. THD (distortion) is less than 1% – up to 15 dB attenuation and less than 3% – up to 40 dB.

Typical uses include instrumentation control, remote control audio amplifiers, electronic games, and CATV (cable TV) set-top converter audio control.

- Designed for use in:
 - DC Operated Volume Control
 - Compression and Expansion Amplifier Applications
- Controlled by DC Voltage or External Variable Resistor
- Economical 8-Pin Dual-In-Line Package

ELECTRONIC ATTENUATOR

SEMICONDUCTOR TECHNICAL DATA



P SUFFIX
PLASTIC PACKAGE
CASE 626

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise noted.)

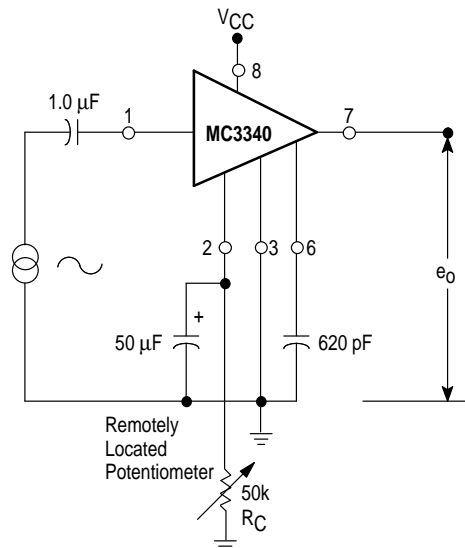
| Rating | Symbol | Value | Unit |
|---|----------|-----------|---------------------------|
| Power Supply Voltage | V_{CC} | 20 | Vdc |
| Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $T_A = 25^\circ\text{C}$ | P_D | 1.2 10 | W mW/ $^\circ\text{C}$ |
| Operating Ambient Temperature Range | T_A | 0 to 75 | $^\circ\text{C}$ |

NOTE: ESD data available upon request.

ORDERING INFORMATION

| Device | Operating Temperature Range | Package |
|---------|---------------------------------|-------------|
| MC3340P | $T_A = 0$ to 75°C | Plastic DIP |

Figure 1. Typical DC Remote Volume Control



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ELECTRICAL CHARACTERISTICS ($e_{in} = 100 \text{ mVrms}$, $f = 1.0 \text{ kHz}$, $V_{CC} = 16 \text{ Vdc}$, $T_A = +25^\circ\text{C}$, unless otherwise noted.)

| Circuit | Characteristics | Min | Typ | Max | Unit |
|---------|--|-----|-----|-----|------|
| | Operating Power Supply Voltage | 9.0 | — | 18 | Vdc |
| | Control Terminal Sink Current, Pin 2 ($e_{in} = 0$) | — | — | 2.0 | mAdc |
| | Maximum Input Voltage | — | — | 0.5 | Vrms |
| | Voltage Gain | 11 | 13 | — | dB |
| | Attenuation Range from Maximum Gain ($V_2 = 6.5 \text{ Vdc}$) | 70 | 80 | — | dB |
| | Total Harmonic Distortion (Pin 2 Gnd) ($e_{in} = 100 \text{ mVrms}$, $e_o = A_v \cdot e_{in}$) | — | 0.6 | 1.0 | % |

Figure 2. Representative Schematic Diagram

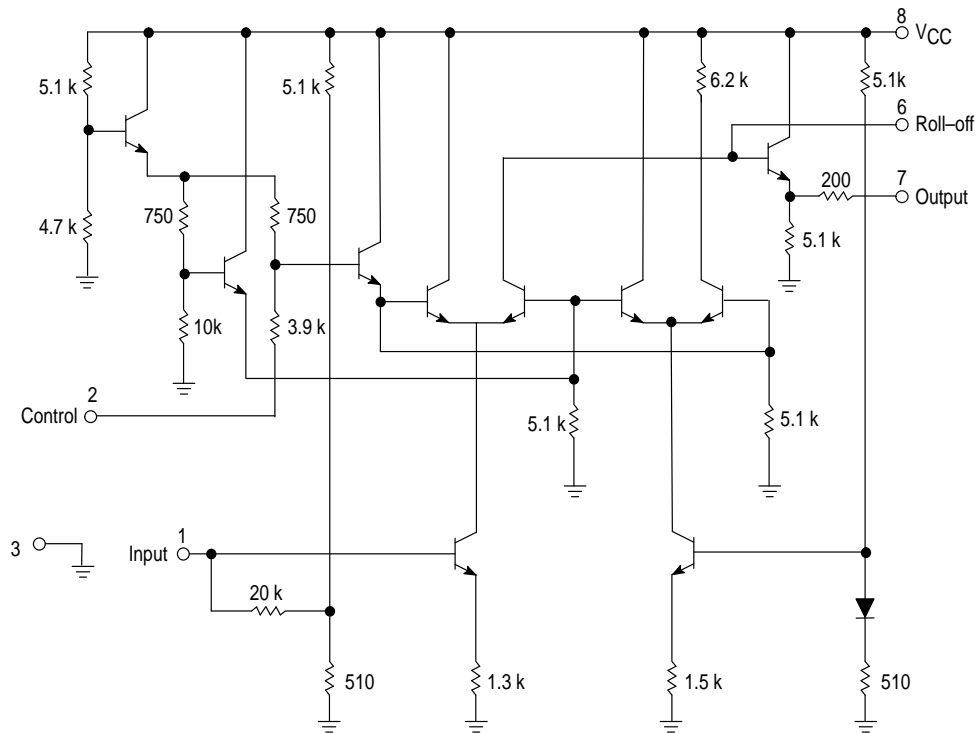


Figure 3. Attenuation versus DC Control Voltage

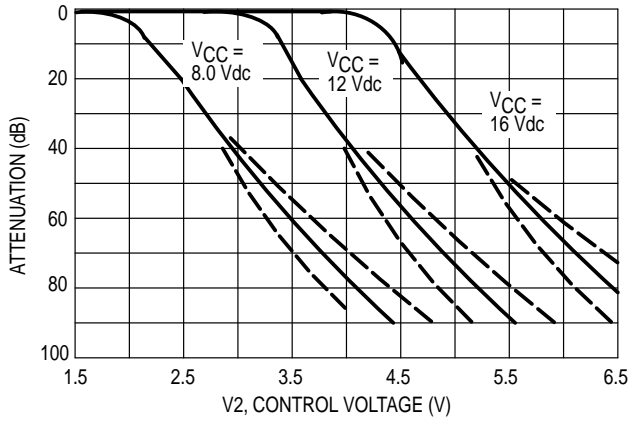


Figure 4. Attenuation versus Control Resistor

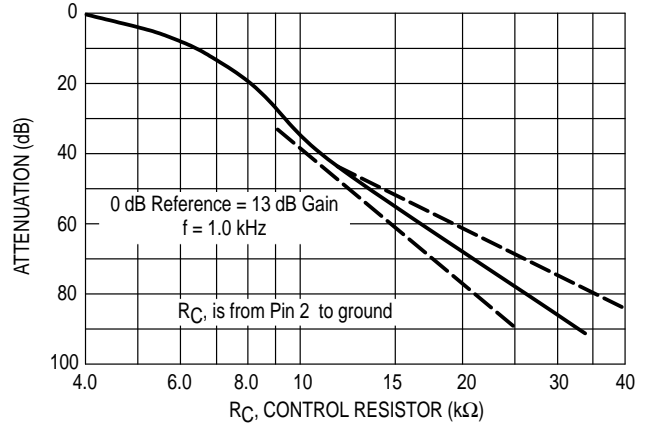


Figure 5. Frequency Response

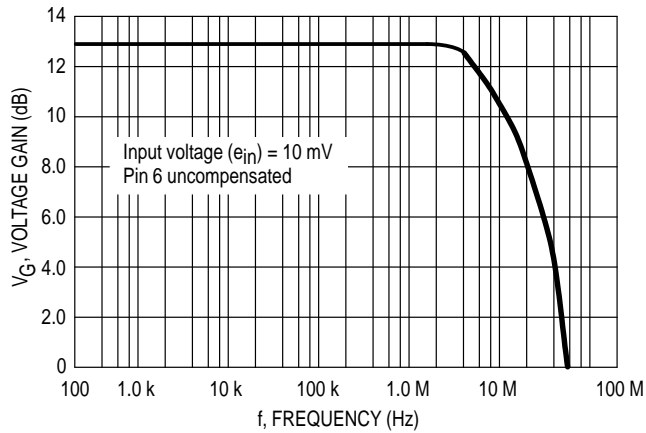


Figure 6. Output Voltage Swing

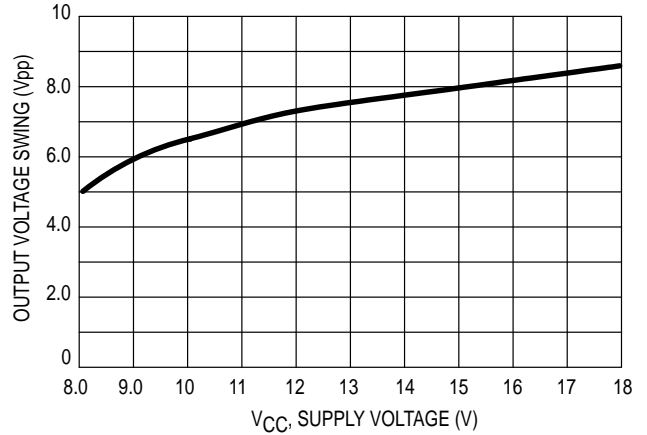
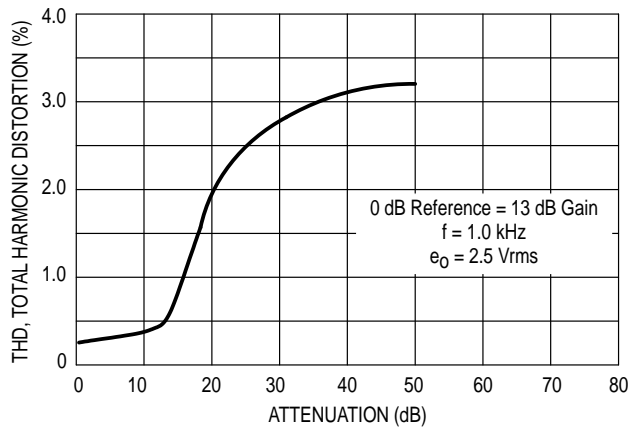
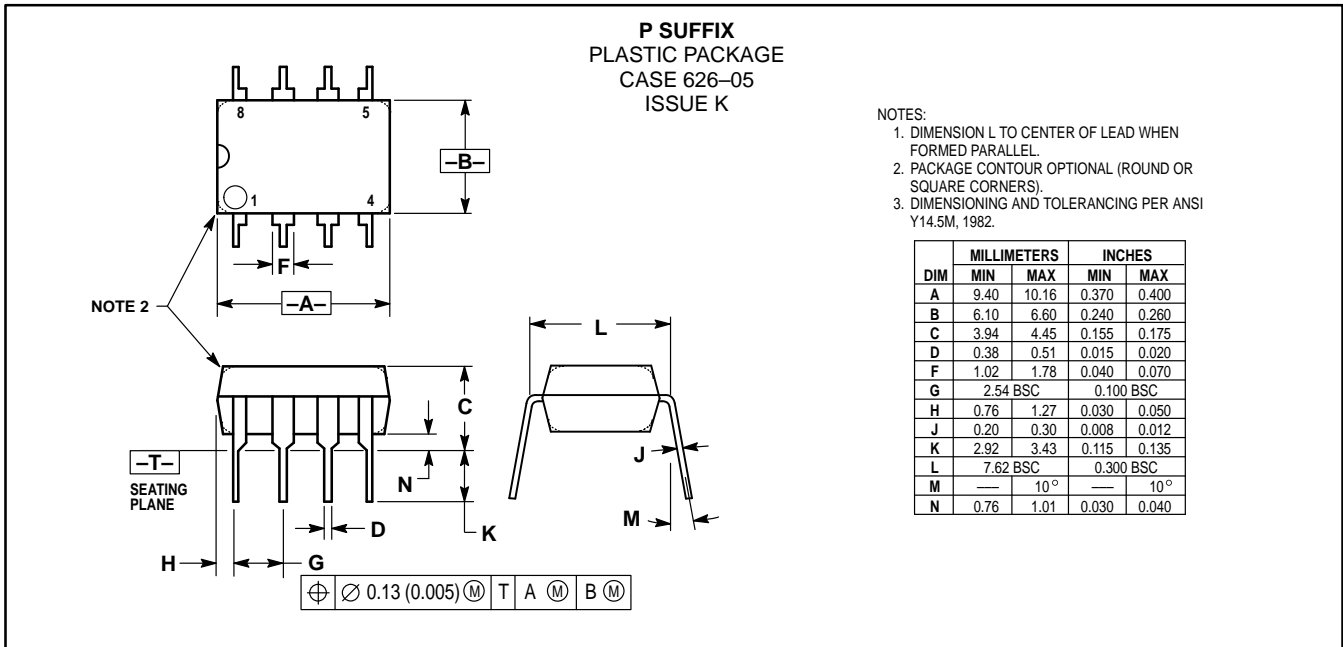


Figure 7. Total Harmonic Distortion




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OUTLINE DIMENSIONS



- NOTES:
1. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
 2. PACKAGE CONTOUR OPTIONAL (ROUND OR SQUARE CORNERS).
 3. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

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