



M2073

LINEAR INTEGRATED CIRCUIT

DUAL LOW VOLTAGE POWER AMPLIFIER

DESCRIPTION

As a dual low voltage power amplifier, the UTC **M2073** has the internal circuits, such as parasitic oscillation preventing circuit and muting circuit.

Considering the fixed gain of UTC **M2073**, there's an additional voltage reducing application for the UTC **M2073**.

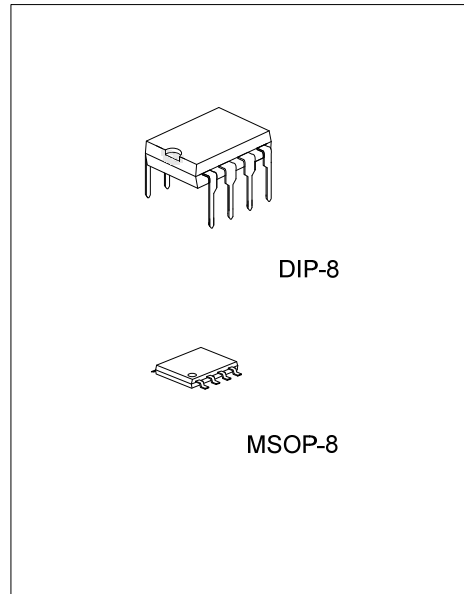
The normal application of **M2073** is being used as a dual audio power amplifier in lots of portable equipments.

FEATURES

- * Operating Voltage ($V_{CC}=1.8V\sim 15V$)
- * Low Crossover Distortion
- * Low Operating Current
- * Bridge or Stereo Configuration
- * No Turn-on Noise
- * Bipolar Technology

ORDERING INFORMATION

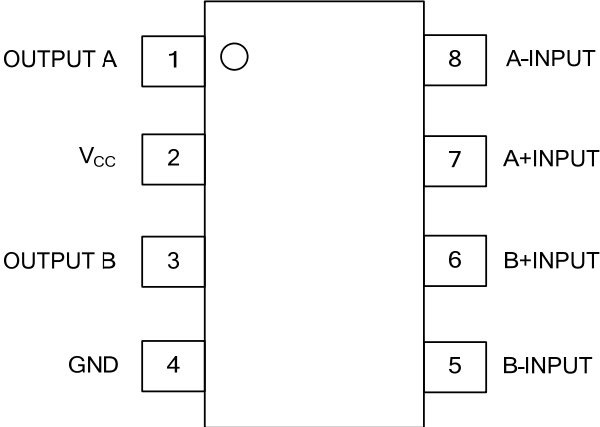
Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
M2073-D08-T	M2073L-D08-T	M2073G-D08-T	DIP-8	Tube
M2073-SM1-R	M2073L-SM1-R	M2073G-SM1-R	MSOP-8	Tape Reel



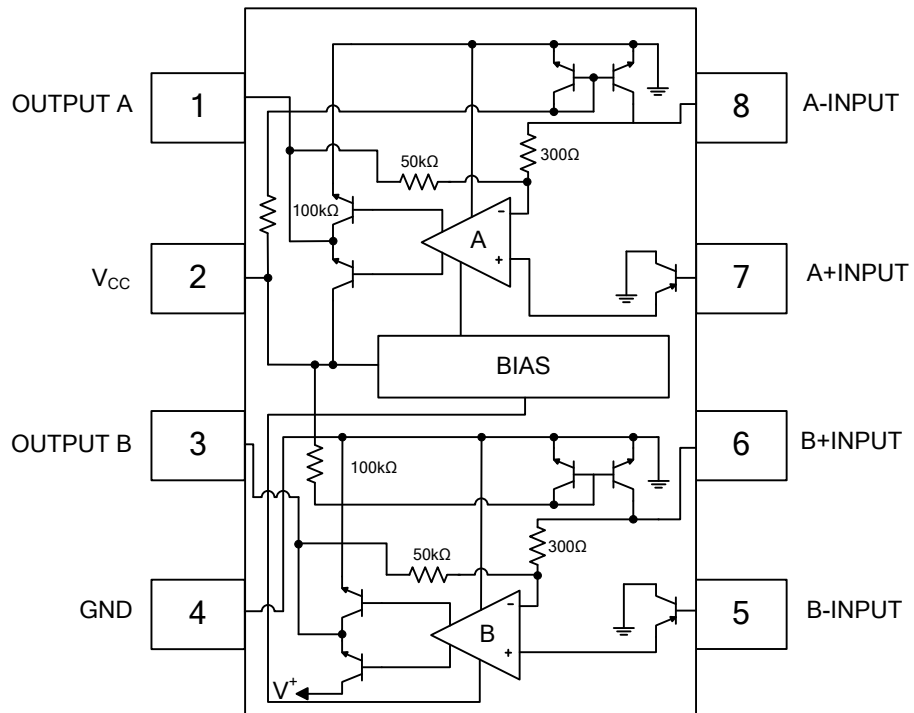
Lead-free: M2073L
 Halogen-free: M2073G

<p>M2073L-D08-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) T: Tube, R: Tape Reel (2) D08: DIP-8, SM1: MSOP-8 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	15	V
Input Voltage Range	V_{IN}	± 0.4	V
Output Peak Current	I_{OP}	1	A
Power Dissipation	DIP-8	700	mW
	MSOP-8	300	mW
Junction Temperature	T_J	125	$^{\circ}C$
Operating Temperature	T_{OPR}	-40 ~ +85	$^{\circ}C$
Storage Temperature	T_{STG}	-40 ~ +125	$^{\circ}C$

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

BTL Configuration (Page 6) ($V_{CC}=6V, T_a=25^{\circ}C$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Operating Voltage	V_{CC}		1.8		15	V	
Operating Current	I_{CC}	$R_L = \infty$		6	9	mA	
Output Offset Voltage (Between the Outputs)	ΔV_{OUT}	$R_L = 8\Omega$		10	50	mV	
Input Bias Current	$I_{I(BIAS)}$			100		nA	
Output Power	P_{OUT}	THD=10% f=1kHz	DIP-8	$V_{CC} = 9V, R_L = 16\Omega$ (Note)	2.0	W	
				$V_{CC} = 6V, R_L = 8\Omega$ (Note)	0.9	1.2	W
				$V_{CC} = 4.5V, R_L = 8\Omega$	0.6	W	
				$V_{CC} = 4.5V, R_L = 4\Omega$ (Note)	0.8	W	
				$V_{CC} = 3V, R_L = 4\Omega$	200	300	mW
				$V_{CC} = 2V, R_L = 4\Omega$	80	mW	
		THD=1% f=40Hz~15kHz	MSOP-8	$V_{CC} = 6V, R_L = 16\Omega$ (Note)	0.8	W	
				$V_{CC} = 4V, R_L = 8\Omega$ (Note)	350	460	mW
				$V_{CC} = 3V, R_L = 4\Omega$ (Note)	200	300	mW
				$V_{CC} = 2V, R_L = 4\Omega$	80	mW	
				DIP-8	$V_{CC} = 6V, R_L = 8\Omega$	1.0	W
					$V_{CC} = 4.5V, R_L = 4\Omega$	0.6	W
Total Harmonic Distortion	THD	$P_{OUT} = 0.5W, R_L = 8\Omega, f = 1kHz$	DIP-8	0.2	%		
		$V_{CC} = 4V, R_L = 8\Omega, P_{OUT} = 200mW, R_L = 8\Omega, f = 1kHz$	MSOP-8	0.2	%		
Close Loop Voltage Gain	G_V	f=1kHz	41	44	47	dB	
Input Impedance	Z_{IN}	f=1kHz	100			k Ω	
Equivalent Input Noise Voltage	V_{NI1}	$R_S = 10k\Omega, A$ Curve		2		μV	
	V_{NI2}	$R_S = 10k\Omega, B = 22Hz \sim 22kHz$		2.5		μV	
Ripple Rejection	RR	f=100Hz		40		dB	
Cutoff Frequency	f_H	$G_V = -3dB$ from f=1kHz, $R_L = 8\Omega, P_{OUT} = 1W$	DIP-8	130		kHz	
		$G_V = -3dB$ from f=1kHz, $R_L = 16\Omega, P_{OUT} = 0.5W$	MSOP-8	130		kHz	

Note: At on PC Board

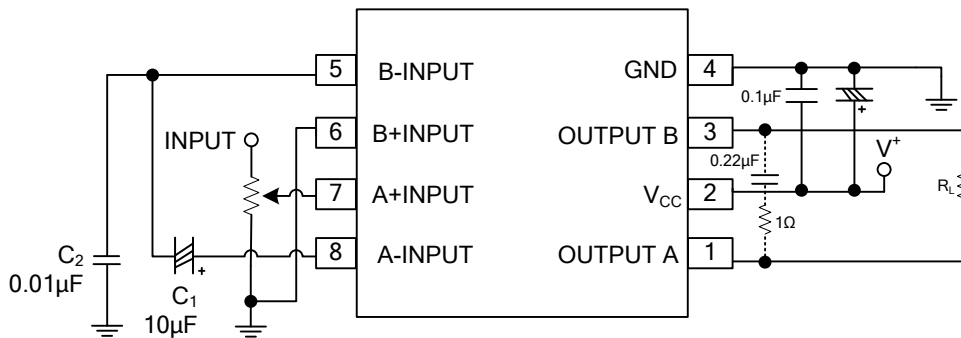
■ ELECTRICAL CHARACTERISTICS(Cont.)

Stereo Configuration (Page 7)

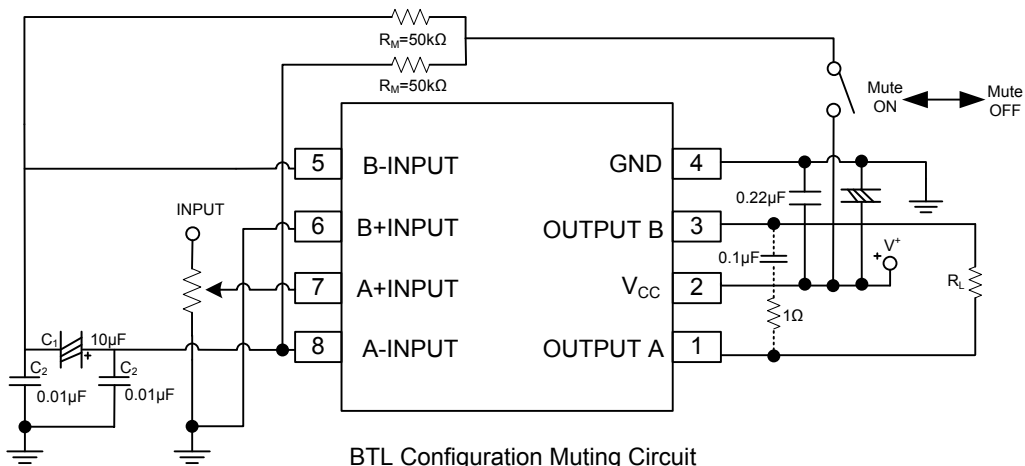
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Operating Voltage	V_{CC}		1.8		15	V	
Output Voltage	V_{OUT}			2.7		V	
Operating Current	I_{CC}	$R_L = \infty$		6	9	mA	
Input Bias Current	$I_{I(BIAS)}$			100		nA	
Output Power (Each Channel)	P_{OUT}	THD=10% f=1kHz	DIP-8	$V_{CC} = 6V, R_L = 4\Omega$ (Note)	0.5	0.65	W
				$V_{CC} = 4.5V, R_L = 4\Omega$		0.32	W
				$V_{CC} = 3V, R_L = 4\Omega$		120	mW
				$V_{CC} = 2V, R_L = 4\Omega$		30	mW
		THD=10% f=1kHz	MSOP-8	$V_{CC} = 6V, R_L = 16\Omega$		240	mW
				$V_{CC} = 5V, R_L = 8\Omega$ (Note)		270	mW
				$V_{CC} = 4V, R_L = 4\Omega$ (Note)	180	250	mW
				$V_{CC} = 3V, R_L = 4\Omega$		120	mW
				$V_{CC} = 2V, R_L = 4\Omega$		30	mW
		THD=1% f=1kHz	DIP-8	$V_{CC} = 6V, R_L = 4\Omega$		500	mW
				$V_{CC} = 4.5V, R_L = 4\Omega$		250	mW
			MSOP-8		180	mW	
		Total Harmonic Distortion	THD	$P_{OUT} = 0.4W, R_L = 4\Omega, f = 1kHz$	DIP-8		0.25
$V_{CC} = 4V, R_L = 4\Omega, P_{OUT} = 150mW, f = 1kHz$	MSOP-8				0.25	%	
Voltage Gain	G_V	f=1kHz	41	44	47	dB	
Channel Balance	ΔG_V				± 1	dB	
Input Impedance	Z_{IN}	f=1kHz	100			k Ω	
Equivalent Input Noise Voltage	V_{NI1}	$R_S = 10k\Omega, A$ Curve		2.5		μV	
	V_{NI2}	$R_S = 10k\Omega, B = 22Hz \sim 22kHz$		3		μV	
Ripple Rejection	RR	f=100Hz, $C_X = 100\mu F$	24	30		dB	
Cutoff Frequency	f_H	$G_V = -3dB$ from f=1kHz, $R_L = 8\Omega, P_{OUT} = 250mW$	DIP-8		200	kHz	
		$G_V = -3dB$ from f=1kHz, $R_L = 16\Omega, P_{OUT} = 125mW$	MSOP-8		200	kHz	

Note: At on PC Board

APPLICATION CIRCUITS FOR BTL MODE

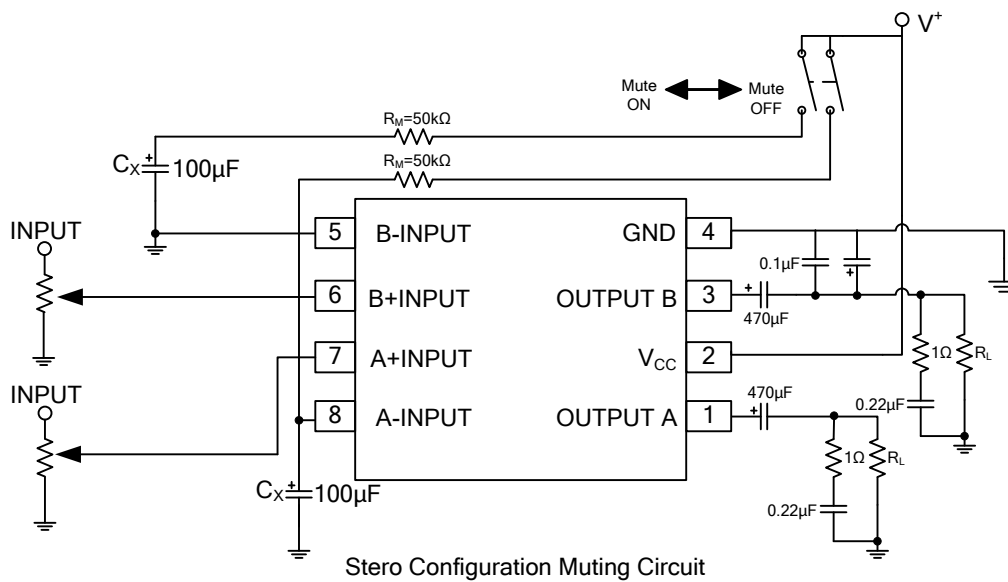
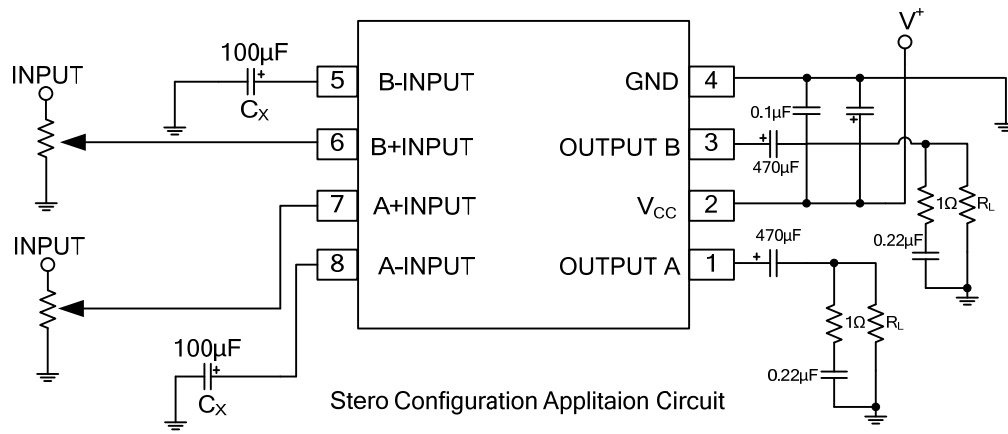


BTL Configuration Applaitaion Circuit

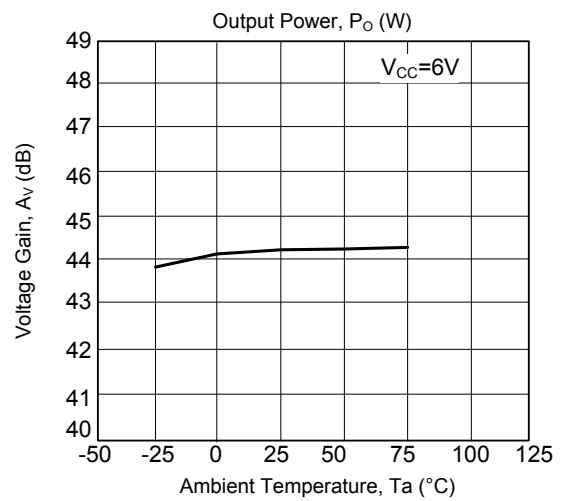
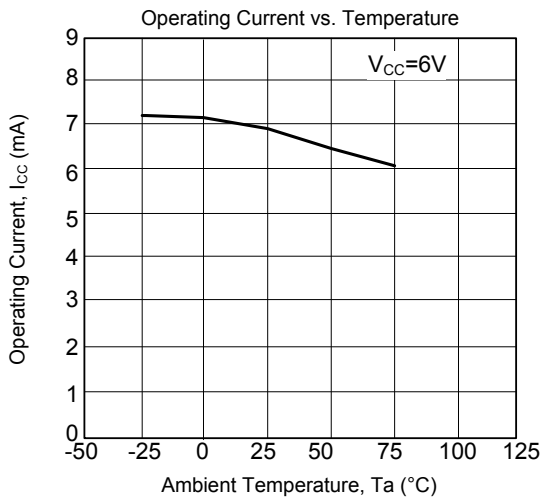
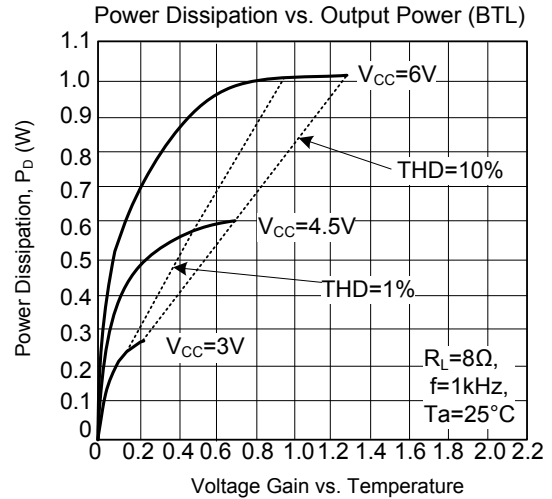
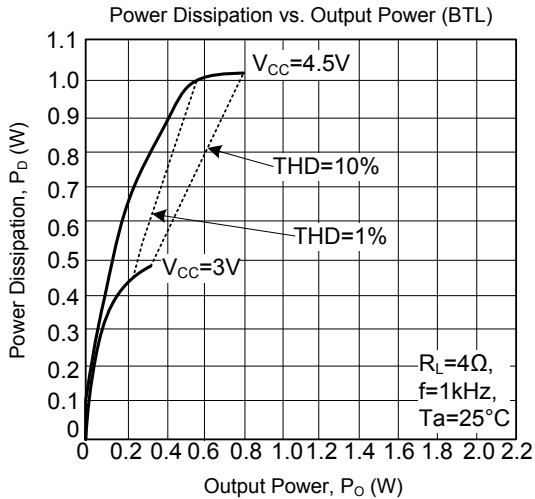
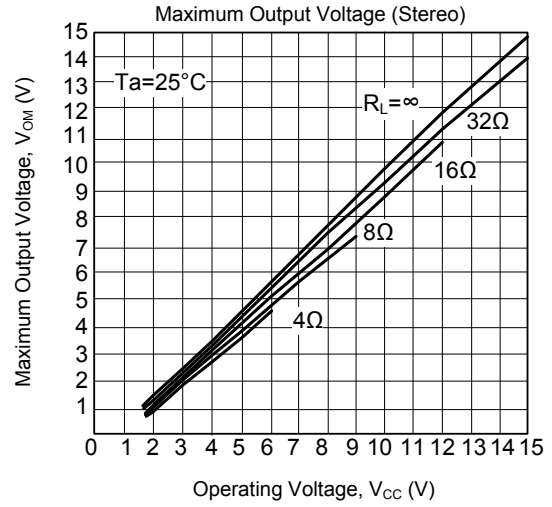
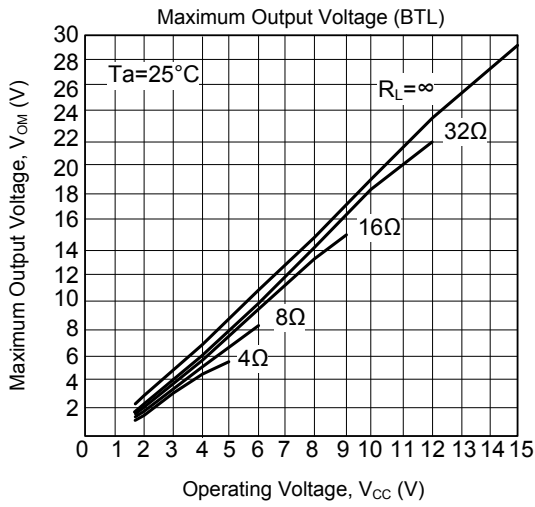


BTL Configuration Muting Circuit

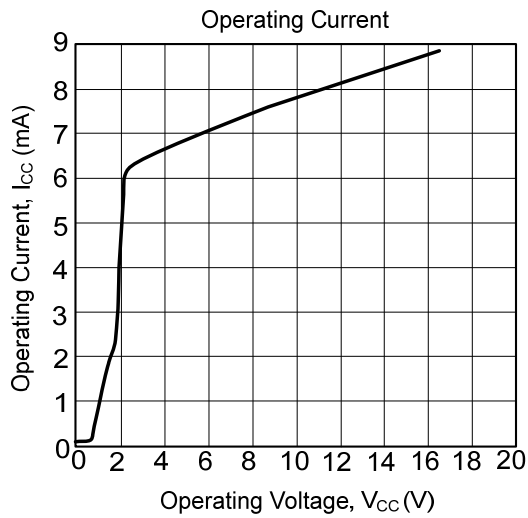
APPLICATION CIRCUITS FOR STEREO MODE



■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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