



TJM4558

WIDE BANDWIDTH DUAL BIPOLAR OPERATIONAL AMPLIFIERS

- INTERNALLY COMPENSATED
- SHORT-CIRCUIT PROTECTION
- GAIN AND PHASE MATCH BETWEEN AMPLIFIER
- LOW POWER CONSUMPTION
- PIN TO PIN COMPATIBLE WITH MC1458/LM358
- GAIN BANDWIDTH PRODUCT (at 100kHz) 5.5MHz

DESCRIPTION

The TJM4558 is a high performance monolithic dual operational amplifier.

The circuit combines all the outstanding features of the MC1458 and, in addition possesses three times the unity gain bandwidth of the industry standard.

ORDER CODE

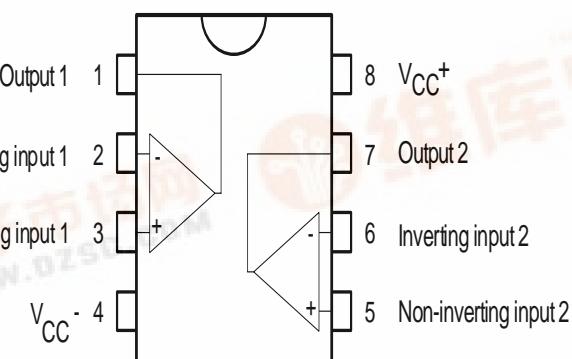
Part Number	Temperature Range	Package		
		N	D	P
TJM4558C	0°C, +70°C	•	•	•
TJM4558I	-40°C, +105°C	•	•	•
Example : TJM4558CN				

N = Dual in Line Package (DIP)

D = Small Outline Package (SO) - also available in Tape & Reel (DT)

P = Thin Shrink Small Outline Package (TSSOP) - only available in Tape & Reel (PT)

PIN CONNECTIONS (top view)



N
DIP8
(Plastic Package)



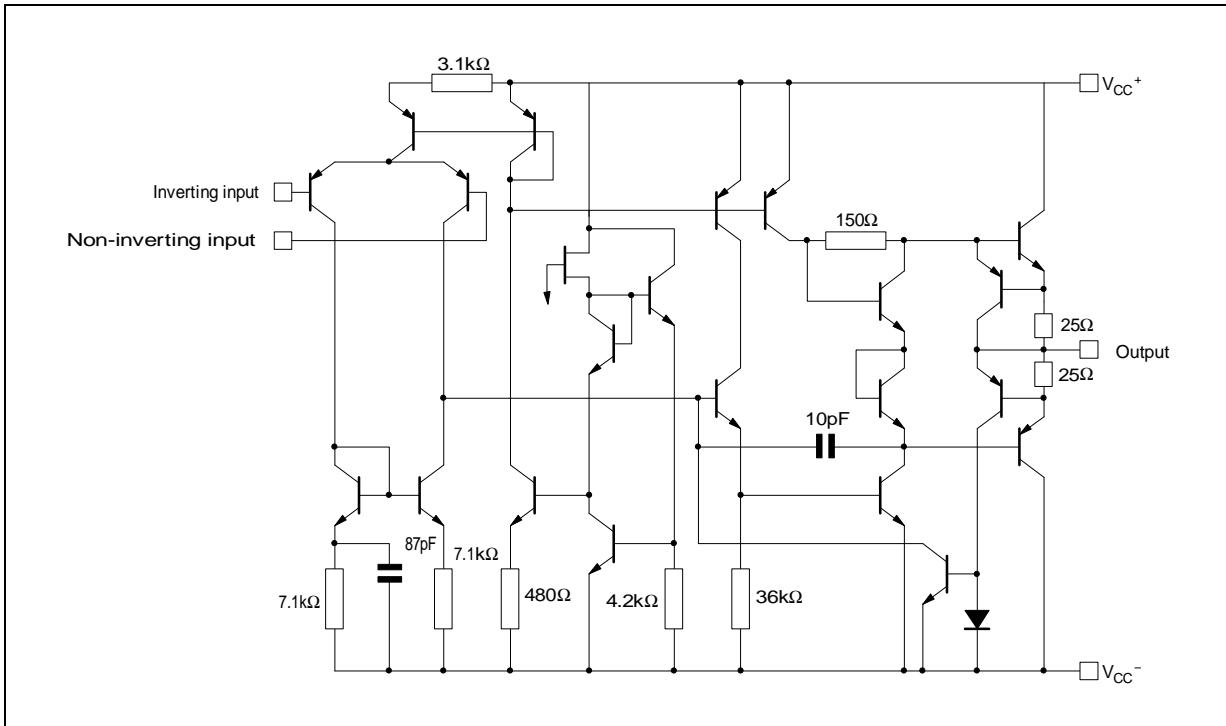
D
SO8
(Plastic Micropackage)



P
TSSOP8
(Thin Shrink Small Outline Package)

TJM4558

SCHEMATIC DIAGRAM (1/2 TJM4558)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	TJM4558I	TJM4558C	Unit
V _{CC}	Supply Voltage	±22		V
V _i	Input Voltage	±15		V
V _{id}	Differential Input Voltage	±30		V
P _{tot}	Power Dissipation	680		mW
	Output Short Circuit Duration	Infinite		
T _{oper}	Operating Free-Air Temperature Range	-40 to +105	0 to +70	°C
T _{stg}	Storage Temperature	-65 to +150		°C

ELECTRICAL CHARACTERISTICS

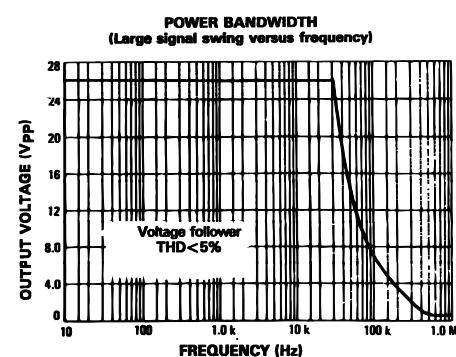
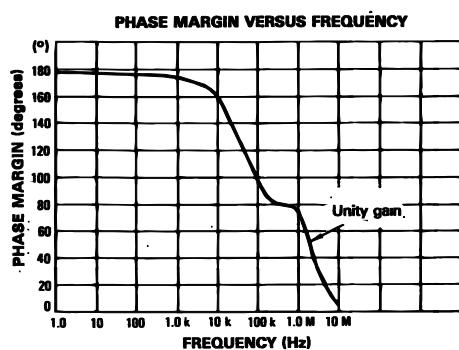
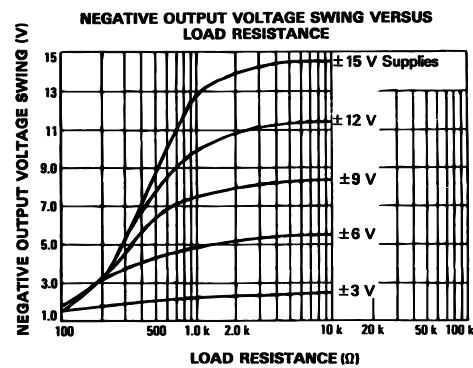
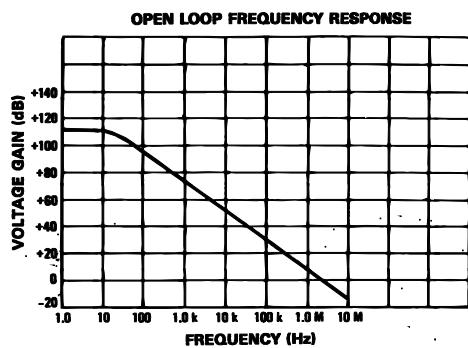
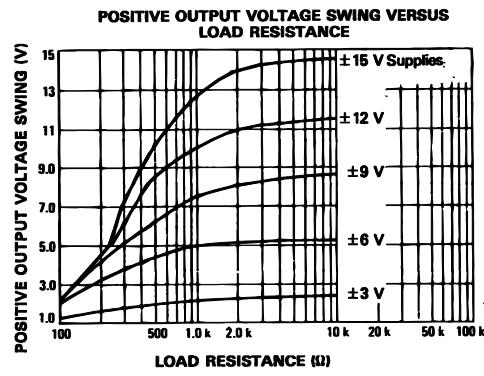
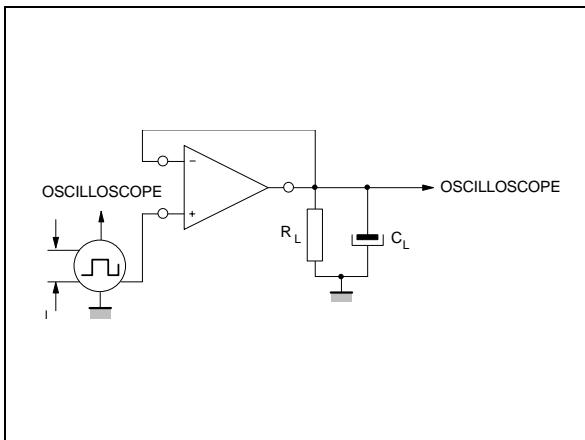
V_{CC} = ±15V, T_{amb} = 25°C (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V _{io}	Input Offset Voltage (R _s ≤ 10kΩ) T _{amb} = +25°C T _{min} ≤ T _{amb} ≤ T _{max} .		1 6	5	mV
I _{io}	Input Offset Current T _{amb} = +25°C T _{min} ≤ T _{amb} ≤ T _{max} .		20 40	100	nA
I _{ib}	Input Bias Current T _{amb} = +25°C T _{min} ≤ T _{amb} ≤ T _{max} .		50 100	400	nA
A _{vd}	Large Signal Voltage Gain (R _L = 2kΩ, V _o = ±10V) T _{amb} = +25°C T _{min} ≤ T _{amb} ≤ T _{max} .	50 25	200		V/mV

Symbol	Parameter	Min.	Typ.	Max.	Unit
SVR	Supply Voltage Rejection Ratio ($R_s \leq 10k\Omega$ $T_{amb} = +25^\circ C$ $T_{min} \leq T_{amb} \leq T_{max}$)		90 77		dB
I _{CC}	Supply Current, all amplifiers, no load $T_{amb} = +25^\circ C$ $T_{min} \leq T_{amb} \leq T_{max}$		2.3 4	4.5	mA
V _{ICM}	Input Common Mode Voltage Range $T_{amb} = +25^\circ C$ $T_{min} \leq T_{amb} \leq T_{max}$	± 12 ± 12			V
CMR	Common-mode Rejection Ratio ($R_s \leq 10k\Omega$ $T_{amb} = +25^\circ C$ $T_{min} \leq T_{amb} \leq T_{max}$)		90 70		dB
I _{OS}	Output Short Circuit Current	10	20		mA
V _O	Output Voltage Swing $T_{amb} = +25^\circ C$ $R_L = 10k\Omega$ $R_L = 2k\Omega$ $T_{min} \leq T_{amb} \leq T_{max}$ $R_L = 10k\Omega$ $R_L = 2k\Omega$	± 12 ± 10 ± 12 ± 10	± 14 ± 13		V
SR	Slew Rate ($V_i = \pm 10$, $R_L = 2k\Omega$, $C_L = 100pF$, $T_{amb} = 25^\circ C$, unity gain)		2.2		V/ μ s
t _r	Rise Time ($V_i = \pm 20mV$, $R_L = 2k\Omega$, $C_L = 100pF$, $T_{amb} = 25^\circ C$, unity gain)		0.3		μ s
K _{OV}	Overshoot ($V_i = \pm 20mV$, $R_L = 2k\Omega$, $C_L = 100pF$, $T_{amb} = 25^\circ C$, unity gain)		15		%
R _i	Input Resistance	0.3	2		M Ω
C _i	Input Capacitance		1.4		pF
R _o	Output Resistance		75		Ω
B	Unity Gain Bandwidth		2.8		MHz
GBP	Gain Bandwidth Product ($V_i = 10mV$, $R_L = 2k\Omega$, $C_L = 100pF$, $f = 100kHz$, $T_{amb} = 25^\circ C$)		5.5		MHz
THD	Total Harmonic Distortion ($f = 1kHz$, $A_v = 20dB$, $R_L = 2k\Omega$, $V_o = 2V_{pp}$, $C_L = 100pF$, $T_{amb} = 25^\circ C$)		0.008		%
e _n	Equivalent Input Noise Voltage ($R_S = 100\Omega$, $f = 1kHz$)		12		$\frac{nV}{\sqrt{Hz}}$
V _{O1} /V _{O2}	Channel Separation		120		dB

TJM4558

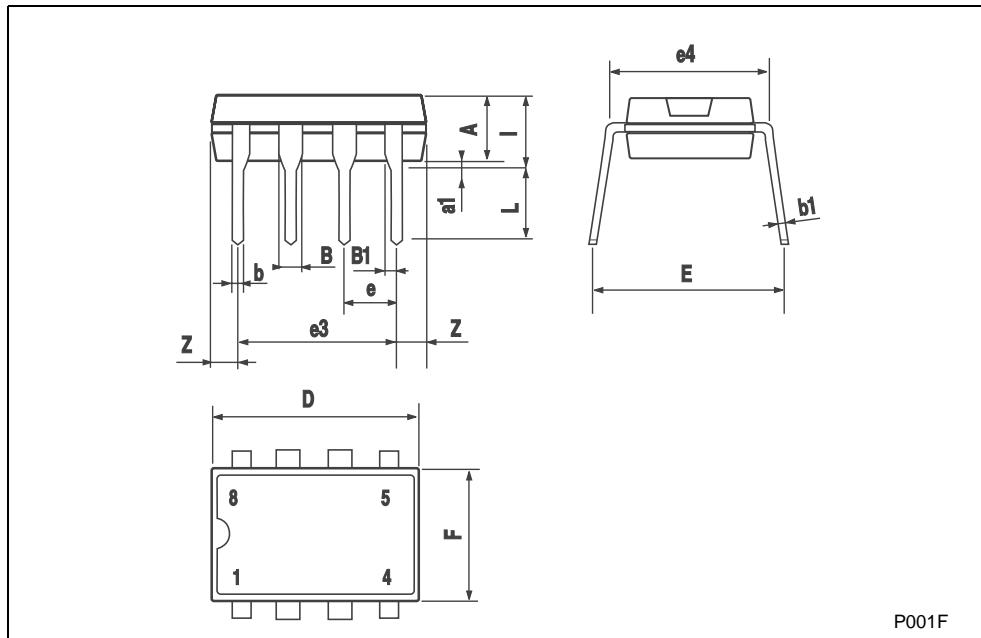
TRANSIENT RESPONSE TEST CIRCUIT



PACKAGE MECHANICAL DATA

Plastic DIP-8 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		3.3			0.130	
a1	0.7			0.028		
B	1.39		1.65	0.055		0.065
B1	0.91		1.04	0.036		0.041
b		0.5			0.020	
b1	0.38		0.5	0.015		0.020
D			9.8			0.386
E		8.8			0.346	
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			7.1			0.280
I			4.8			0.189
L		3.3			0.130	
Z	0.44		1.6	0.017		0.063



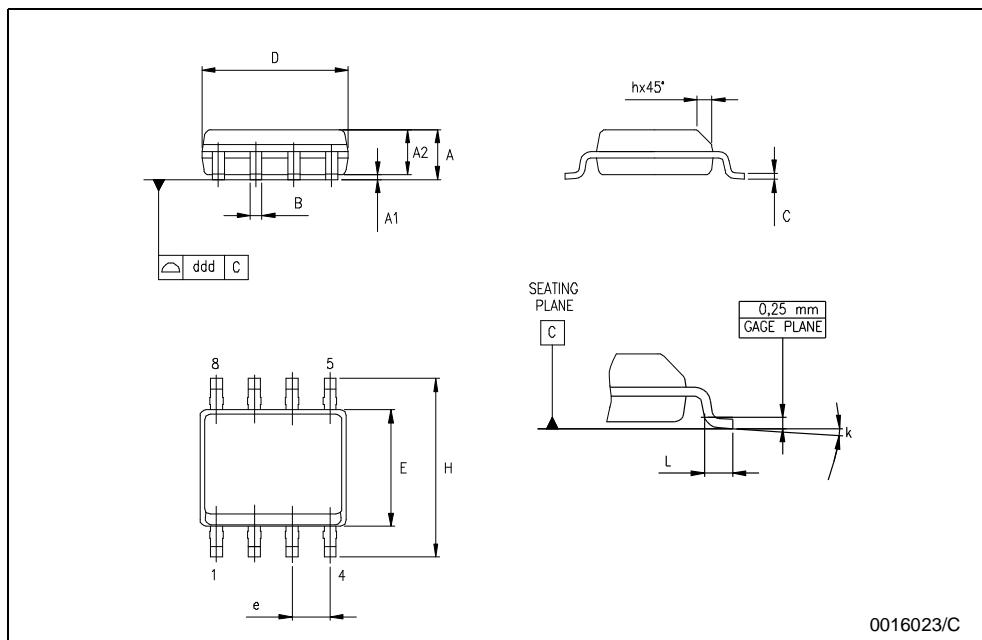
P001F

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PACKAGE MECHANICAL DATA

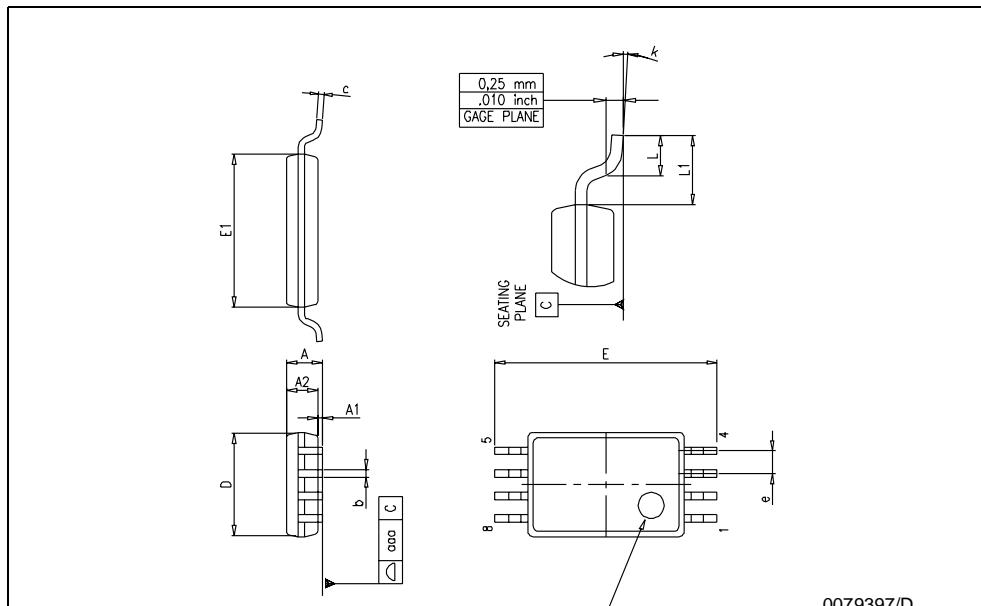
SO-8 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.04		0.010
A2	1.10		1.65	0.043		0.065
B	0.33		0.51	0.013		0.020
C	0.19		0.25	0.007		0.010
D	4.80		5.00	0.189		0.197
E	3.80		4.00	0.150		0.157
e		1.27			0.050	
H	5.80		6.20	0.228		0.244
h	0.25		0.50	0.010		0.020
L	0.40		1.27	0.016		0.050
k	8° (max.)					
ddd			0.1			0.04



PACKAGE MECHANICAL DATA

TSSOP8 MECHANICAL DATA						
DIM.	mm.			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.2			0.047
A1	0.05		0.15	0.002		0.006
A2	0.80	1.00	1.05	0.031	0.039	0.041
b	0.19		0.30	0.007		0.012
c	0.09		0.20	0.004		0.008
D	2.90	3.00	3.10	0.114	0.118	0.122
E	6.20	6.40	6.60	0.244	0.252	0.260
E1	4.30	4.40	4.50	0.169	0.173	0.177
e		0.65			0.0256	
K	0°		8°	0°		8°
L	0.45	0.60	0.75	0.018	0.024	0.030
L1		1			0.039	



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