

# MFC6040

CONSUMER PRODUCTS

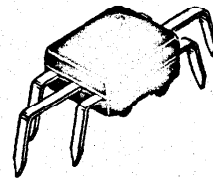
## Advance Information

### ELECTRONIC ATTENUATOR

- Designed for use in:
  - DC Operated Volume Control
  - Compression and Expansion Amplifier Applications
- Controlled by DC Voltage or External Variable Resistor
- Economical 6-Lead Plastic Package

### ELECTRONIC ATTENUATOR

Silicon Monolithic  
Functional Circuit



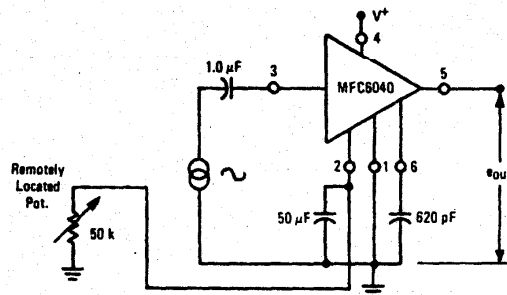
CASE 643

PLASTIC PACKAGE

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

Rating	Symbol	Value	Unit
Power Supply Voltage	$V^+$	21	Vdc
Power Dissipation @ $T_A = 25^\circ\text{C}$ (Package Limitation)	$P_D$	1.0	Watt
Derate above $T_A = 25^\circ\text{C}$	$1/\theta_{JA}$	10	mW/ $^\circ\text{C}$
Operating Temperature Range	$T_A$	0 to +75	$^\circ\text{C}$

FIGURE 1 - TYPICAL DC "REMOTE" VOLUME CONTROL

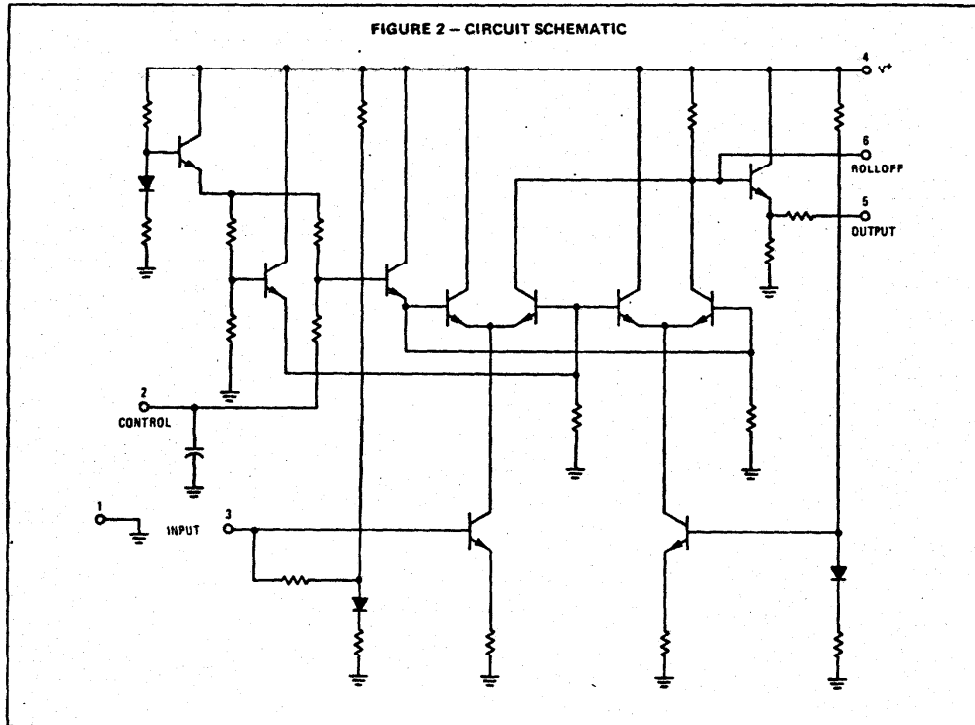


MFC6040 (continued)

ELECTRICAL CHARACTERISTICS ( $e_{in} = 100 \text{ mV}$ ,  $f = 1.0 \text{ kHz}$ ,  $R_1 = 0$ ,  $V^+ = 16 \text{ Vdc}$ ,  $T_A = 25^\circ\text{C}$  unless otherwise noted)

Circuit	Characteristic	Symbol	Min	Typ	Max	Unit	
	Operating Power Supply Voltage	$V^+$	9.0	—	18	Vdc	
	Control Terminal Sink Current ( $e_{in} = 0$ )	$I_{cs}$	—	—	2.0	mAdc	
	Maximum Input Voltage	$e_{in}$	—	—	0.5	V(rms)	
	Voltage Gain	$A_V$	11	13	—	dB	
	Attenuation Range ( $R_C = 33 \text{ k ohms}$ )			70	90	—	dB
	Total Harmonic Distortion ( $e_{in} = 100 \text{ mV}$ , $e_o = 100 \text{ mV}$ )	THD	—	0.6	1.0	%	

FIGURE 2 - CIRCUIT SCHEMATIC



MFC6040 (continued)

TYPICAL ELECTRICAL CHARACTERISTICS  
 ( $V^+ = 16 \text{ Vdc}$ ,  $T_A = 25^\circ\text{C}$  unless otherwise noted)

FIGURE 3 – ATTENUATION versus DC CONTROL VOLTAGE

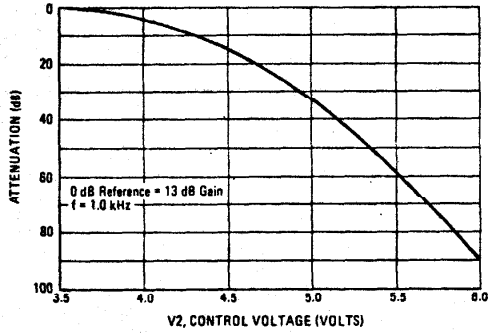


FIGURE 4 – ATTENUATION versus CONTROL RESISTOR

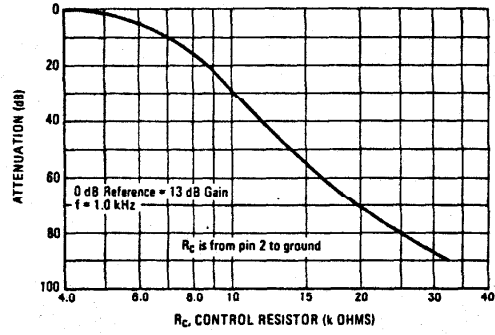


FIGURE 5 – FREQUENCY RESPONSE

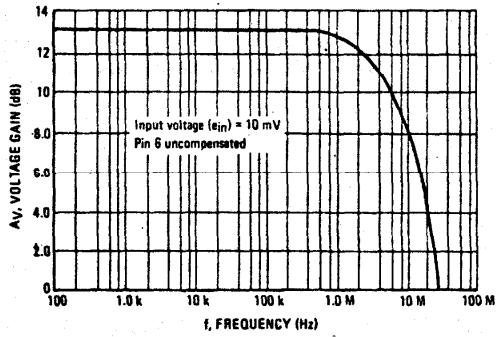


FIGURE 6 – OUTPUT VOLTAGE SWING

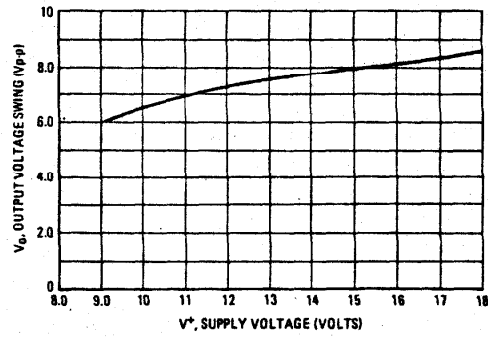
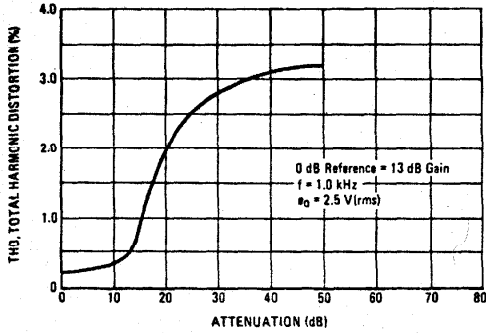
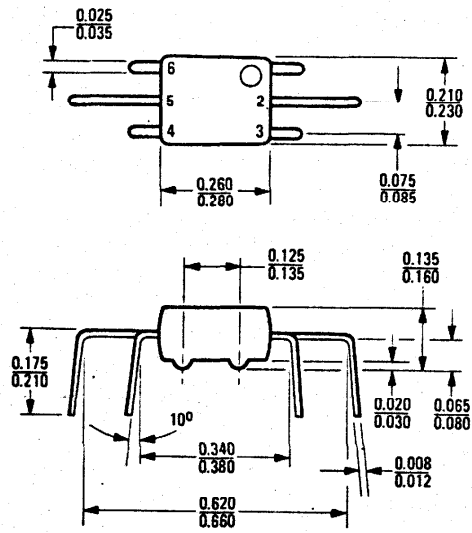


FIGURE 7 – TOTAL HARMONIC DISTORTION



MFC6040 (continued)

OUTLINE DIMENSIONS



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