

**MCC1558**  
**MCC1458**

**Advance Information**

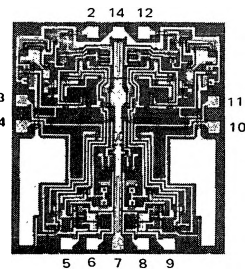
**DUAL MC1741**  
**INTERNALLY COMPENSATED, HIGH PERFORMANCE**  
**MONOLITHIC OPERATIONAL AMPLIFIER CHIP**

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

The MCC1558 and MCC1458 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
- Wide Common-Mode and Differential Voltage Ranges
- Low-Power Consumption
- No Latch Up

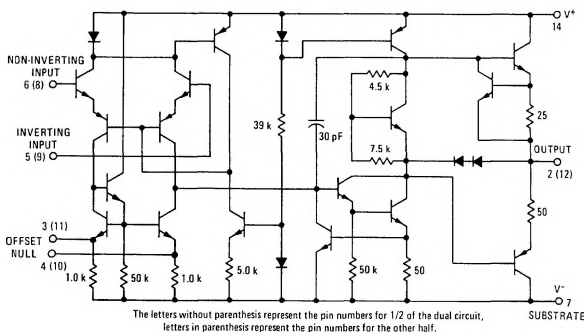
**(DUAL MC1741)**  
**DUAL**  
**OPERATIONAL AMPLIFIER CHIP**  
**INTEGRATED CIRCUIT**  
**MONOLITHIC SILICON**



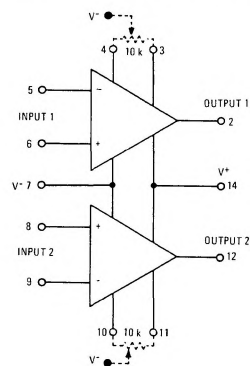
**MAXIMUM RATINGS** ( $T_A = +25^{\circ}\text{C}$  unless otherwise noted)

Rating	Symbol	MCC1558	MCC1458	Unit
Power Supply Voltage	$V^+$	+22	+18	Vdc
	$V^-$	-22	-18	
Differential Input Signal	$V_{in}$	$\pm 30$		Volts
Common-Mode Input Swing	$CMV_{in}$	$\pm 15$		Volts
Output Short Circuit Duration	$t_S$	Continuous		
Operating Temperature Range	$T_A$	-55 to +125		$^{\circ}\text{C}$
Junction Temperature Range	$T_J$	-65 to +150		$^{\circ}\text{C}$

**FIGURE 1 – CIRCUIT SCHEMATIC**



**FIGURE 2 – OFFSET ADJUST**



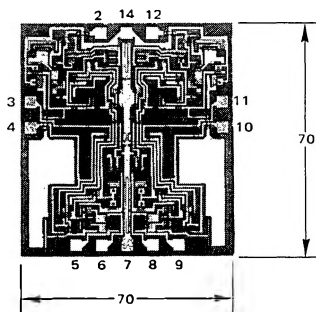
# MCC1558, MCC1458 (continued)

**ELECTRICAL CHARACTERISTICS** ( $V^+ = +15$  Vdc,  $V^- = -15$  Vdc,  $T_A = +25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	MCC1558			MCC1458			Unit
		Min	Typ	Max	Min	Typ	Max	
Input Bias Current	$I_b$	—	0.2	0.5	—	0.2	0.5	$\mu\text{Adc}$
Input Offset Current	$ I_{IO} $	—	0.03	0.2	—	0.03	0.2	$\mu\text{Adc}$
Input Offset Voltage ( $R_S \leq 10$ k ohms)	$ V_{IO} $	—	1.0	5.0	—	2.0	6.0	mVdc
Differential Input Impedance (Open Loop, $f = 20$ Hz)								
Parallel Input Resistance	$R_p$	—	1.0	—	—	1.0	—	Megohm
Parallel Input Capacitance	$C_p$	—	6.0	—	—	6.0	—	pF
Common-Mode Input Impedance ( $f = 20$ Hz)	$Z_{i(in)}$	—	200	—	—	200	—	Megohms
Common-Mode Input Voltage Swing	$CMV_{in}$	—	$\pm 13$	—	—	$\pm 13$	—	Vpk
Common-Mode Rejection Ratio ( $f = 100$ Hz)	$CM_{rej}$	—	90	—	—	90	—	dB
Open-Loop Voltage Gain ( $V_O = \pm 10$ V, $R_L = 2.0$ k ohms)	$A_{VOL}$	50,000	200,000	—	20,000	100,000	—	V/V
Power Bandwidth ( $A_V = 1$ , $R_L = 2.0$ k ohms, THD $\leq 5\%$ , $V_O = 20 V_{p-p}$ )	PBW	—	14	—	—	14	—	kHz
Unity Gain Crossover Frequency (open-loop)		—	1.1	—	—	1.1	—	MHz
Phase Margin (open-loop, unity gain)		—	65	—	—	65	—	degrees
Gain Margin		—	11	—	—	11	—	dB
Slew Rate (Unity Gain)	$dV_{out}/dt$	—	0.8	—	—	0.8	—	V/ $\mu\text{s}$
Output Impedance ( $f = 20$ Hz)	$Z_{out}$	—	75	—	—	75	—	ohms
Short-Circuit Output Current	$I_{SC}$	—	20	—	—	20	—	mAdc
Output Voltage Swing ( $R_L = 10$ k ohms)	$V_O$	$\pm 12$	$\pm 14$	—	$\pm 12$	$\pm 14$	—	Vpk
Power Supply Sensitivity $V^- = \text{constant}$ , $R_S \leq 10$ k ohms	$S^+$	—	30	150	—	30	150	$\mu\text{V/V}$
$V^+ = \text{constant}$ , $R_S \leq 10$ k ohms	$S^-$	—	30	150	—	30	150	$\mu\text{V/V}$
Power Supply Current	$I_{D^+}$	—	2.3	5.0	—	2.3	5.6	mAdc
	$I_{D^-}$	—	2.3	5.0	—	2.3	5.6	mAdc
DC Quiescent Power Dissipation ( $V_O = 0$ )	$P_D$	—	70	150	—	70	170	mW

See current MCC1558/MCC1458 data sheet for additional information

## MCC1558/MCC1458 BONDING DIAGRAM



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

## PACKAGING AND HANDLING

The MCC1558/MCC1458 dual operational amplifiers are now available as a single monolithic die or encapsulated in a variety of hermetic and plastic packages. The phosphosilicate 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 the 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.