MCC1741
MCC1741C

Advance Information

INTERNALLY COMPENSATED, HIGH PERFORMANCE MONOLITHIC OPERATIONAL AMPLIFIER CHIP

. . . designed for use as a summing amplifier, integrator, or amplifier with operating characteristics as a function of the external feedback components.

The MCC1741 and MCC1741C employ phosphorsilicate passivation that protects the entire die surface area, including metalization interconnects. All dice have a minimum gold-backed thickness of 4000 Angstroms. The interconnecting metalization and bonding pads are of evaporated aluminum.

- No Frequency Compensation Required
- Short-Circuit Protection
- Offset Voltage Null Capability
- Wide Common-Mode and Differential Voltage Ranges
- Low-Power Consumption
- No Latch Up

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

Rating	Symbol	Value		Unit
		MCC1741C	MCC1741	
Power Supply Voltage	V^+ V^-	+18 -18	+22 -22	Vdc Vdc
Differential Input Signal	V_{in}	±30		Volts
Common Mode Input Swing (Note 1)	CMV_{in}	±15		Volts
Output Short Circuit Duration (Note 2)	t_S	Continuous		
Operating Temperature Range	T_A	-55 to +125		°C
Junction Temperature Range	T_J	-65 to +150		°C

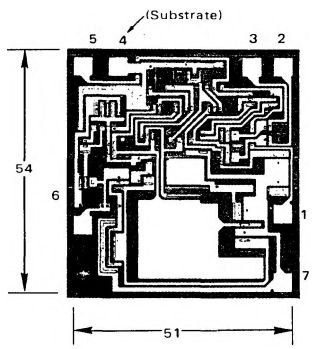
Note 1. For supply voltages less than ± 15 V, the absolute maximum input voltage is equal to the supply voltage.

Note 2. Supply voltage equal to or less than 15 V.

OPERATIONAL AMPLIFIER CHIP

MONOLITHIC SILICON
INTEGRATED CIRCUIT

OUTLINE DIMENSIONS and BONDING DIAGRAM



All dimensions are nominal and in mils (10^{-3} inches).
Die Dimensions
Thickness = 8.0
Bonding Pads = 4.0 x 4.0

FIGURE 1 – CIRCUIT SCHEMATIC

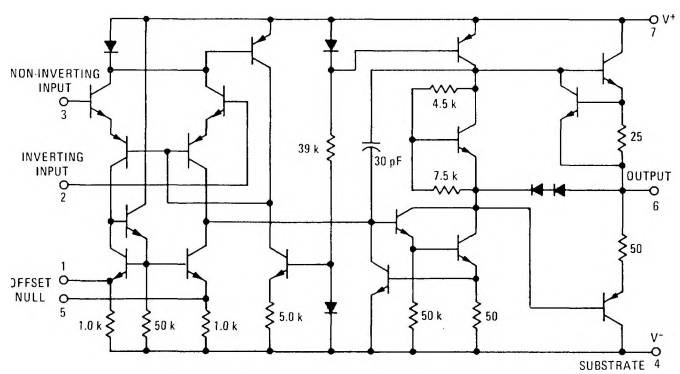
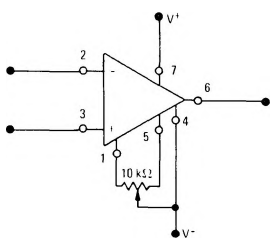


FIGURE 2 – OFFSET ADJUST CIRCUIT



This is advance information on a new introduction and specifications are subject to change without notice.

ELECTRICAL CHARACTERISTICS (V^+ = +15 Vdc, V^- = -15 Vdc, T_A = +25°C unless otherwise noted)

Characteristic	Symbol	MCC1741			MCC1741C			Unit
		Min	Typ	Max	Min	Typ	Max	
Open Loop Voltage Gain (R_L = 2.0 kΩ) (V_O = ± 10 V)	A_{VOL}	50,000	200,000	–	20,000	100,000	–	–
Output Impedance (f = 20 Hz)	Z_o	–	75	–	–	75	–	Ω
Input Impedance (f = 20 Hz)	Z_{in}	–	1.0	–	–	1.0	–	MegΩ
Output Voltage Swing (R_L = 10 kΩ) (R_L = 2.0 kΩ)	V_o	±12 ±10	±14 ±13	– –	±12 ±10	±14 ±13	– –	V_{peak}
Input Common-Mode Voltage Swing	CMV_{in}	–	±13	–	–	±13	–	V_{peak}
Common-Mode Rejection Ratio (f = 20 Hz)	CM_{rej}	–	90	–	–	90	–	dB
Input Bias Current	I_b	–	0.2	0.5	–	0.2	0.5	μA
Input Offset Current	$\|I_{io}\|$	–	0.03	0.2	–	0.03	0.2	μA
Input Offset Voltage (R_S = ≤ 10 kΩ)	$\|V_{io}\|$	–	1.0	5.0	–	2.0	6.0	mV
Step Response Gain = 100	t_r	–	29	–	–	29	–	μs
	t_{pd}	–	8.5	–	–	8.5	–	μs
	dV_{out}/dt ①	–	1.0	–	–	1.0	–	V/μs
Gain = 10	t_r	–	3.0	–	–	3.0	–	μs
	t_{pd}	–	1.0	–	–	1.0	–	μs
	dV_{out}/dt ①	–	1.0	–	–	1.0	–	V/μs
Gain = 1	t_r	–	0.6	–	–	0.6	–	μs
	t_{pd}	–	0.38	–	–	0.38	–	μs
	dV_{out}/dt ①	–	0.8	–	–	0.8	–	V/μs
Power Supply Current	I_D^+	–	1.67	2.83	–	1.67	2.83	mA
	I_D^-	–	1.67	2.83	–	1.67	2.83	
DC Quiescent Power Dissipation (Power Supply = ± 15 V, V_O = 0)	P_D	–	50	85	–	50	85	mW
Positive Supply Sensitivity (V^- constant)	S^+	–	30	150	–	30	150	μV/V
Negative Supply Sensitivity (V^+ constant)	S^-	–	30	150	–	30	150	μV/V

① dV_{out}/dt = Slew Rate See current MC1741/1741C data sheet for additional information.

PACKAGING AND HANDLING

The MCC1741/MCC1741C operational amplifier is now available as a single monolithic die or encapsulated in a variety of hermetic and plastic packages. The phosphorsilicate passivation protects the metalization and active area of the die but care must be exercised when removing the dice from the shipping carrier to avoid scratching the bonding pads. A vacuum pickup is useful for handling of dice. Tweezers are not recommended for this purpose.

The non-spill type shipping carrier consists of a compartmentalized tray and fitted cover. Die are placed in the carrier with geometry side up.