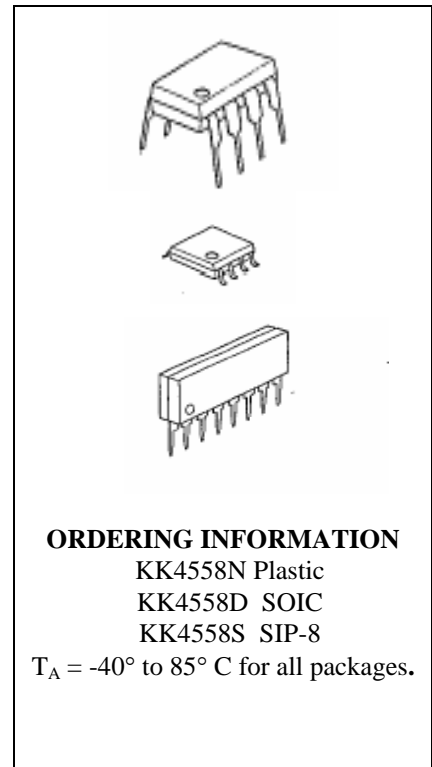


## Dual Operational Amplifiers

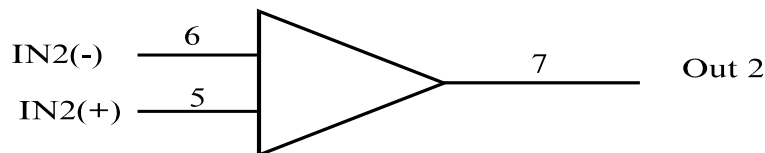
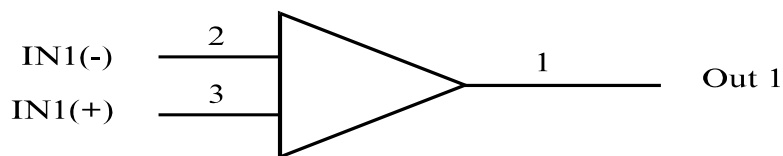
## KK4558

The KK4558 is dual general purpose operational amplifiers. The high common-mode input voltage range and the absence of latch-up make these amplifiers ideal for voltage follower application. The devices are short circuit protected and the internal frequency Compensation ensures stability without external components.

- Short Circuit Protection
- Wide common-mode and differential ranges
- No frequency compensation required
- Low power consumption
- No latch-up
- 3 MHz unity gain bandwidth guaranteed
- Gain and phase match between amplifiers
- Possible to exchange the position of Pin9 for Pin1 because of Pin Connection being symmetric(KK4558S only)



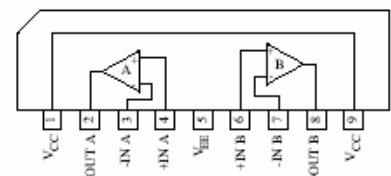
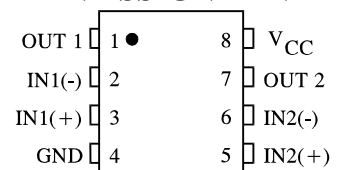
### BLOCK DIAGRAM



PIN 4 = GND (V<sup>-</sup>)

PIN 8 = V<sub>CC</sub> (V<sup>+</sup>)

### PIN ASSIGNMENT



**MAXIMUM RATINGS\***

Symbol	Parameter	Value	Unit
V <sup>+</sup>	Supply Voltage	18	V
V <sup>-</sup>	Supply Voltage	-18	V
V <sub>IDR</sub>	Differential Input Voltage	±30	V
V <sub>IN</sub>	Input Voltage	±15	V
P <sub>D</sub>	Power Dissipation in Still Air	570	mW
T <sub>a</sub>	Operation Temperature Range	-40 to 85	°C
T <sub>stg</sub>	Storage Temperature Range	-55 to 125	°C

\* Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

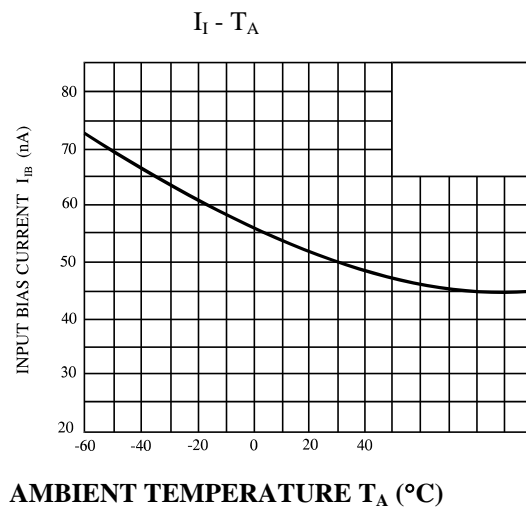
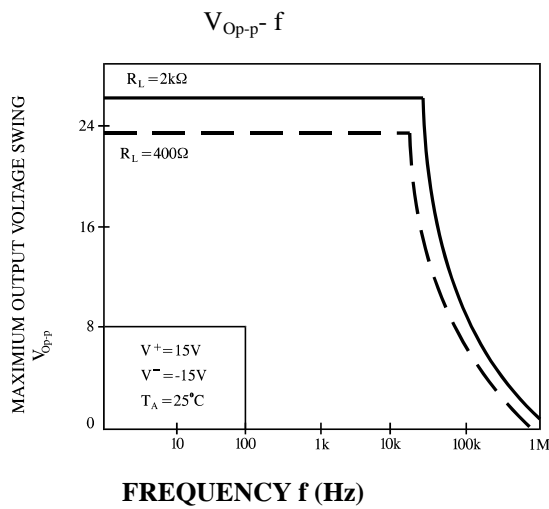
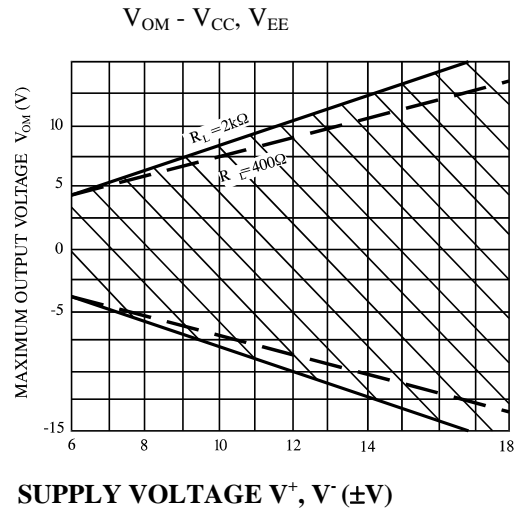
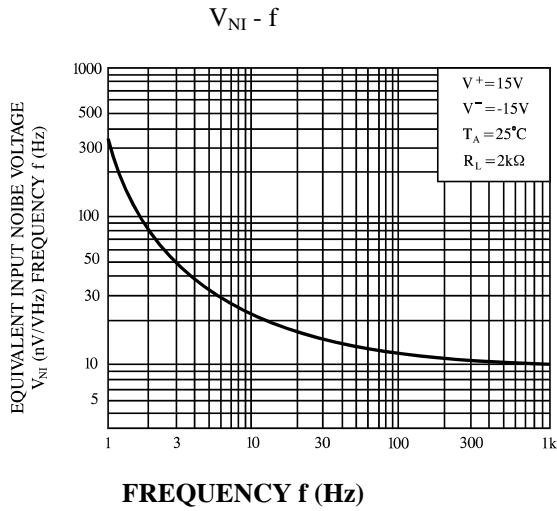
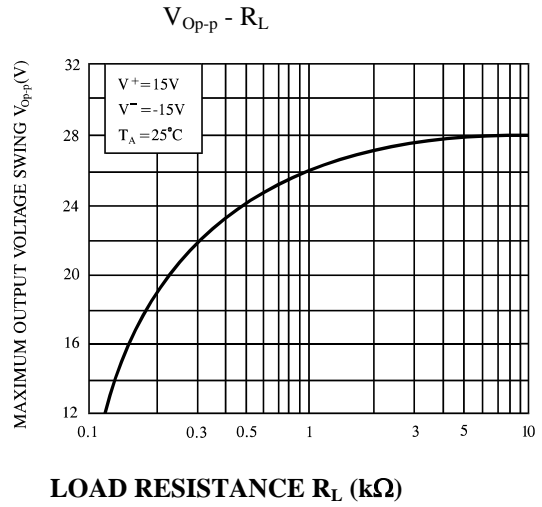
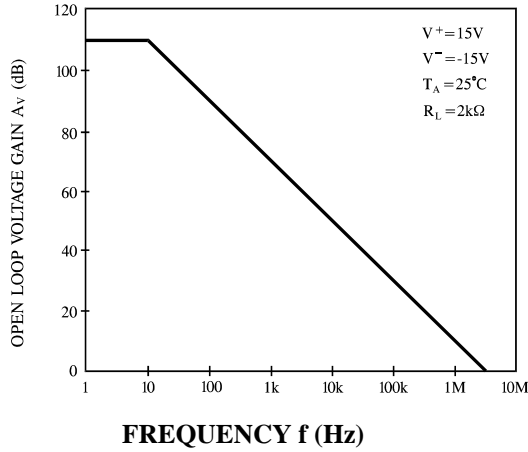
**RECOMMENDED OPERATING CONDITIONS**

Symbol	Parameter	Min	Max	Unit
V <sup>+</sup>	Supply Voltage		16	V
V <sup>-</sup>	Supply Voltage		-16	V

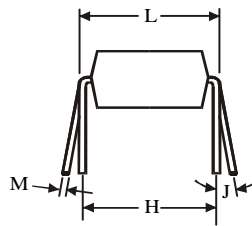
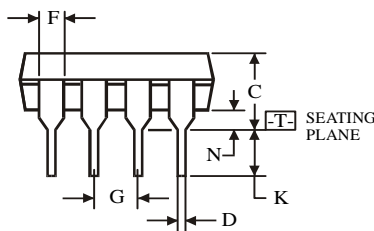
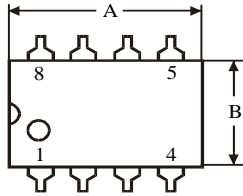
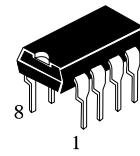
**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ ,  $V^+ = +15\text{ V}$ ,  $V^- = -15\text{ V}$ )

Symbol	Parameter	Test Conditions	Guaranteed Limits		Unit
			Min	Max	
$V_{IO}$	Input Offset Voltage	$R_S \leq 10\text{K}\Omega$		$\pm 5.0$	mV
$I_{IO}$	Input Offset Current			$\pm 200$	nA
$I_{IB}$	Input Bias Current			- 500	nA
$r_i$	Input Resistance		0.3		M $\Omega$
$A_V$	Large-Signal Voltage Gain	$R_L \geq 2\text{K}\Omega$ , $V_C = \pm 10\text{V}$	20		V/mV
$V_{OM}$	Output Voltage Swing	$R_L \geq 10\text{K}\Omega$	$\pm 12$		V
		$R_L \geq 2\text{K}\Omega$	$\pm 10$		V
$V_{ICR}$	Input Common-Mode Voltage Range		$\pm 12$		V
CMRR	Common Mode Rejection Ratio	$R_S \leq 10\text{K}\Omega$	70		dB
PSRR	Supply Voltage Rejection Ratio	$R_S \leq 10\text{K}\Omega$		150	$\mu\text{V}/\text{V}$
SR	Slew Rate	$R_L \geq 2\text{K}\Omega$	0.8	1.6	
$I^+$ , $I^-$	Supply Current			5.6	mA
SR	Slew Rate	$R_L = 2\text{K}\Omega$			V/ $\mu\text{s}$
$P_C$	Power Consumption	$R_L = \infty$		170	mW
$V_N$	Input Noise Voltage	$R_S = 1\text{K}\Omega$ $f = 30\text{Hz} \sim 30\text{KHz}$		3.5	$\mu\text{V}_{\text{rms}}$
$I_{\text{source}}$	Source Current		- 20		mA
$I_{\text{sink}}$	Sink Current		20		mA

**TYPICAL PERFORMANCE CURVES**



**N SUFFIX PLASTIC DIP  
(MS - 001BA)**



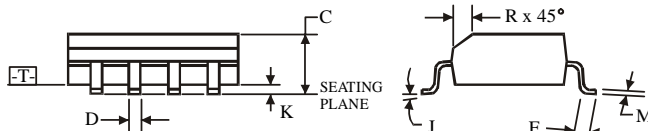
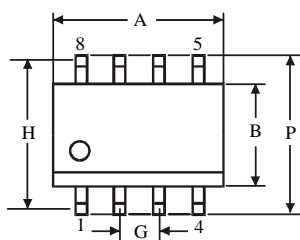
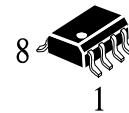
$\oplus 0.25 (0.010) \text{M} \text{T}$

Symbol	Dimension, mm	
	MIN	MAX
A	8.51	10.16
B	6.1	7.11
C		5.33
D	0.36	0.56
F	1.14	1.78
G	2.54	
H	7.62	
J	0°	10°
K	2.92	3.81
L	7.62	8.26
M	0.2	0.36
N	0.38	

**NOTES:**

- Dimensions "A", "B" do not include mold flash or protrusions.  
Maximum mold flash or protrusions 0.25 mm (0.010) per side.

**D SUFFIX SOIC  
(MS - 012AA)**



$\oplus 0.25 (0.010) \text{M} \text{T} \text{C} \text{M}$

Symbol	Dimension, mm	
	MIN	MAX
A	4.8	5
B	3.8	4
C	1.35	1.75
D	0.33	0.51
F	0.4	1.27
G	1.27	
H	5.72	
J	0°	8°
K	0.1	0.25
M	0.19	0.25
P	5.8	6.2
R	0.25	0.5

**NOTES:**

- Dimensions A and B do not include mold flash or protrusion.
- Maximum mold flash or protrusion 0.15 mm (0.006) per side  
for A; for B - 0.25 mm (0.010) per side.

**Mechanical Dimensions** (Continued)

Package

**9-SIP**

