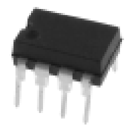
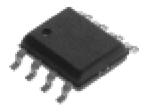
General Description

The LM741 series are general purpose operational amplifies which feature improved performance over industry standards like the LM709.They are e direct, plug-in replacements for the 709C, LM201, MC1439 and 748 in most applications. The amplifiers offer many features which make their applica tion nearly foolproof: overload protection on the input and output, no latch-up when the common mode range is ex ceeded, as well as freedom from oscillations.



DIP-8



SOP-8

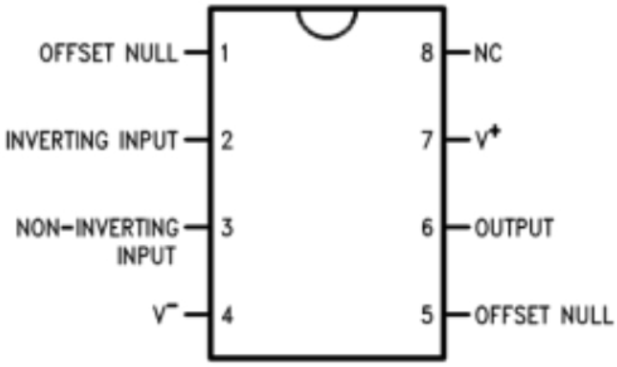
MSOP-8

Ordering Information

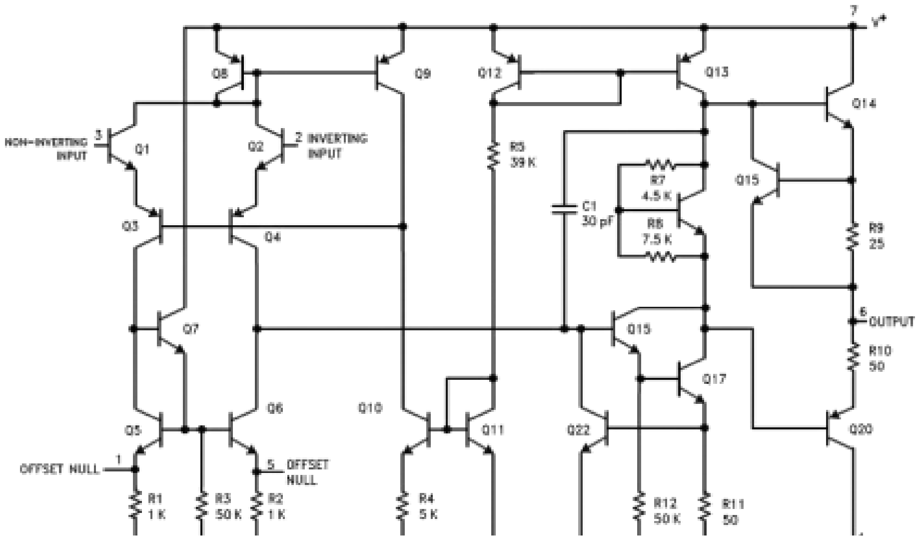
DEVICE	Package Type	MARKING	Packing	Packing Qty
LM741N	DIP-8	LM741	TUBE	2000pcs/Box
LM741AN	DIP-8	LM741A	TUBE	2000pcs/Box
LM741M/TR	SOP-8	LM741	REEL	2500pcs/Reel
LM741AM/TR	SOP-8	LM741A	REEL	2500pcs/Reel
LM741MM/TR	MSOP-8	LM741	REEL	3000pcs/Reel
LM741AMM/TR	MSOP-8	LM741A	REEL	3000pcs/Reel

Connection Diagram

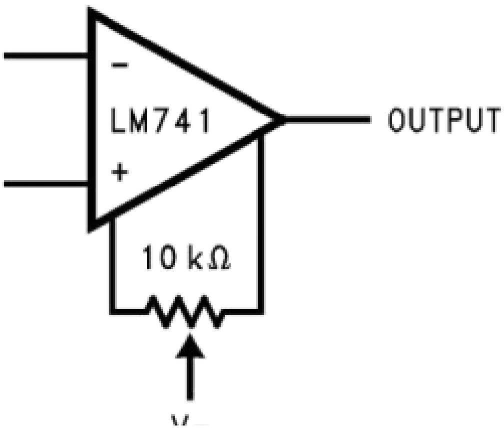
DIP-8/SOP-8/MSOP-8



Schematic Diagram



Offset Nulling Circuit



Absolute Maximum Ratings [1]

CONDITION	LIMITS
Supply Voltage	±18V
Power Dissipation(Note2)	500mW
Differential Input Voltage	±30V
Input Voltage(Note3)	±15V
Output Sort Circuit Duration	Continuous
Operating Temperature Range	0˚C to +70˚C
Junction Temperature	150˚C
Soldering Information (10 seconds)	245˚C
Storage Temperature Range	-65˚C to +150˚C
ESD Tolerance	400V

Note1:"Absolute Maximum Ratings"indicate limits beyond which damage to the device may occur.Operating Ratings indicate conditions for which the device is functional,but do not guarantee specific performance limits.
Note 2: For operation at elevated temperatures, these devices must be derated based on thermal resistance, and Tj max. (listed under "Absolute Maximum Ratings"). Tj = TA +(θjA PD).
Note 3: For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

Thermal Resistance	DIP(N)	SOP-8(M)
θ_{jA}(Junction to Ambient)	100˚C/W	195˚C/W
θ_{jC}(Junction to Case)	N/A	N/A

Electrical Characteristics

Parameter	Conditions	LM741A			LM741			Units
		Min	Typ	Max	Min	Typ	Max	
Input Offset Voltage	T_A=25°C							
	R_S≤10KΩ					1.0	5.0	mW
	R_S≤50Ω		0.8	3.0				mW
	T_{AMIN}≤TA≤T_{AMAX}							
	R_S≤50Ω			4.0				mW
	R_S≤10KΩ						6.0	mW
Average Input Offset Voltage Drift				15				μv/°C
Input Offset Voltage Adjustment Range	T_A=25°C,V_S=±18V	±10				±15		mW
Input Offset Current	T_A=25°C		3.0	30		20	200	nA
	T_{AMIN}≤TA≤T_{AMAX}			70		85	500	nA
Average Input Offset Current Drift				0.5				nA/°C
Input Bias Current	T_A=25°C		30	80		80	500	nA
	T_{AMIN}≤TA≤T_{AMAX}			0.21			1.5	μA
Input Resistance	T_A=25°C,V_S=±18V	1.0	6.0		0.3	2.0		MΩ
	T_{AMIN}≤TA≤T_{AMAX}, V_S= ±18V	0.5						MΩ
Input Voltage Range	T_A=25°C							V
	T_{AMIN}≤TA≤T_{AMAX}				±12	±13		V
Large Signal Voltage Gain	T_A=25°C,R_L≥2KΩ							
	V_S=±18V,V_O=±15V	50						V/mW
	V_S=±15V,V_O=±10V				50	200		V/mW
	T_{AMIN}≤TA≤T_{AMAX}							
	R_L≥2KΩ							
	V_S=±18V,V_O=±15V	32						V/mW
	V_S=±15V,V_O=±10V				25			V/mW
	V_S=±5V,V_O=±2V	10						V/mW
Output Voltage Swing	V_S=±18V							
	R_L≥10KΩ	±16						V
	R_L≥2KΩ	±15						V
	V_S=±15V							
	R_L≥10KΩ				±12	±14		V
	R_L≥2KΩ				±10	±13		V
Output Short Circuit Current	T_A=25°C	10	25	35		25		mA
	T_{AMIN}≤TA≤T_{AMAX}	10		40				mA

Common-Mode Rejection Ratio	$T_{AMIN} \le T_A \le T_{AMAX}$ $R_S \le 10K\Omega, V_{CM} = \pm 12V$ $R_S \le 50\Omega, V_{CM} = \pm 12V$	80	95	0.5	70	90		dB dB
Supply Voltage Rejection Ratio	$T_{AMIN} \le T_A \le T_{AMAX}$ Vs= ±18VtoVS=±5V $R_S \le 50\Omega$ $R_S \le 10K\Omega$	86	96		77	96		dB dB
Transient Response Rise Time Overshoot	T_A=25。C,Unity Gain		0.25 6.0	0.8 20		0.3 5		μs %
Bandwidth(Note5)	T_A=25。C	0.437	1.5					MHz
Slew Rate	T_A=25。C,Unity Gain	0.3	0.7			0.5		V/μs
Supply Current	T_A=25。C					1.7	2.8	mA
Power Consumption	T_A=25。C V_S=±18V V_S=±15V		80	150		50	85	mw mw

Note 4: Calculated value from: BW (MHz) = 0.35/Rise Time(μs).

Note 5: Human body model, 1.5 kΩ in series with 100 pF.

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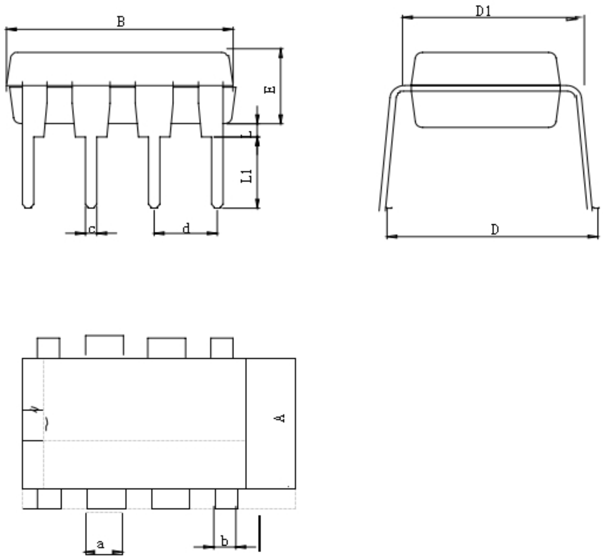
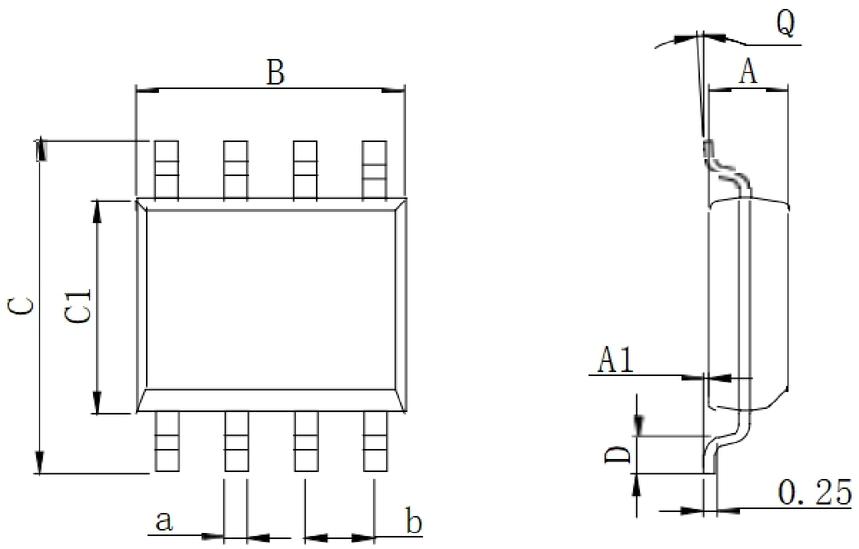
Physical Dimensions

DIP-8



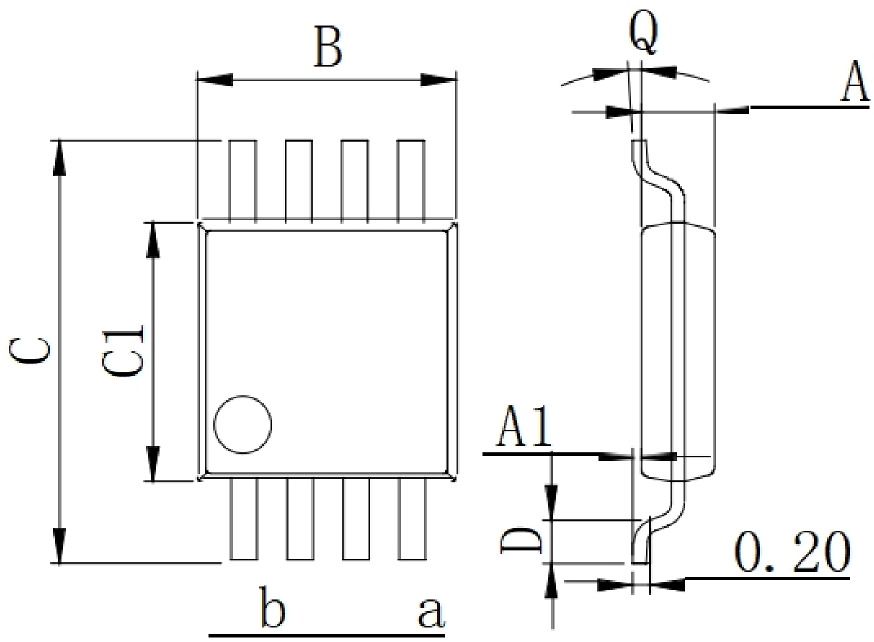
Dimensions In Millimeters(DIP-8)											
Symbol :	A	B	D	D1	E	L	L1	a	b	c	d
Min :	6.10	9.00	8.10	7.42	3.10	0.50	3.00	1.50	0.85	0.40	2.54 BSC
Max :	6.68	9.50	10.9	7.82	3.55	0.70	3.60	1.55	0.90	0.50	

SOP-8



Dimensions In Millimeters(SOP-8)									
Symbol :	A	A1	B	C	C1	D	Q	a	b
Min :	1.35	0.05	4.90	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max :	1.55	0.20	5.10	6.20	4.00	0.80	8°	0.45	

MSOP-8



Dimensions In Millimeters(MSOP-8)									
Symbol :	A	A1	B	C	C1	D	Q	a	b
Min :	0.80	0.05	2.90	4.75	2.90	0.35	0°	0.25	0.65 BSC
Max :	0.90	0.20	3.10	5.05	3.10	0.75	8°	0.35	

Revision History

DATE	REVISION	PAGE
2021-7-8	New	1-9
2023-9-1	Update encapsulation type、Update Lead Temperature、Updated DIP-8 dimension、Add annotation for Maximum Ratings.	1、3、5
2023-10-13	Document Reformatting	1-9