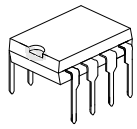
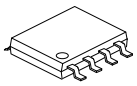
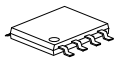
DUAL OPERATIONAL AMPLIFIER



DIP-8



SOP-8



TSSOP-8

■ DESCRIPTION

The UTC **M2100** is a low supply voltage and low saturation output voltage (±2.0V p-p at supply voltage ±2.5V) operational amplifier. It is applicable to handy type CD, radio cassette CD, and portable DAT, that are digital audio apparatus which require the 5V single supply operation and high output voltage.

■ FEATURES

* Single Supply Operation
* Operating Voltage (±1.0V~±3.5V)
* Low Saturation Output Voltage
* High Slew Rate (4V/μs typ.)
* Bipolar Technology

■ ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
M2100-D08-T	M2100L-D08-T	M2100G-D08-T	DIP-8	Tube
M2100-S08-R	M2100L-S08-R	M2100G-S08-R	SOP-8	Tape Reel
M2100-P08-R	M2100L-P08-R	M2100G-P08-R	TSSOP-8	Tape Reel

M2100L-D08-T (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel, T: Tube (2) D08: DIP-8, S08: SOP-8, P08:TSSOP-8 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

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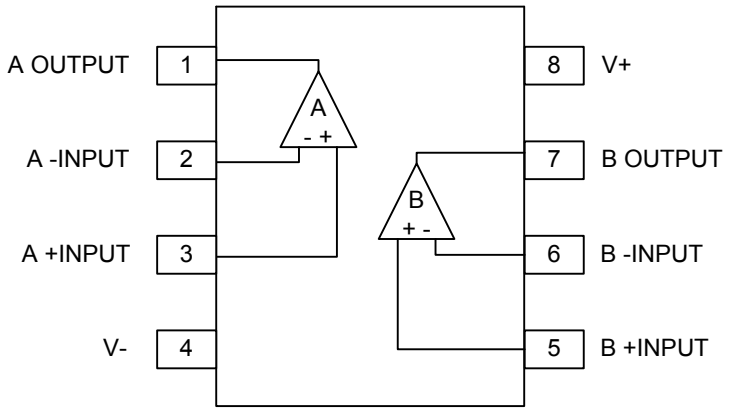
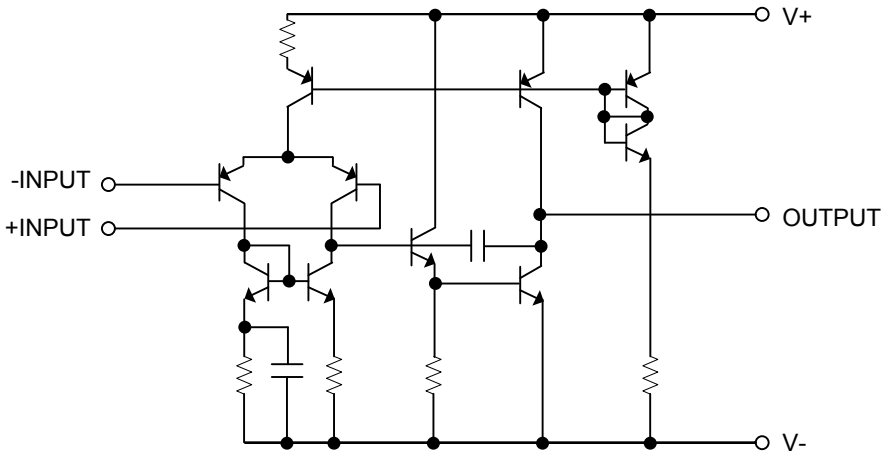
■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (Ta=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V+/V-	±3.5	V
Differential Input Voltage		$V_{I(DIFF)}$	±7	V
Power Dissipation	DIP-8	P_D	500	mW
	SOP-8		300	mW
	TSSOP-8		250	mW
Ambient Operating Temperature		T_{OPR}	-40~ +85	°C
Storage Temperature		T_{STG}	-40~ +125	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

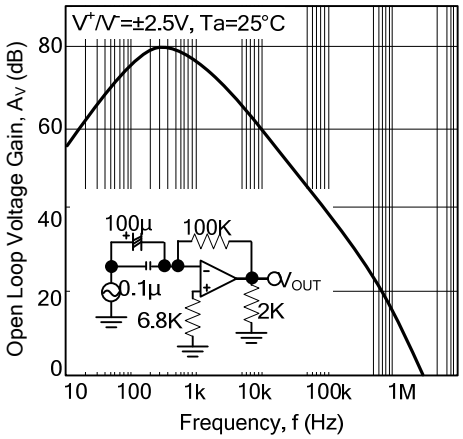
■ ELECTRICAL CHARACTERISTICS (V^+=5V, Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage	$V_{I(OFF)}$	Rs≤10kΩ		1	6	mV
Input Bias Current	$I_{I(BIAS)}$			100	300	nA
Operating Current	I_{CC}	V_{IN}=0, R_L=∞		3.5	5	mA
Maximum Output Voltage Swing	V_{OM}	R_L≥2.5kΩ	±2	±2.2		V
Input Common Mode Voltage Range	V_{ICM}		±1.5			V
Large Signal Voltage Gain	G_V	R_L≥10kΩ	60	80		dB
Common Mode Rejection Ratio	CMRR		60	74		dB
Supply Voltage Rejection Ratio	SVR		60	80		dB
Slew Rate	SR	V_{IN}=±1V, G_V=1		4		V/μS
Gain-Bandwidth product	GB	f=10kHz		12		MHz

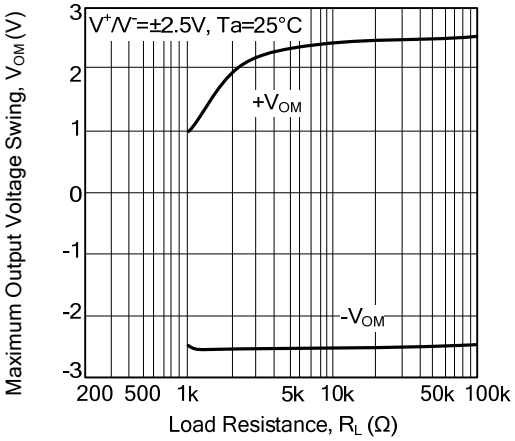
Notes: 1. Applied circuit voltage gain is desired to be operated within the range of 3dB~30dB.
2. Special care being required for input common mode voltage range and the oscillation due to the capacitive load when operating on voltage follower.
3. Special care being required for the oscillation, yet having the gain when the supply voltage is applied at more than 5V (single supply voltage 5V)

■ TYPICAL CHARACTERISTICS

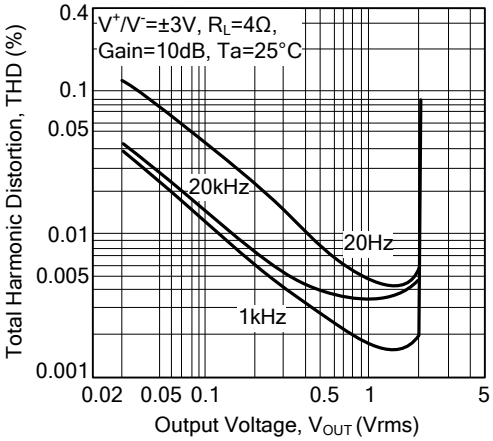
Open Loop Voltage Gain vs. Frequency



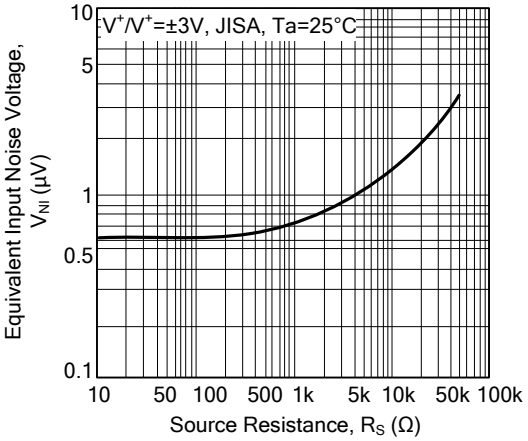
Maximum Output Voltage Swing vs. Load Resistance



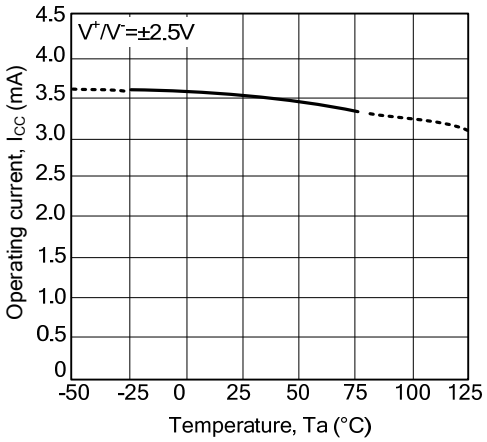
Total Harmonic Distortion vs. Output Voltage



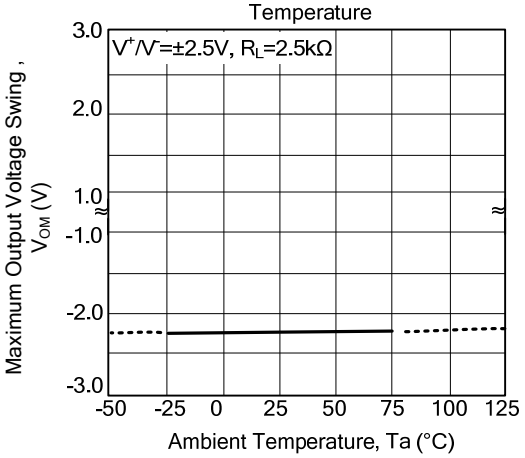
Equivalent Input Noise Voltage vs. Source Resistance



Operating current vs. Temperature

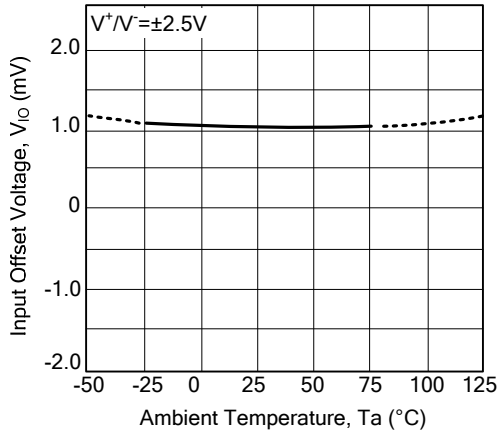


Maximum Output Voltage Swing vs. Temperature

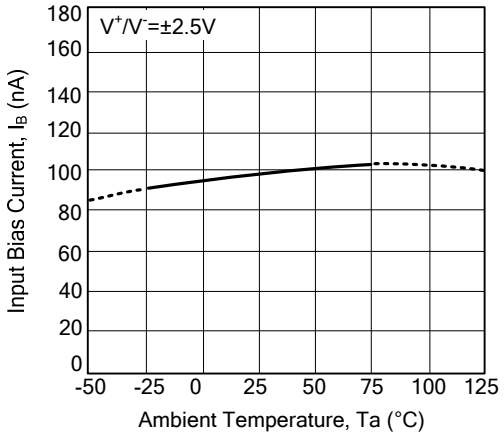


■ TYPICAL CHARACTERISTICS(Cont.)

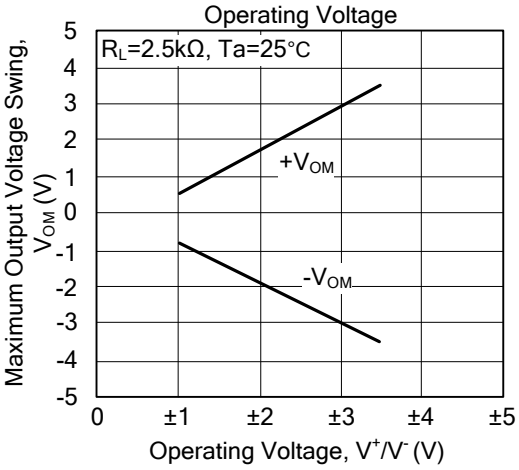
Input Offset Voltage vs. Temperature



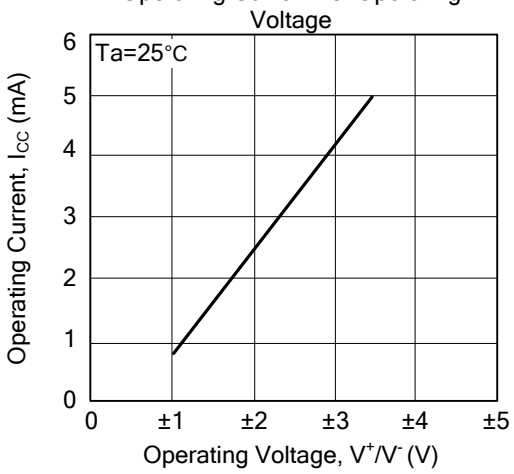
Input Bias Current vs. Temperature



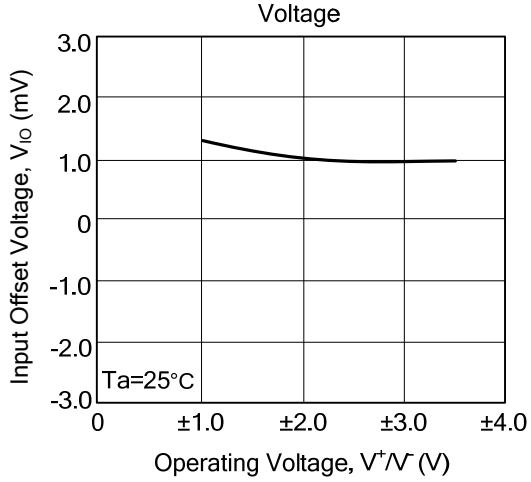
Maximum Output Voltage Swing vs. Operating Voltage



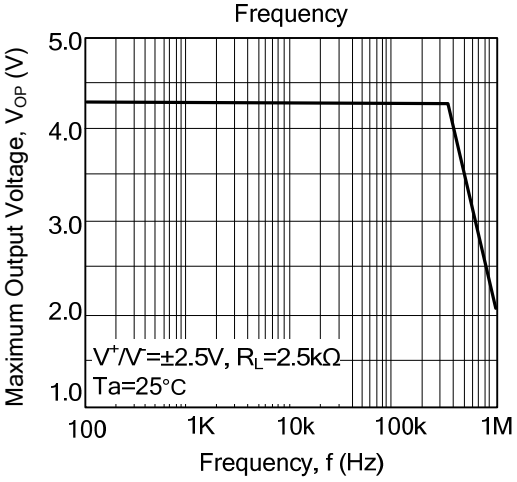
Operating Current vs. Operating Voltage



Input Offset Voltage vs. Operating Voltage



Maximum Output Voltage vs. Frequency



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