



MOTOROLA

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.

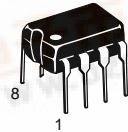
Typical uses include instrumentation control, remote control audio amplifiers, electronic games, and CATV (cable TV) set-top converter audio control.

- 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

MC3340

ELECTRONIC ATTENUATOR

SEMICONDUCTOR TECHNICAL DATA



P SUFFIX
PLASTIC PACKAGE
CASE 626

MAXIMUM RATINGS (T_A = 25°C, unless otherwise noted.)

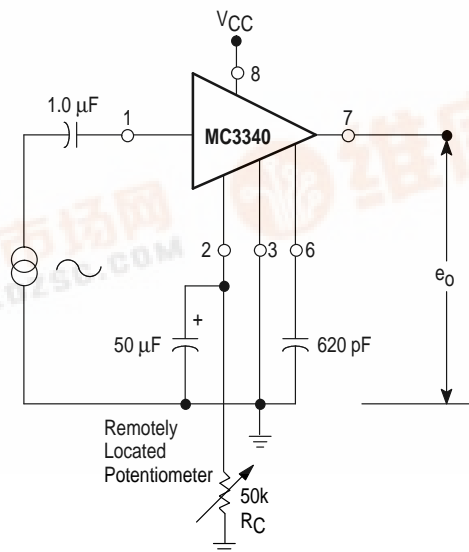
Rating	Symbol	Value	Unit
Power Supply Voltage	V _{CC}	20	Vdc
Power Dissipation @ T _A = 25°C Derate above T _A = 25°C	P _D	1.2 10	W mW/°C
Operating Ambient Temperature Range	T _A	0 to 75	°C

ORDERING INFORMATION

Device	Operating Temperature Range	Package
MC3340P	T _A = 0 to 75°C	Plastic DIP

NOTE: ESD data available upon request.

Figure 1. Typical DC Remote Volume Control

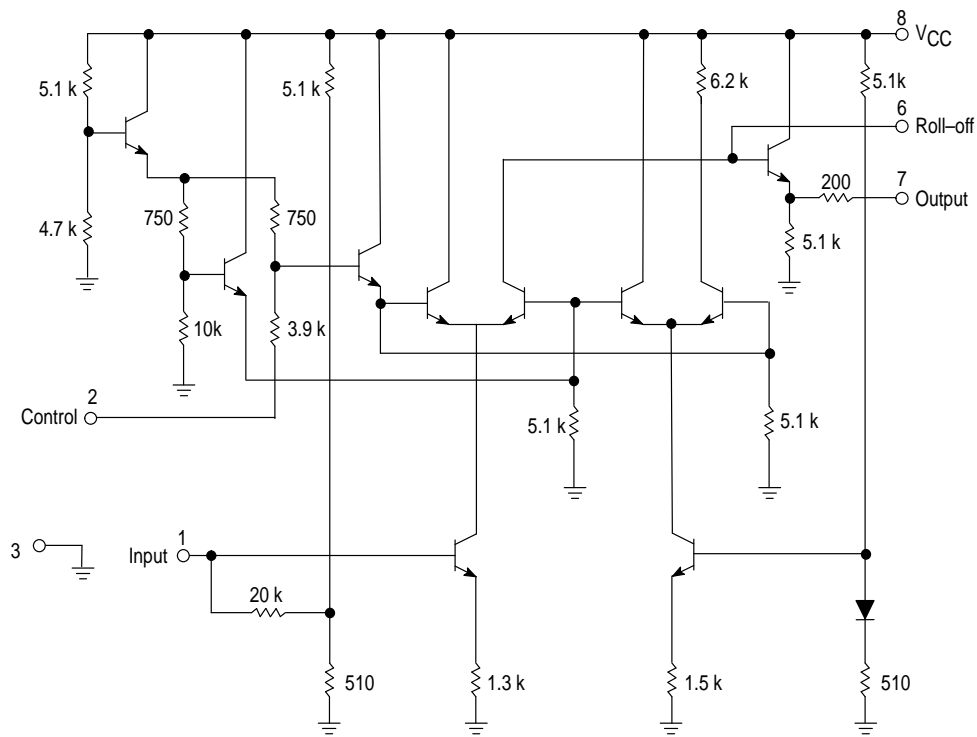


MC3340

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	mA _{dc}
	Maximum Input Voltage	–	–	0.5	V _{rms}
	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



MC3340

Figure 3. Attenuation versus DC Control Voltage

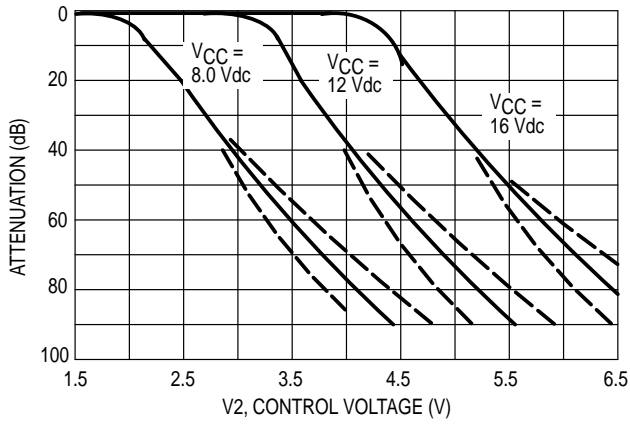


Figure 4. Attenuation versus Control Resistor

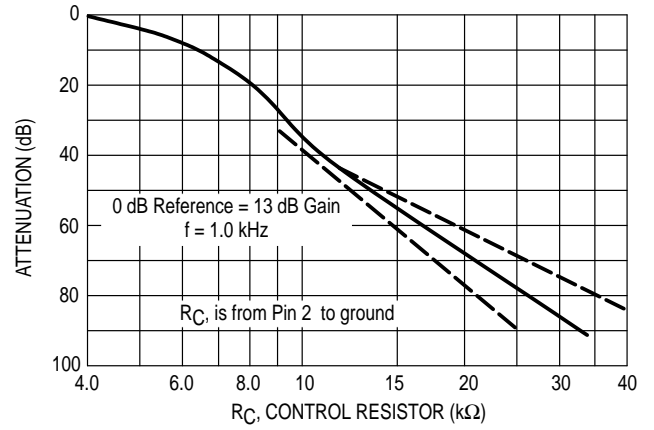


Figure 5. Frequency Response

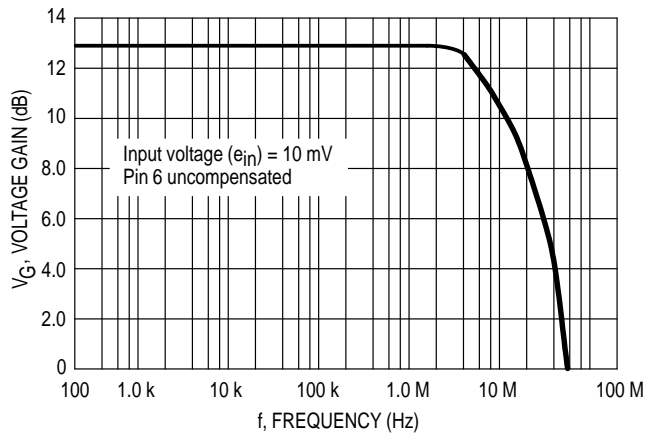


Figure 6. Output Voltage Swing

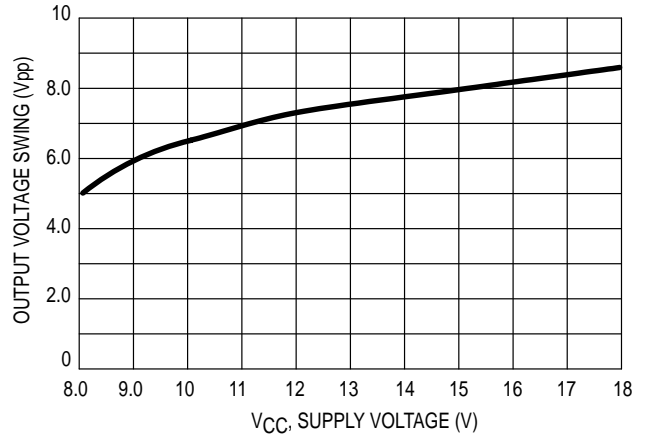
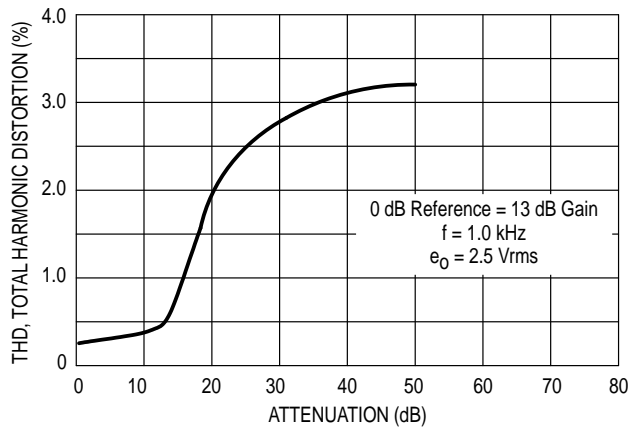
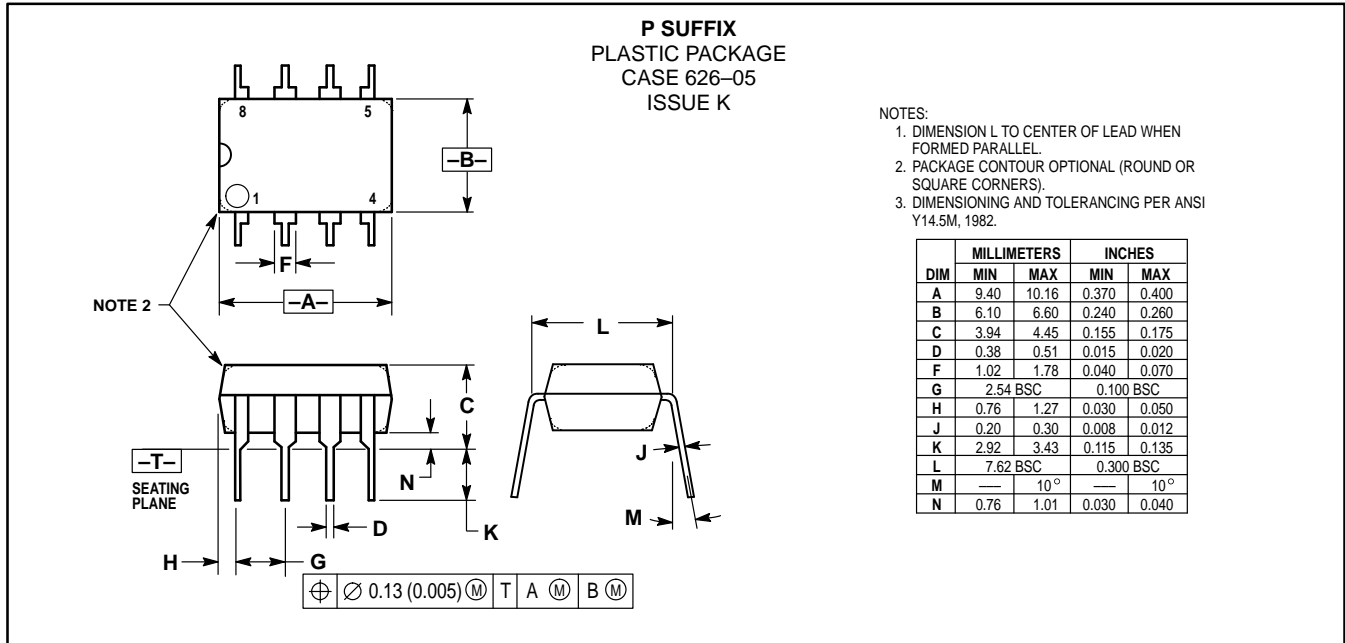


Figure 7. Total Harmonic Distortion



MC3340

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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