FEATURES

- **Dual PM-741 Internally-Compensated Operational Amplifier**
- **Internal Frequency Compensation**
- **Low Power Consumption**
- **Continuous Short-Circuit Protection**
- **Silicon-Nitride Passivation**

GENERAL DESCRIPTION

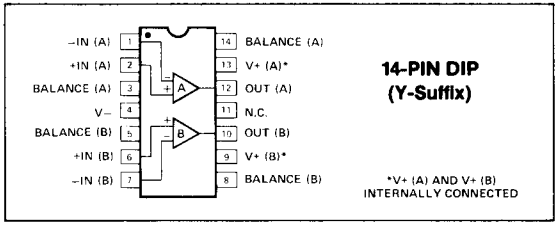
The PMI series of internally-compensated operational amplifiers provides industry-standard 747 specifications. In addition, Precision Monolithics' exclusive Silicon-Nitride "Triple Passivation" process provides maximum reliability and long-term stability of parameters for lowest overall system operating cost.

ORDERING INFORMATION†

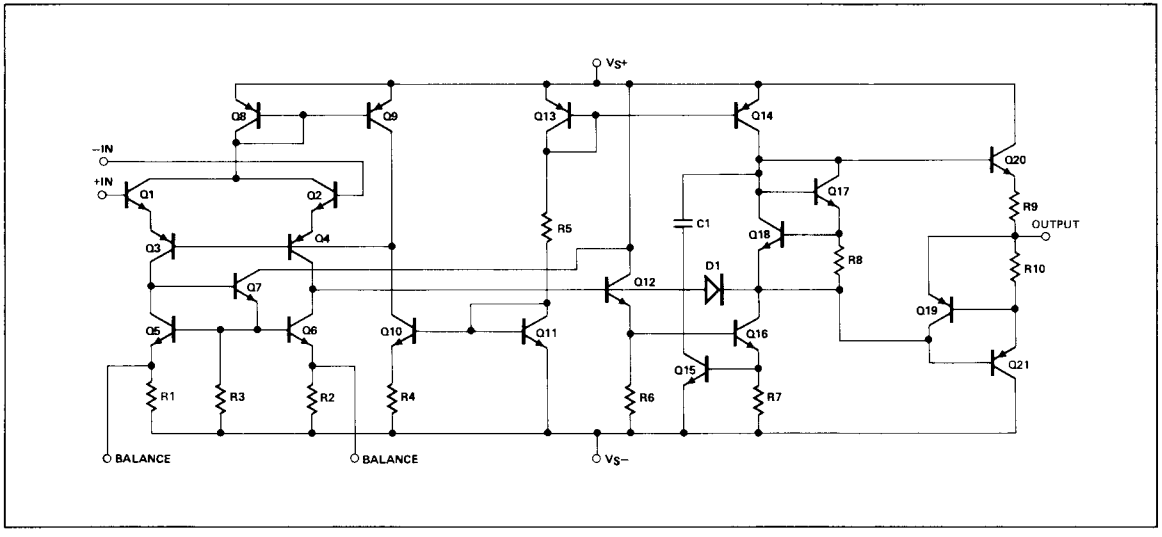
T_A = 25°C V_{OS} MAX (mV)	PACKAGE HERMETIC DIP 14-PIN	OPERATING TEMPERATURE RANGE
5.0	PM747Y	MIL
6.0	PM747CY	COM

† Burn-in is available on commercial and industrial temperature range parts in CerDIP, plastic DIP, and TO-can packages. For ordering information, see PMI's Data Book, Section 2.

PIN CONNECTIONS



SIMPLIFIED SCHEMATIC (1/2 of Circuit Shown)



5

OPERATIONAL AMPLIFIERS/BUFFERS

ABSOLUTE MAXIMUM RATINGS (Note 1)

Supply Voltage
- PM-747 ..... ±22V
- PM-747C ..... ±18V

Differential Input Voltage ..... ±30V
Input Voltage ..... Supply Voltage
Output Short-Circuit Voltage ..... Indefinite
Storage Temperature Range ..... –65°C to +150°C
Lead Temperature Range(Soldering, 60 sec) ..... +300°C
Operating Temperature Range
- PM-747 ..... –55°C to +125°C
- PM-747C ..... 0°C to +70°C

PACKAGE TYPE	Θ_{JA} (Note 1)	Θ_{JC}	UNITS
14-Pin Hermetic DIP (Y)	108	16	°C/W

NOTES:
1. Θ_{JA} is specified for worst case mounting conditions, i.e., Θ_{JA} is specified for device in socket for CerDIP package.

ELECTRICAL CHARACTERISTICS at $T_A = 25°C$, $V_S = \pm 15V$, unless otherwise noted.

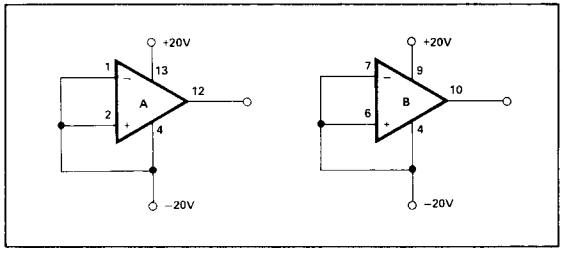
			PM-747			PM-747C			
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Input Offset Voltage	V_{OS}	$R_S \le 20k\Omega$	—	1.0	5.0	—	1.0	6.0	mV
Input Offset Current	I_{OS}		—	20	200	—	20	200	nA
Input Bias Current	I_B		—	80	500	—	80	500	nA
Input Resistance	R_{IN}	(Note 1)	0.22	2.0	—	0.3	2.0	—	MΩ
Input Capacitance	C_{IN}		—	1.4	—	—	1.4	—	pF
Offset Voltage Adjustment Range			—	±15	—	—	±15	—	mV
Large-Signal Voltage Gain	A_{VO}	$R_L \ge 2k\Omega$, $V_O = \pm 10V$	50	200	—	25	200	—	V/mV
Output Voltage Swing	V_O	$R_L \ge 10k\Omega$ $R_L \ge 2k\Omega$	±12 ±10	±14 ±13	— —	±12 ±10	±14 ±13	— —	V
Output Resistance	R_O		—	75	—	—	75	—	Ω
Output Short-Circuit Current	I_{SC}		—	25	—	—	25	—	mA
Supply Current	I_{SY}	Per Amplifier, No Load	—	1.7	2.8	—	1.7	2.8	mA
Input Voltage Range	IVR		±12	±13	—	±12	±13	—	V
Common-Mode Rejection Ratio	CMRR	$R_S \le 20k\Omega$, $V_{CM} = \pm 10V$	70	90	—	70	90	—	dB
Power Supply Rejection Ratio	PSRR	$V_S = \pm 5V$ to $\pm 20V$ $V_S = \pm 5V$ to $\pm 18V$	— —	30 —	150 —	— —	— 30	— 150	μV/V
Power Consumption	P_d	Per Amplifier, No Load	—	50	85	—	50	85	mW
Transient Response, Unity Gain	Risetime Overshoot	$V_{IN} = 20mV$, $R_L = 2k\Omega$ $C_L \le 100pF$	— —	0.3 5	— —	— —	0.3 5	— —	μs %
Slew Rate	SR	$R_L \ge 2k\Omega$	—	0.7	—	—	0.7	—	V/μs
Channel Separation	CS		—	120	—	—	120	—	dB

NOTE:
1. Guaranteed by input bias current.

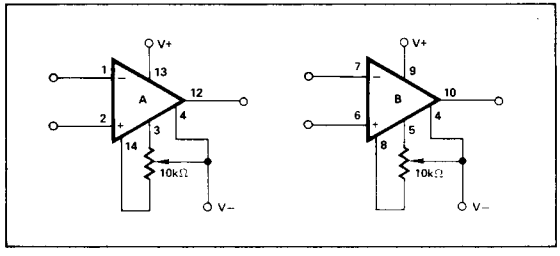
ELECTRICAL CHARACTERISTICS at $V_S = \pm 15V$, $-55°C \leq T_A \leq +125°C$ for PM-747, $0°C \leq T_A \leq +70°C$ for PM-747C, unless otherwise noted.

PARAMETER	SYMBOL	CONDITIONS	PM-747 MIN	PM-747 TYP	PM-747 MAX	PM-747C MIN	PM-747C TYP	PM-747C MAX	UNITS
Input Offset Voltage	V_{OS}	$R_S \leq 20k\Omega$	—	1.0	6.0	—	1.0	7.5	mV
Input Offset Current	I_{OS}	T_A = MAX	—	7	200	—	7	200	nA
		T_A = MIN	—	85	500	—	30	300	
Input Bias Current	I_B	T_A = MAX	—	0.03	0.5	—	0.03	0.5	μA
		T_A = MIN	—	0.3	1.5	—	0.10	0.8	
Output Voltage Swing	V_O	$R_L \geq 10k\Omega$	±12	±14	—	±12	±14	—	V
		$R_L \geq 2k\Omega$	±10	±13	—	±10	±13	—	
Large-Signal Voltage Gain	A_{VO}	$R_L \geq 2k\Omega$, $V_O = \pm 10V$	25	50	—	15	25	—	V/mV
Input Voltage Range	IVR		±12	±13	—	±12	±13	—	V
Common-Mode Rejection Ratio	CMRR	$R_S \leq 20k\Omega$, $V_{CM} = \pm 10V$	70	90	—	70	90	—	dB
Power Supply Rejection Ratio	PSRR	$R_S \leq 20k\Omega$ $V_S = \pm 5V$ to $\pm 20V$	—	30	150	—	—	—	μV/V
		$R_S \leq 20k\Omega$ $V_S = \pm 5V$ to $\pm 18V$	—	—	—	—	30	150	
Supply Current	I_{SY}	T_A = MAX Per Amplifier,	—	1.5	2.5	—	1.5	2.5	mA
		T_A = MIN No Load	—	2.0	3.3	—	2.0	3.3	
Power Consumption	P_d	T_A = MAX Per Amplifier,	—	45	75	—	45	75	mW
		T_A = MIN No Load	—	60	100	—	60	100	
Channel Separation	CS		—	120	—	—	120	—	dB

BURN-IN CIRCUIT



TYPICAL OFFSET NULLING CIRCUIT



TYPICAL APPLICATION

HIGH IMPEDANCE DIFFERENTIAL AMPLIFIER