

# MSKSEMI 美森科

SEMICONDUCTOR



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## NE5532DR-MS

Product specification



## General Description

NE5532DR-MS is the dual operational amplifier specially designed for improving the tone control, which is most suitable for the audio application. Featuring noiseless, higher gain bandwidth, high output current and low distortion ratio, and it is most suitable not only for acoustic electronic part of audio pre-amp and active filter, but also for the industrial measurement tools. It is also suitable for the head phone amp at higher output current. And further more, it can be applied for the handy type set operational amplifier of general purpose in application of low voltage single supply type which is properly biased of the input low voltage source.

## Features

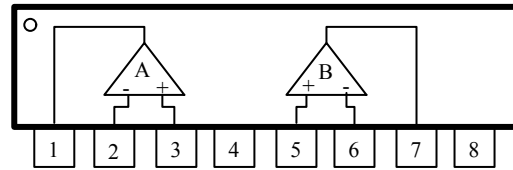
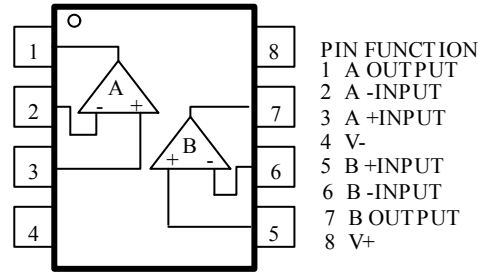
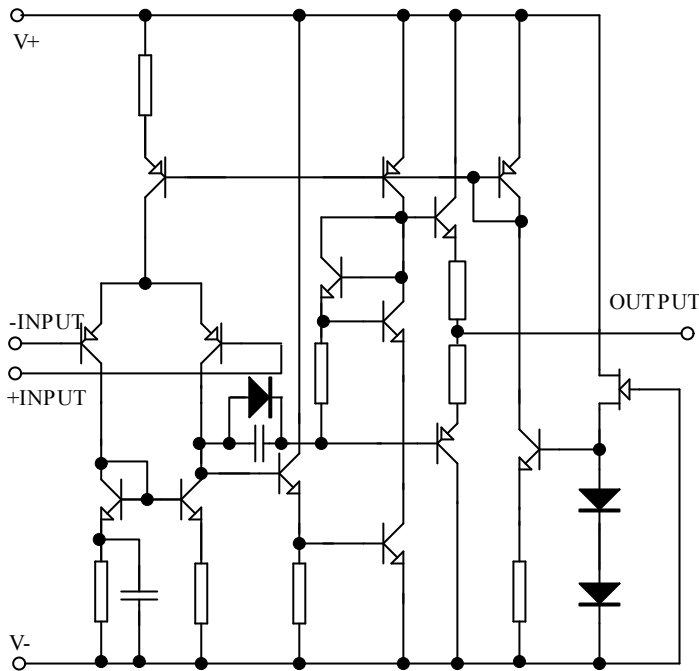
- Operating Voltage (2V ~ 18V)
- Low Input Noise Voltage (0.8Vrms Typ.)
- Wide Gain Bandwidth Product (1.5MHz Typ.)
- Low Distortion (0.0005% Typ.)
- Slew Rate (5V/s Typ.)
- Package Outline
- Bipolar Technology

## Package Information

Part NO.	Package Description		Package Marking	Package Option
NE5532DR-MS	SOP-8			2500

**Notes:** xxx represents the internal production number of the factory.

**EquivalentCircui PinConfiguration**



**AbsoluteMaximumRatings**( $T_a=25^{\circ}\text{C}$ )

Characteristic	Symbol	Value	Unit
Supply Voltage	$V+/V-$	$\pm 18$	V
Input Voltage	$V_{IC}$	$\pm 18$	V
Differential Input Voltage	$V_{ID}$	$\pm 36$	V
Output Current	$I_c$	$\pm 50$	mA
Operating Temperature Range	$T_{amb}$	$-40\sim 85$	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	$-65\sim 125$	$^{\circ}\text{C}$

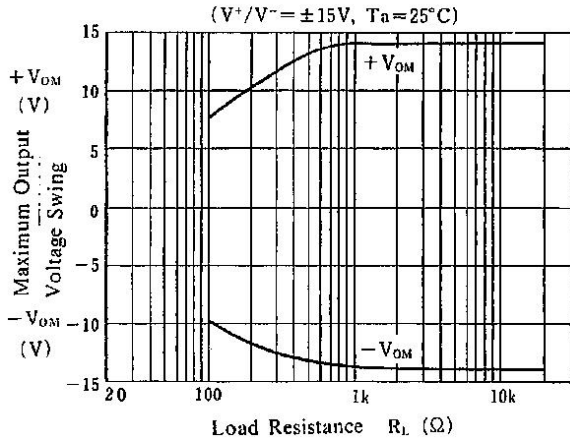
## Electrical Characteristics

(Unless otherwise specified:  $T_a=25^{\circ}\text{C}$ ,  $V_+/V_-=\pm 15\text{V}$ )

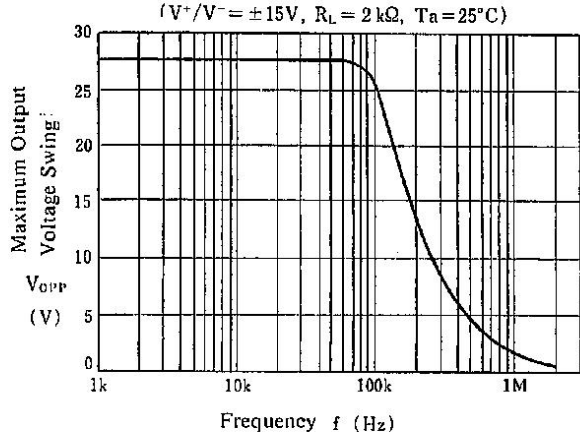
Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Input Offset Voltage	$V_{IO}$	$R_s \leq 10\text{k}\Omega$	-	0.3	3	mV
Input Offset Current	$I_{IO}$		-	5	200	nA
Input Bias Current	$I_B$		-	100	500	nA
Input Resistance	$R_{in}$		-	0.5	-	$\text{M}\Omega$
Large Signal Voltage Gain	$A_v$	$R_L \geq 2\text{k}\Omega$ , $V_o = \pm 10\text{V}$	90	110	-	dB
Output Voltage Swing	$V_{OM}$	$R_L \geq 2\text{k}\Omega$	$\pm 12$	$\pm 13.5$	-	V
Input Common Mode Voltage Range	$V_{ICM}$		$\pm 12$	$\pm 13.5$	-	V
Common Mode Rejection Ratio	CMR	$R_s \leq 10\text{k}\Omega$	80	110	-	dB
Supply Voltage Rejection Ratio	SVR	$R_s \leq 10\text{k}\Omega$	80	110	-	dB
Operating Current	$I_{cc}$		-	6	9	mA
Slew Rate	SR	$R_L \geq 2\text{k}\Omega$	-	5	-	$\text{V}/\mu\text{s}$
Gain Bandwidth Product	GB	$f=10\text{kHz}$	-	15	-	MHz
Total Harmonic Distortion	THD	$A_v=20\text{dB}$ , $V_o=5\text{V}$ , $f=1\text{kHz}$ , $R_L=2\text{k}\Omega$	-	0.0005	-	%
Input Noise Voltage1	$V_{NI}$	RIAA $R_s=2.2\text{k}\Omega$ , 30kHz LPF	-	0.8	-	$\mu\text{V}_{rms}$
Input Noise Voltage2	$e_n$	$f=1\text{kHz}$	-	5	-	nV/Hz

**Characteristic Curves**

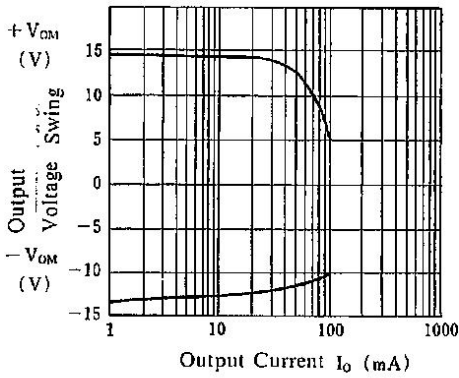
**Maximum Output Voltage Swing vs. Load Resistance**



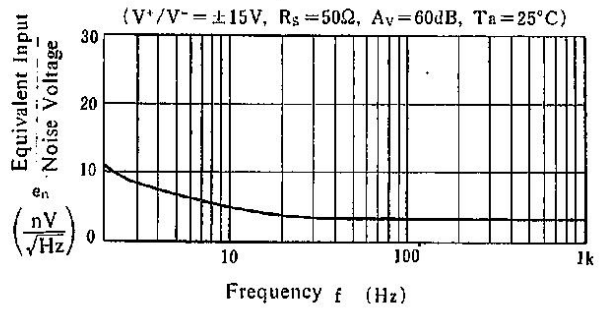
**Maximum Output Voltage Swing vs. Frequency**



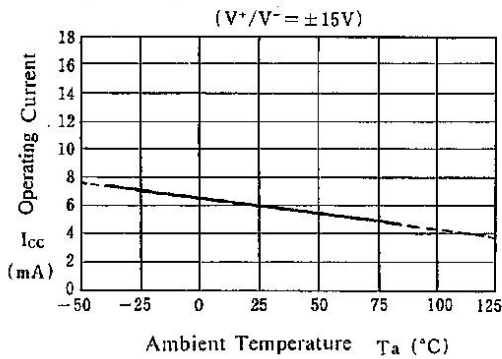
**Output Voltage Swing vs. Output Current**



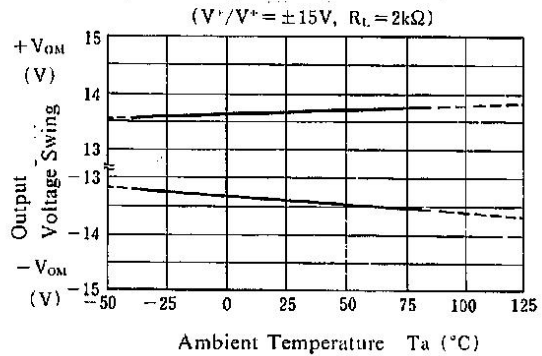
**Equivalent Input Noise Voltage vs. Frequency**



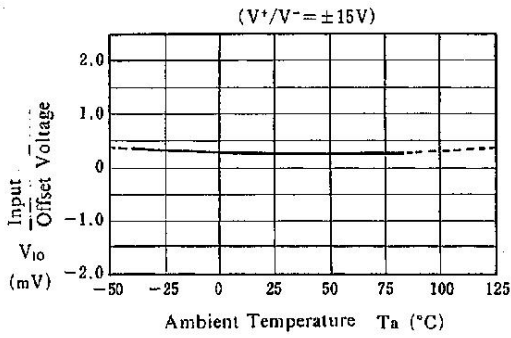
**Operating Current vs. Temperature**



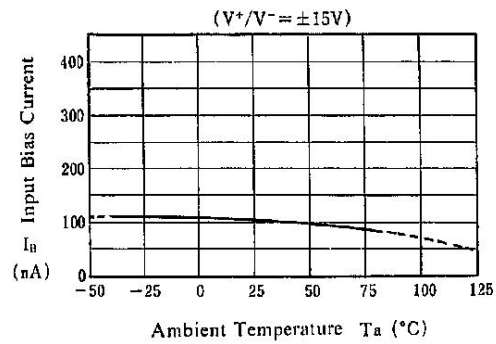
**Output Voltage Swing vs. Temperature**



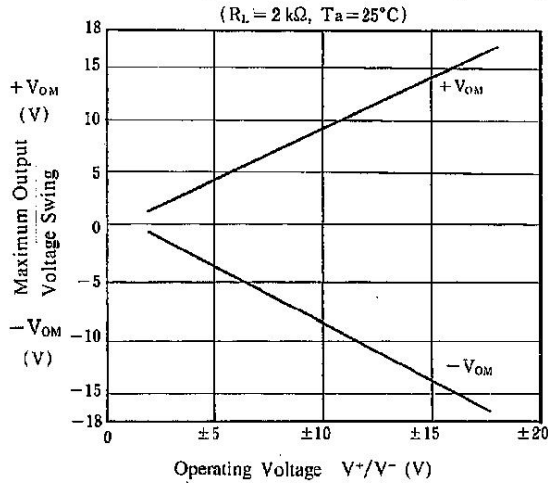
**Input Offset Voltage vs. Temperature**



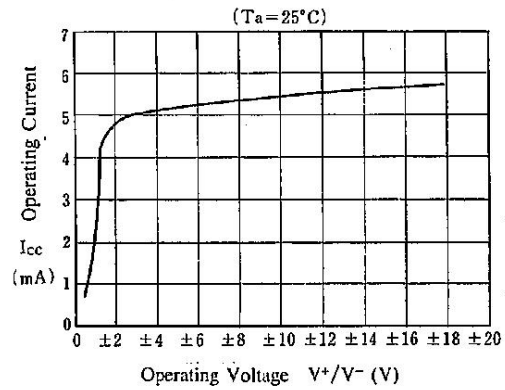
**Input Bias Current vs. Temperature**



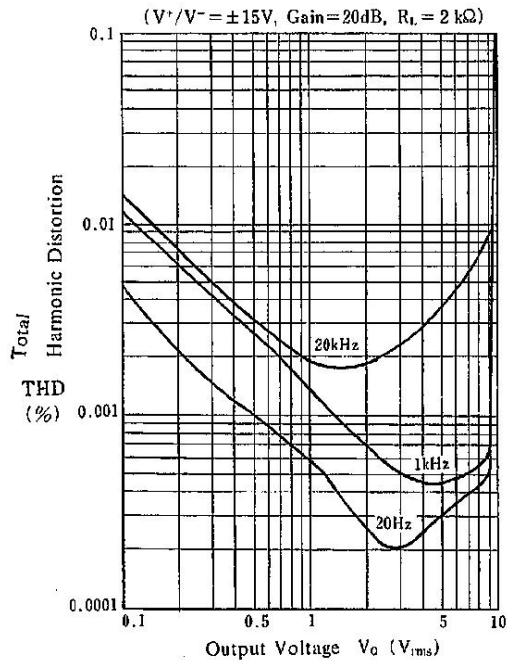
**Maximum Output Voltage Swing vs. Operating Voltage**



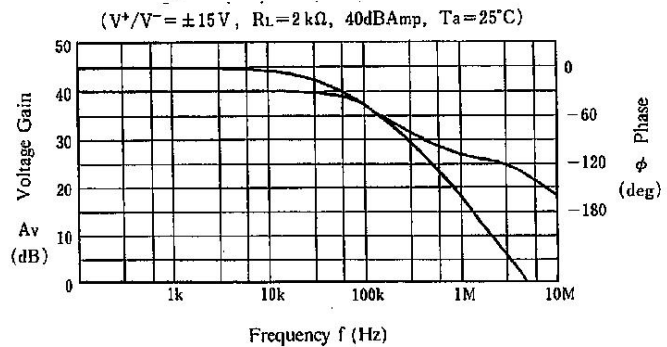
**Operating Current vs. Operating Voltage**



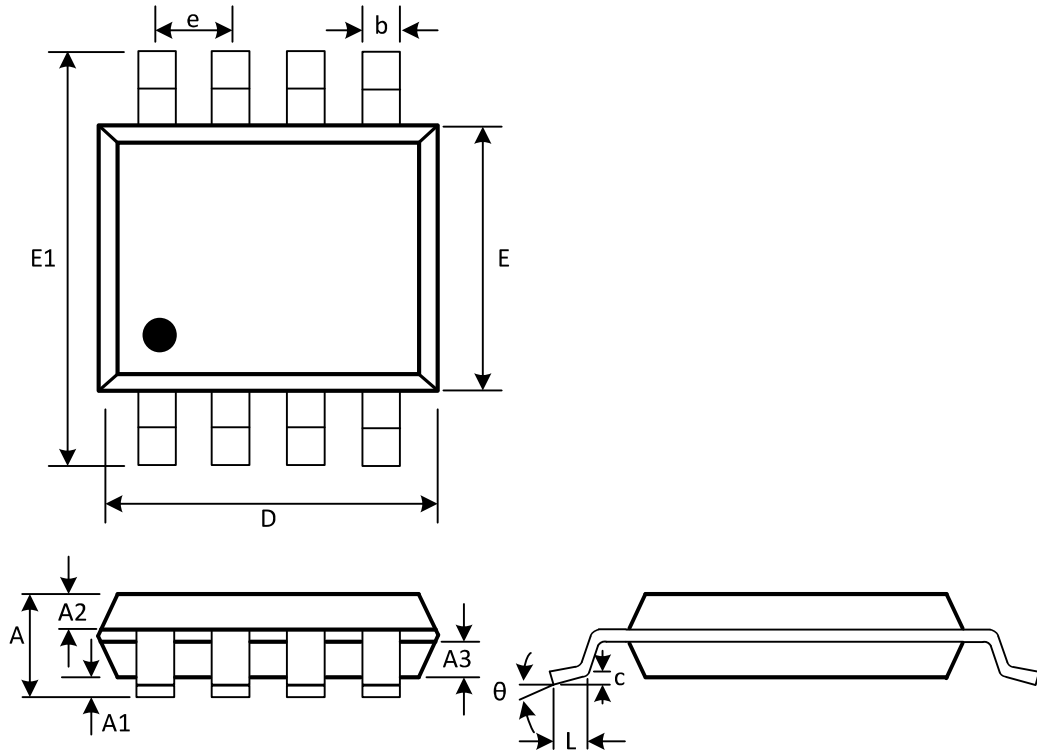
**Total Harmonic Distortion vs. Output Voltage**



**Voltage Gain, Phase vs. Frequency**



**SOP-8**



(Unit: mm)

Symbol	Min	Max
A	1.300	1.600
A1	0.050	0.200
A2	0.550	0.650
A3	0.550	0.650
b	0.356	0.456
c	0.203	0.233
D	4.800	5.000
e	1.270(BSC)	
E	3.800	4.000
E1	5.800	6.200
L	0.400	0.800
$\theta$	0°	8°

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