



# MC3340

## Electronic Attenuator

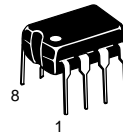
The MC3340 is a simple but very effective electronic attenuator. This device offers up to 80 dB of attenuation control for frequencies to 1.0 MHz. THD (distortion) is less than 1% – up to 15 dB attenuation and less than 3% – up to 40 dB.

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<sub>A</sub> = 25°C, unless otherwise noted.)

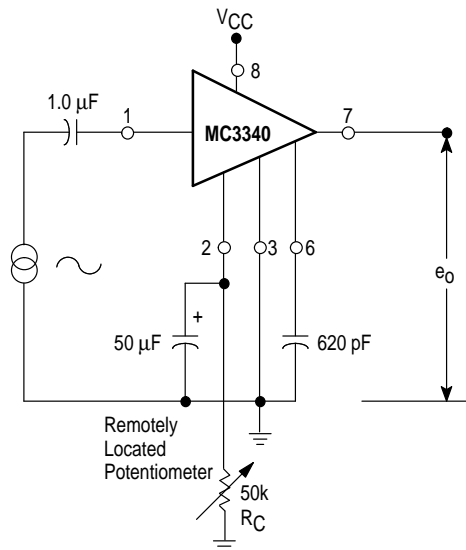
Rating	Symbol	Value	Unit
Power Supply Voltage	V <sub>CC</sub>	20	Vdc
Power Dissipation @ T <sub>A</sub> = 25°C Derate above T <sub>A</sub> = 25°C	P <sub>D</sub>	1.2 10	W mW/°C
Operating Ambient Temperature Range	T <sub>A</sub>	0 to 75	°C

#### ORDERING INFORMATION

Device	Operating Temperature Range	Package
MC3340P	T <sub>A</sub> = 0 to 75°C	Plastic DIP

NOTE: ESD data available upon request.

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**

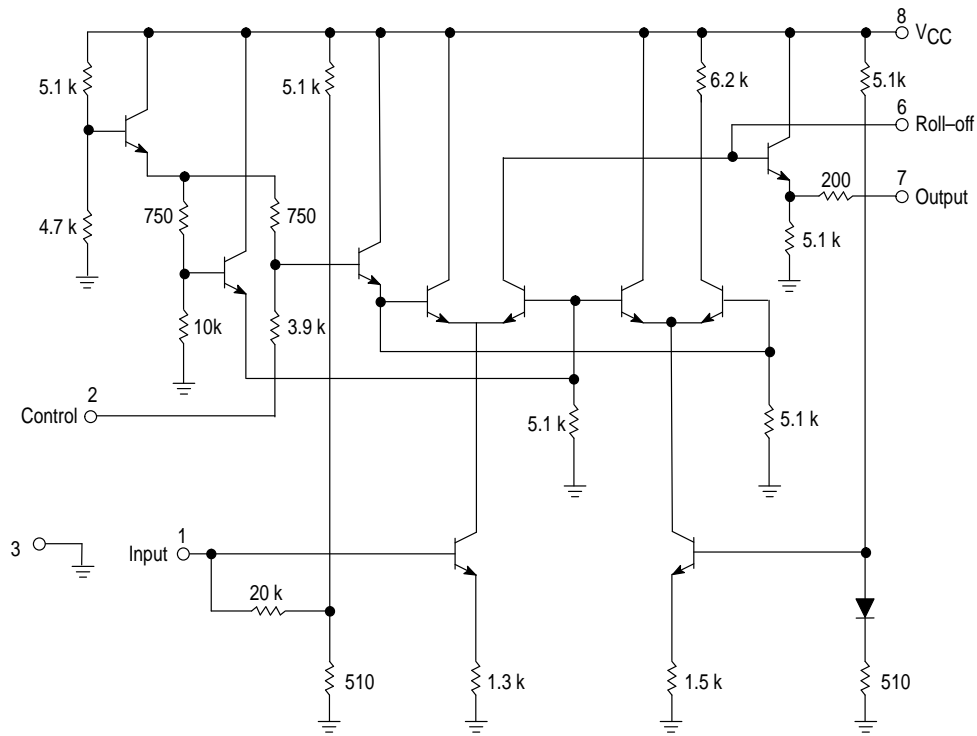


Figure 3. Attenuation versus DC Control Voltage

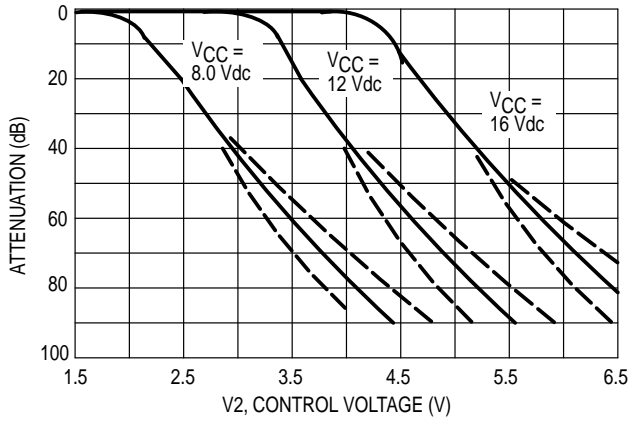


Figure 4. Attenuation versus Control Resistor

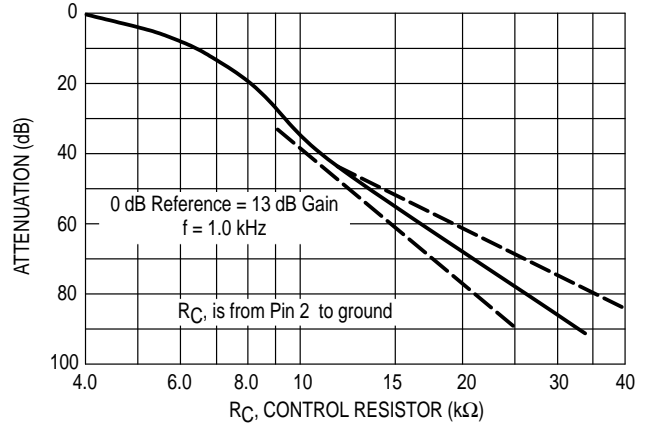


Figure 5. Frequency Response

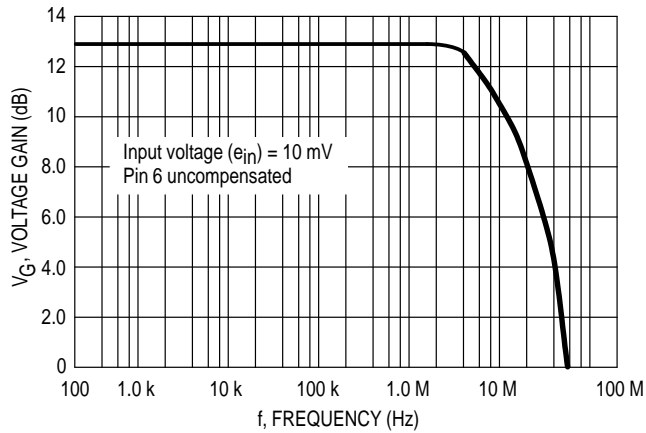


Figure 6. Output Voltage Swing

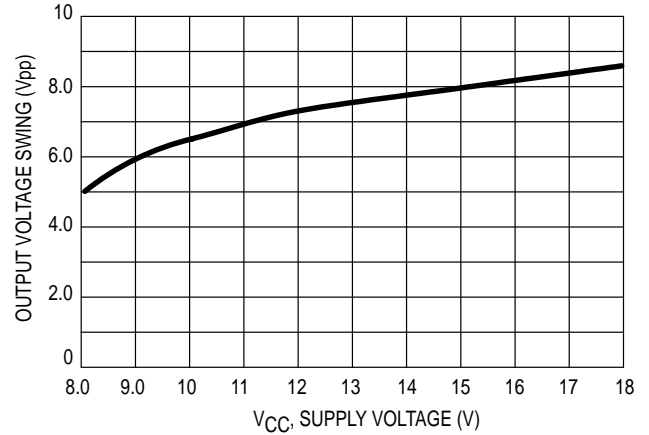
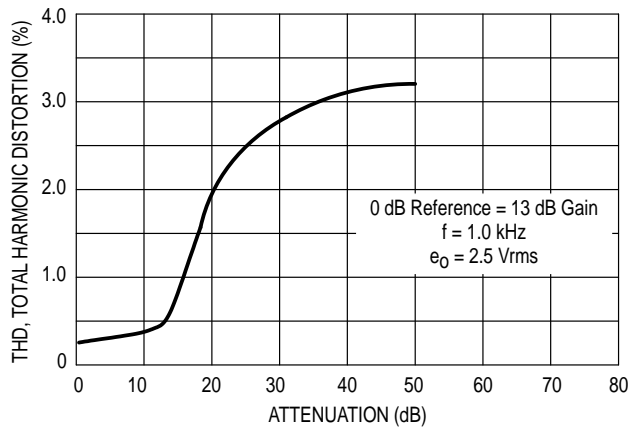
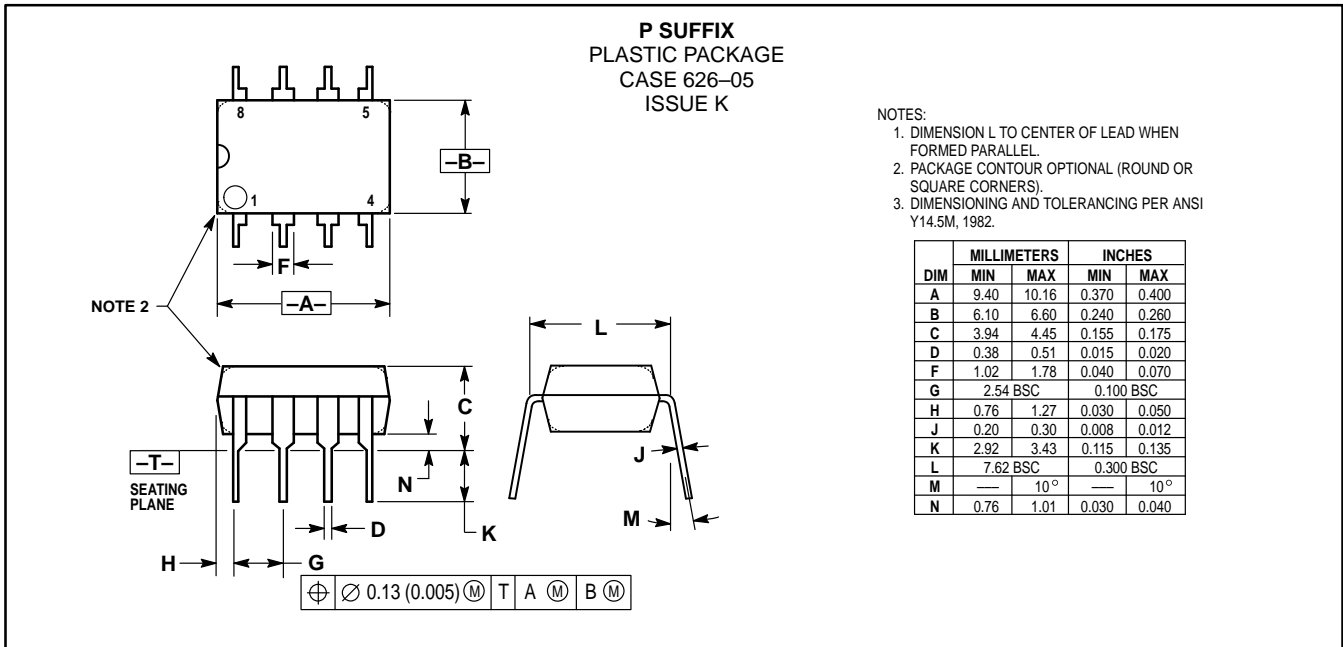


Figure 7. Total Harmonic Distortion




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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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