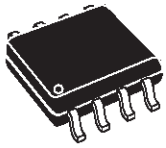
TS461

HIGH OUTPUT SWING SINGLE OPERATIONAL AMPLIFIER

PRODUCT PREVIEW

- HIGH DYNAMIC FEATURES
- LARGE OUTPUT SWING (±2.4V @V_{CC} = ±2.5V)
- LOW NOISE LEVEL : **4nV/√Hz**
- LOW DISTORTION : **0.003%**
- OPERATING RANGE : 2.7V to 10V

- AVAILABLE IN **SOT23-5** MICROPACKAGE



D
SO8
(Plastic Micropackage)

L
SOT-23L
(Plastic Micropackage)

DESCRIPTION

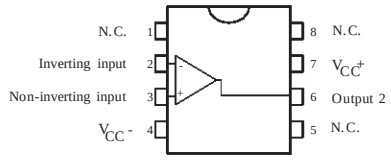
The TS461 is a single operational amplifier able to operate with voltages as low as ±1.35V and to reach a minimum of ±2Vpp of output swing (when supplied with ±2.5V).
It is housed in the space-saving 5 pins SOT23-5 package which simplifies the board design because of the ability to be placed everywhere (outside dimensions are 2.8mm x 2.9mm)

ORDER CODES

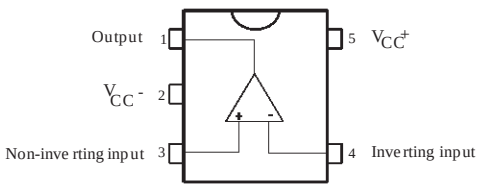
Part Number	Temperature Range	Package		SOT Marking
		D	L	
TS461C	-20, +70°C	•	•	K105

PIN CONNECTIONS (top view)

SO8



SOT-23L



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	12	V
V_{id}	Differential Input Voltage - note 1	$\pm V_{CC}$	V
T_{oper}	Operating Free Air Temperature Range	-20 to +70	^oC
T_{stg}	Storage Temperature	-65 to +150	^oC
T_j	Maximum Junction Temperature	150	^oC
R_{thjc}	Thermal Resistance Junction to Case	81	$^oC/W$
R_{thja}	Thermal Resistance Junction to Ambient	256	$^oC/W$

Note : 1. Either or both input voltages must not exceed the magnitude of V_{CC}^+ or V_{CC}^-

OPERATING CONDITIONS

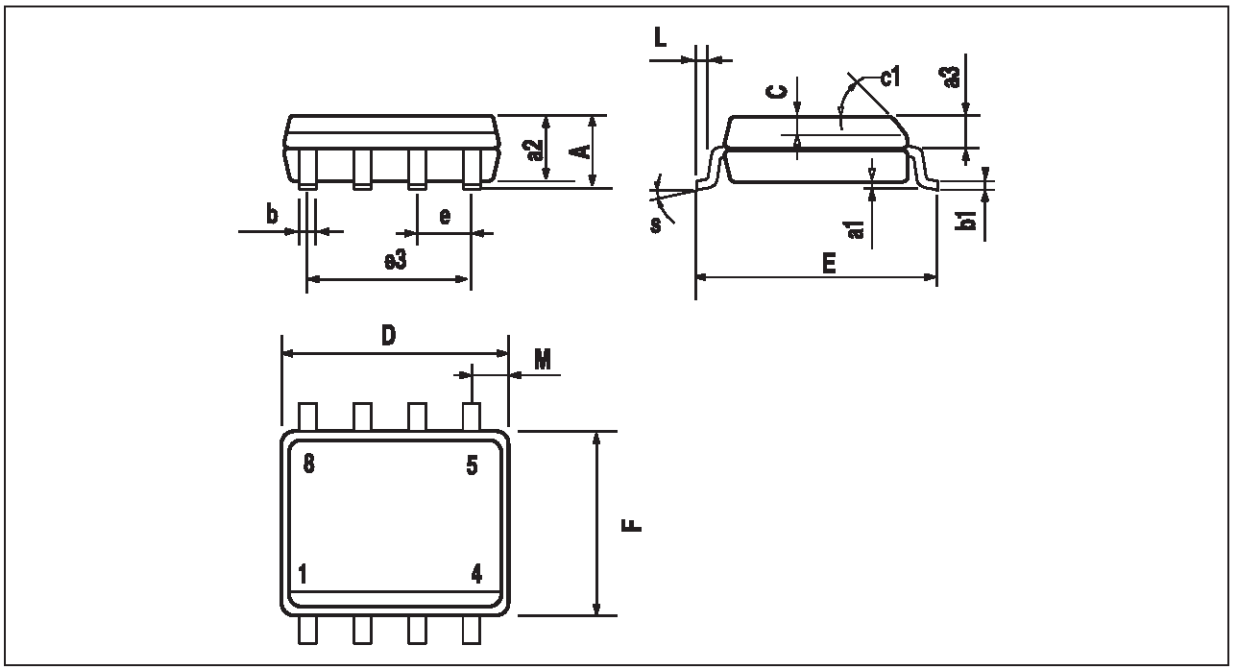
Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	2.7 to 10	V

ELECTRICAL CHARACTERISTICS

$V_{CC}^+ = 2.5V$, $V_{CC}^- = -2.5V$, $T_{amb} = 25^oC$ (unless otherwise specified)

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_{io}	Input Offset Voltage $T_{min.} < T_{amb} < T_{max.}$			1	5 7	mV
DV_{io}	Input Offset Voltage Drift $V_{ic} = 0V$, $V_o = 0V$			5		$\mu V/^oC$
I_{io}	Input Offset Current $T_{min.} < T_{amb} < T_{max.}$ $V_{ic} = 0V$, $V_o = 0V$			10	150 T.B.D.	nA
I_{ib}	Input Bias Current $T_{min.} < T_{amb} < T_{max.}$ $V_{ic} = 0V$, $V_o = 0V$			250	750 T.B.D.	nA
V_{icm}	Common Mode Input Voltage Range			± 1.5		V
CMR	Common Mode Rejection Ratio $V_{ic} = \pm 1.35V$		60	85		dB
SVR	Supply Voltage Rejection Ratio $V_{CC} = \pm 2V$ to $\pm 3V$		60	70		dB
V_{oh}	High Level Output Voltage	$R_L = 2k$	2	2.4		V
V_{ol}	Low Level Output Voltage	$R_L = 2k$		-2.4	-2	V
A_{vd}	Large Signal Voltage Gain	$R_L = 2k$	70	80		dB
GBP	Gain Bandwidth Product f = 100kHz, $R_L = 2k\Omega$, $C_L = 100pF$		8.5	12		MHz
SR	Slew Rate $A_V = 1$, $V_{in} = \pm 1V$		2.8	4		V/µs
I_{CC}	Supply Current Unity gain - no load			2	2.8	mA
e_n	Equivalent Input Noise Voltage f = 100kHz			4		$\frac{nV}{\sqrt{Hz}}$
THD	Total Harmonic Distortion f = 1kHz, $A_V = -1$, $R_L = 10k$			0.003		%

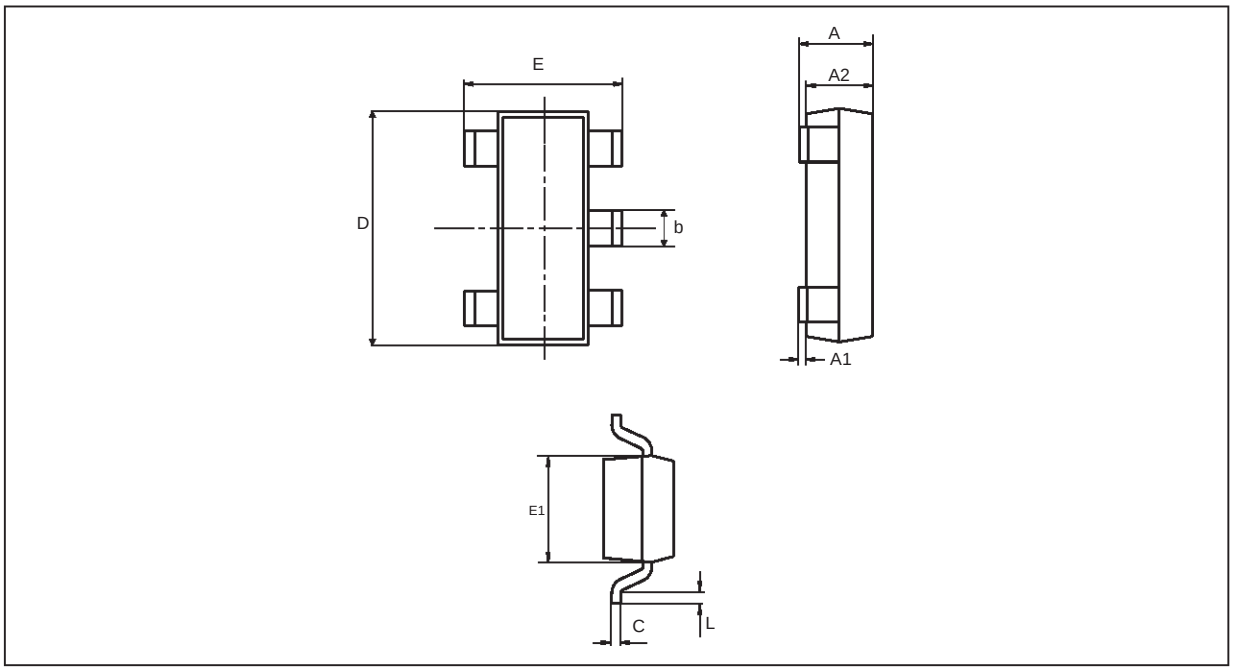
PACKAGE MECHANICAL DATA
8 PINS - PLASTIC MICROPACKAGE (SO)



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max.)					

PACKAGE MECHANICAL DATA

5 PINS -TINY PACKAGE (SOT23)



Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.45	0.034	0.057
A1	0	0.15		0.006
A2	0.90	1.30	0.034	0.051
b	0.35	0.50	0.013	0.020
C	0.09	0.20	0.003	0.008
D	2.80	3.00	0.110	0.118
E	2.60	3.00	0.102	0.118
E1	1.50	1.75	0.059	0.069
L	0.10	0.60	0.003	0.024