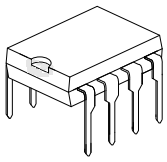
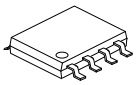
DUAL LOW VOLTAGE POWER AMPLIFIER



DIP-8



SOP-8

■ 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~15V)
* Low Crossover Distortion
* Low Operating Current
* Bridge or Stereo Configuration
* No Turn-on Noise
* Bipolar Technology

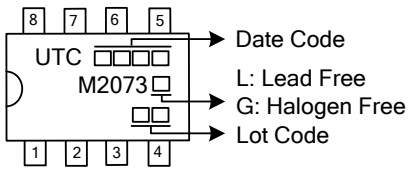
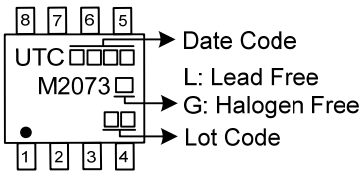
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
M2073L-D08-T	M2073G-D08-T	DIP-8	Tube
M2073L-S08-R	M2073G-S08-R	SOP-8	Tape Reel

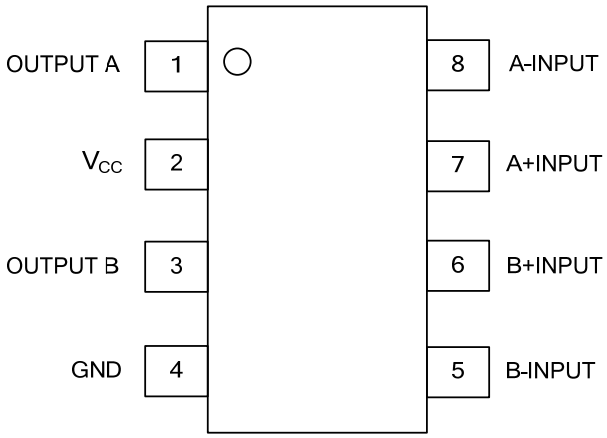
Note: Pin Assignment: G: Gate D: Drain S: Source

M2073G-D08-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) D08: DIP-8, S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free

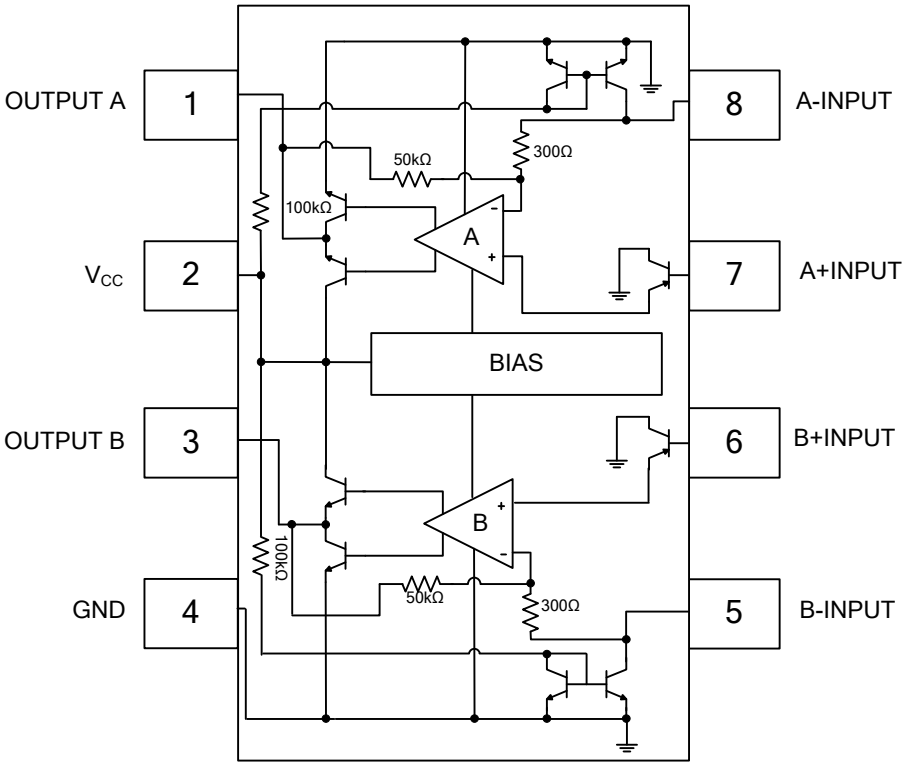
■ MARKING

DIP-8	SOP-8
	

■ 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	P_D	700	mW
	SOP-8		300	mW
Junction Temperature		T_J	+125	°C
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

BTL Configuration (Page 6) (V_{CC}=6V, T_A=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS			MIN	TYP	MAX	UNIT
Operating Voltage	V_{CC}				1.8		15	V
Operating Current	I_{CC}	R_L=∞				6	9	mA
Output Offset Voltage (Between the Outputs)	ΔV_{OUT}	R_L=8Ω				10	50	mV
Input Bias Current	$I_{I(BIAS)}$					100		nA
Output Power	P_{OUT}	THD=10% f=1kHz	V_{CC} =9V,R_L=16Ω (Note)	DIP-8		2.0		W
			V_{CC} =6V,R_L=8Ω (Note)		0.9	1.2		W
			V_{CC} =4.5V,R_L=8Ω			0.6		W
			V_{CC} =4.5V,R_L=4Ω (Note)			0.8		W
			V_{CC} =3V,R_L=4Ω		200	300		mW
			V_{CC} =2V,R_L=4Ω			80		mW
			V_{CC} =6V,R_L=16Ω (Note)	SOP-8		0.8		W
			V_{CC} =4V,R_L=8Ω (Note)		350	460		mW
			V_{CC} =3V,R_L=4Ω (Note)		200	300		mW
			V_{CC} =2V,R_L=4Ω			80		mW
		THD=1% f=40Hz~15kHz	V_{CC} =6V,R_L=8Ω	DIP-8		1.0		W
			V_{CC} =4.5V,R_L=4Ω			0.6		W
			V_{CC} =4V,R_L=8Ω	SOP-8		380		mW
Total Harmonic Distortion	THD	P_{OUT}=0.5W, R_L=8Ω, f=1kHz		DIP-8		0.2		%
		V_{CC} =4V,R_L=8Ω, P_{OUT}=200mW, R_L=8Ω, f=1kHz		SOP-8		0.2		%
Close Loop Voltage Gain	G_V	f=1kHz			41	44	47	dB
Input Impedance	Z_{IN}	f=1kHz			100			kΩ
Equivalent Input Noise Voltage	V_{NI1}	R_S=10kΩ, A Curve				2		μV
	V_{NI2}	R_S=10kΩ, B=22Hz~22kHz				2.5		μV
Ripple Rejection	RR	f=100Hz				40		dB
Cutoff Frequency	f_H	G_V= -3dB from f=1kHz, R_L=8Ω, P_{OUT} =1W		DIP-8		130		kHz
		G_V=-3dB from f=1kHz, R_L=16Ω, P_{OUT}=0.5W		SOP-8		130		kHz

Note: At on PC Board.

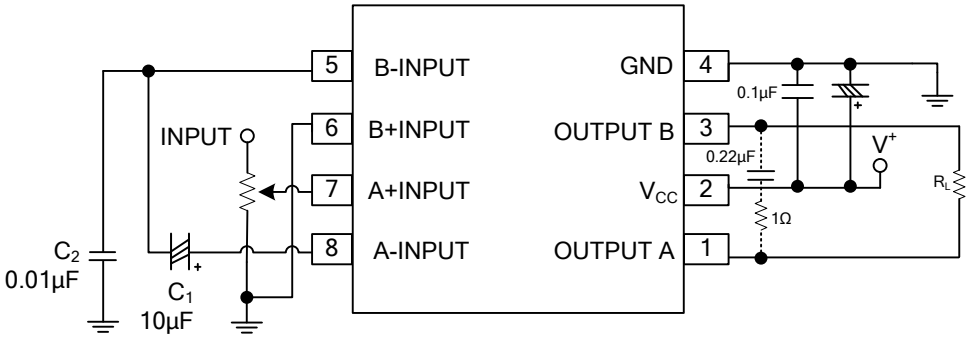
■ ELECTRICAL CHARACTERISTICS(Cont.)

Stereo Configuration (Page 7)

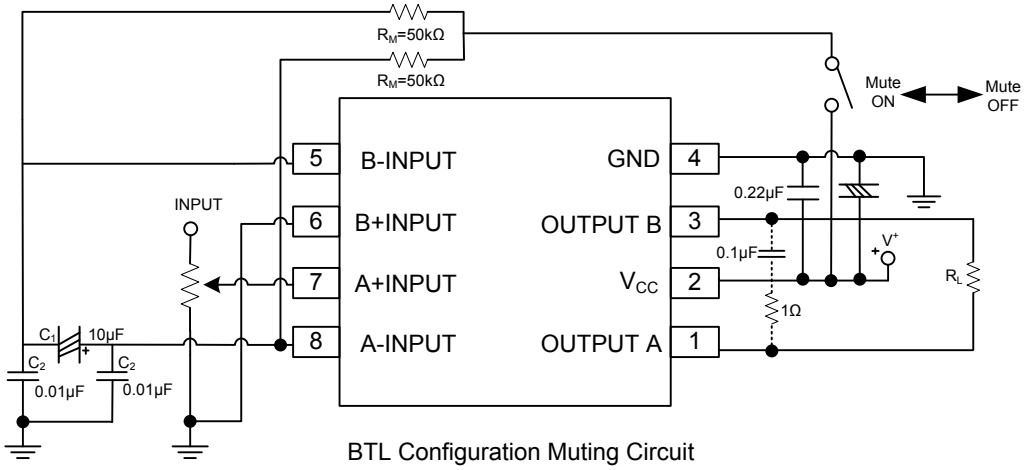
PARAMETER	SYMBOL	TEST CONDITIONS			MIN	TYP	MAX	UNIT
Operating Voltage	V_{CC}				1.8		15	V
Output Voltage	V_{OUT}					2.7		V
Operating Current	I_{CC}	R_L=∞				6	9	mA
Input Bias Current	$I_{I(BIAS)}$					100		nA
Output Power (Each Channel)	P_{OUT}	THD=10% f=1kHz	V_{CC} =6V,R_L=4Ω (Note)	DIP-8	0.5	0.65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

Note: At on PC Board.

■ APPLICATION CIRCUITS FOR BTL MODE

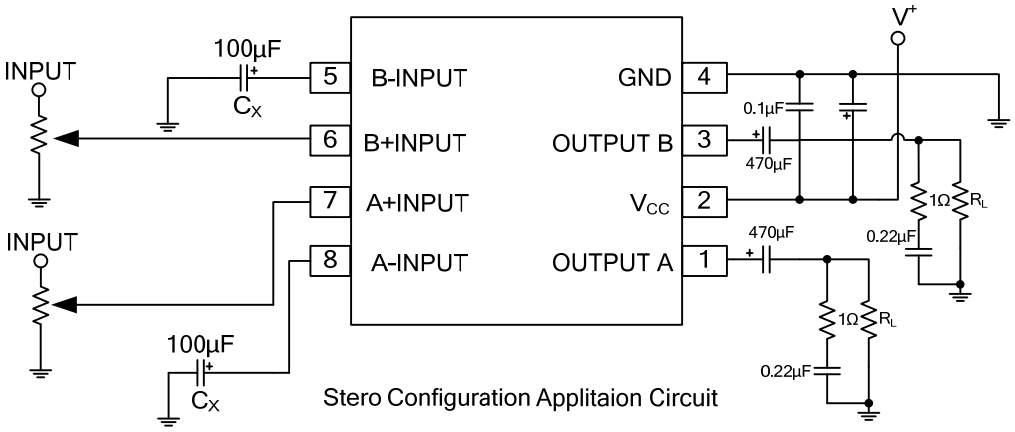


BTL Configuration Applitaion Circuit

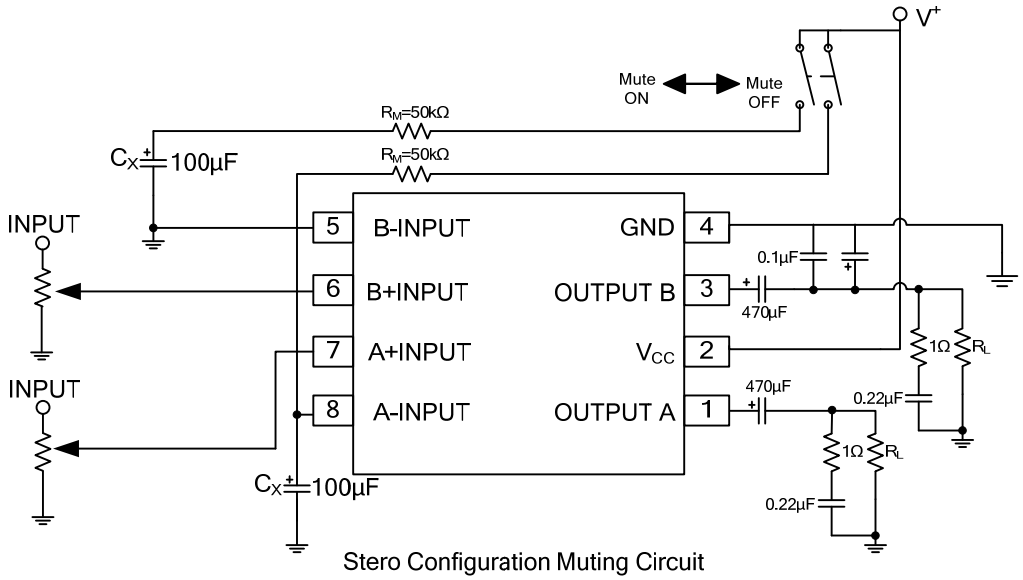


BTL Configuration Muting Circuit

■ APPLICATION CIRCUITS FOR STERO MODE

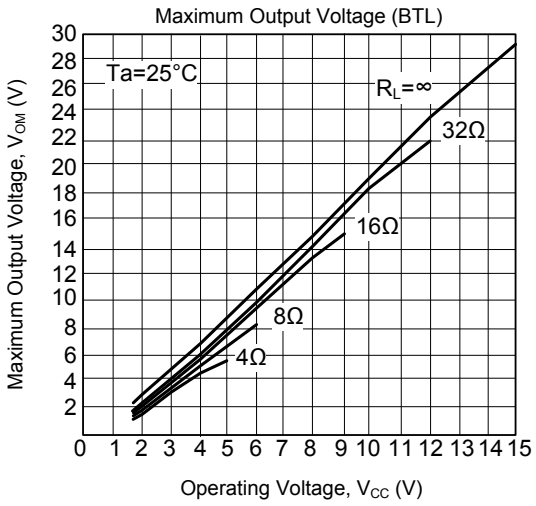


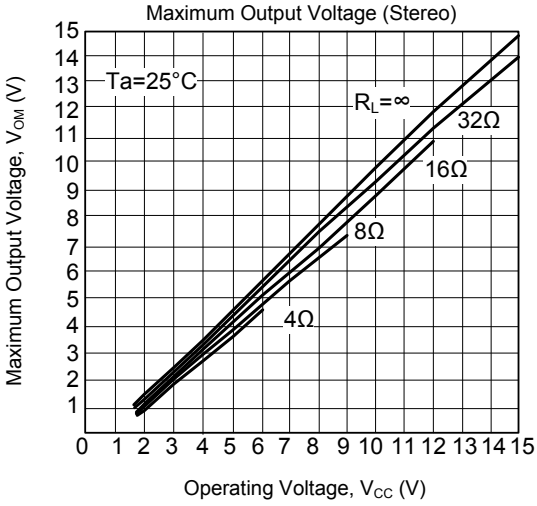
Stero Configuration Applitaion Circuit

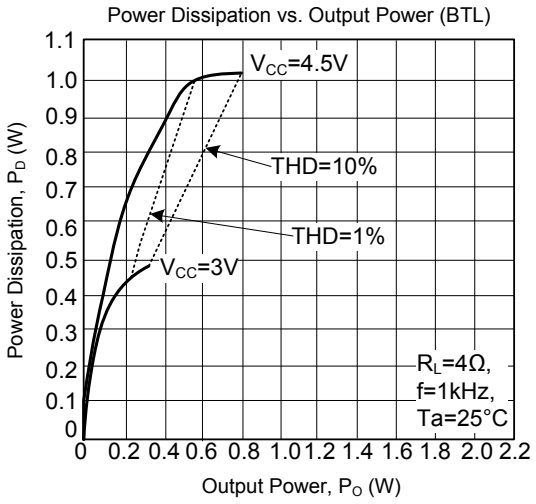


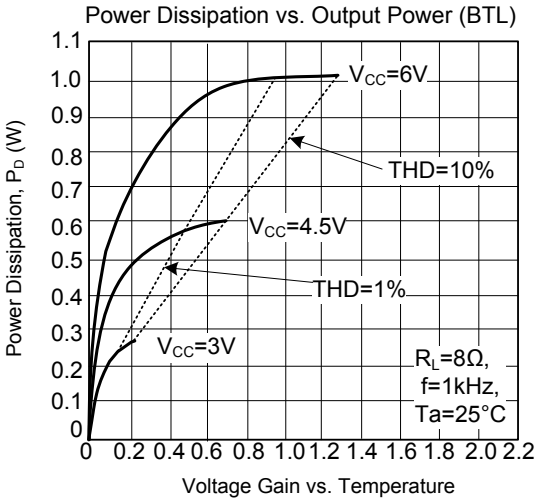
Stero Configuration Muting Circuit

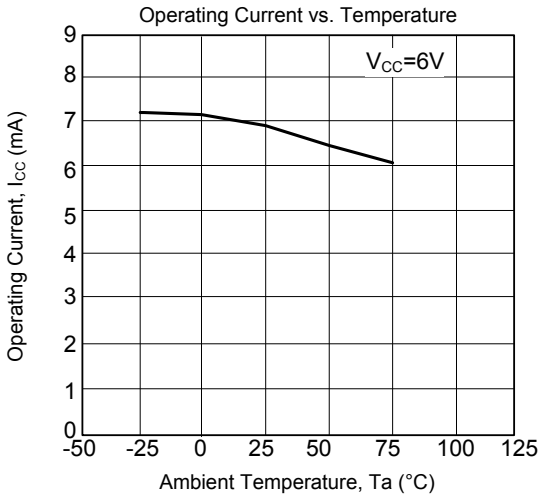
■ TYPICAL CHARACTERISTICS

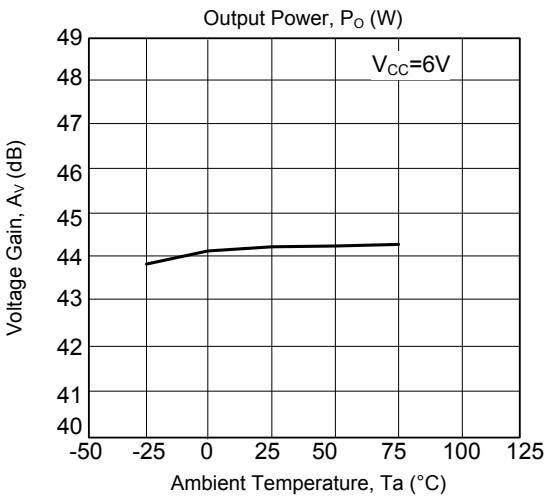












■ TYPICAL CHARACTERISTICS (Cont.)