



## 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

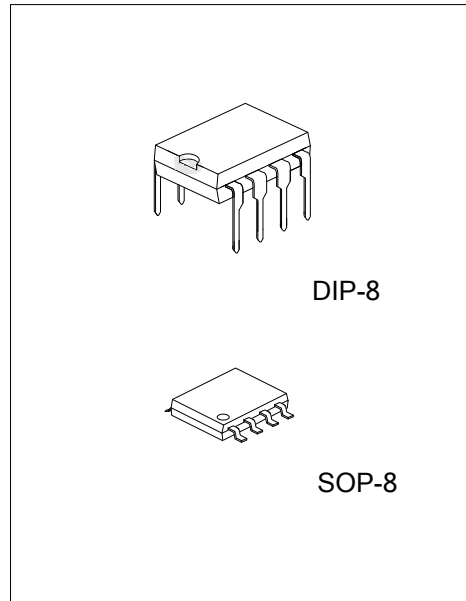
Ordering Number		Package	Packing
Lead Free	Halogen Free		
M2073L-D08-T	M2073G-D08-T	DIP-8	Tube
-	M2073G-S08-R	SOP-8	Tape Reel

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

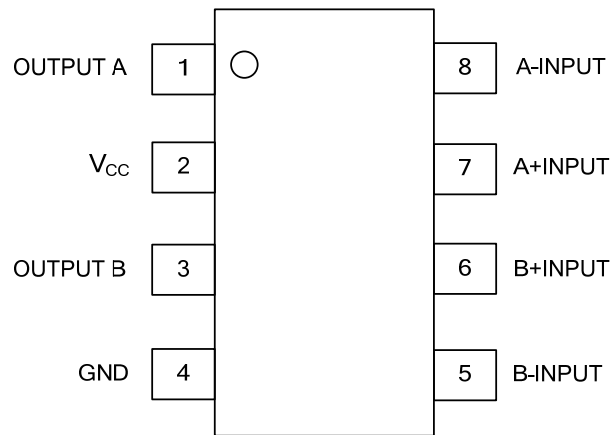
<p>M2073L-D08-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube, R: Tape Reel</li> <li>(2) D08: DIP-8, S08: SOP-8</li> <li>(3) L: Lead Free, G: Halogen Free and Lead Free</li> </ul>
---	--

#### MARKING

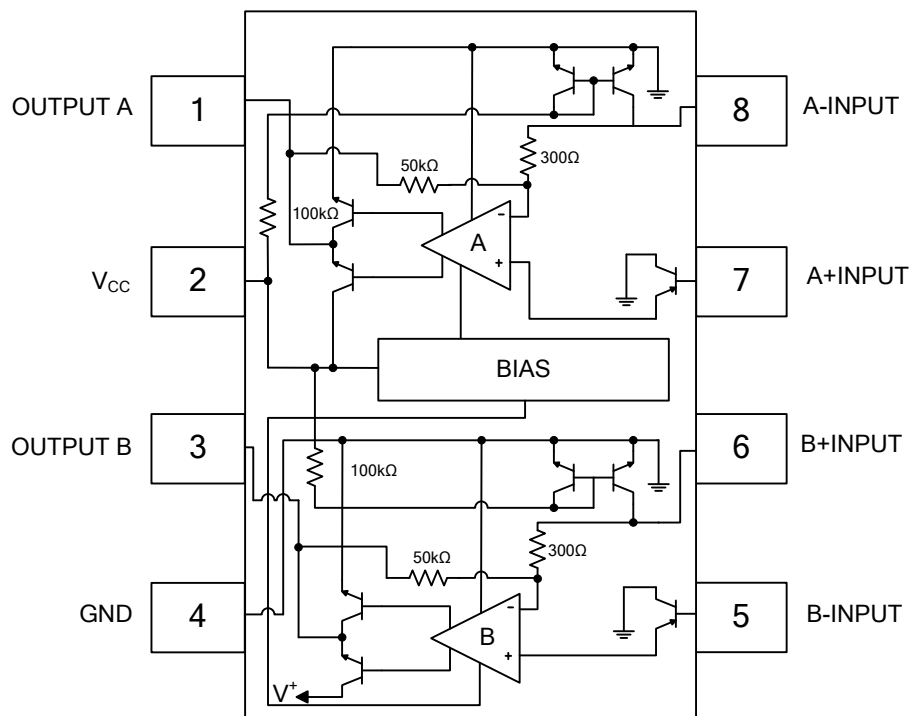
DIP-8	SOP-8



## ■ PIN CONFIGURATION



## ■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING

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

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

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)	$\Delta V_{OUT}$	$R_L=8\Omega$		10	50	mV	
Input Bias Current	$I_{I(BIAS)}$			100		nA	
Output Power	$P_{OUT}$	THD=10% $f=1\text{kHz}$	DIP-8	$V_{CC}=9\text{V}, R_L=16\Omega$ ( Note )	2.0	W	
				$V_{CC}=6\text{V}, R_L=8\Omega$ ( Note )	0.9	1.2	W
				$V_{CC}=4.5\text{V}, R_L=8\Omega$	0.6	W	
				$V_{CC}=4.5\text{V}, R_L=4\Omega$ ( Note )	0.8	W	
				$V_{CC}=3\text{V}, R_L=4\Omega$	200	300	mW
				$V_{CC}=2\text{V}, R_L=4\Omega$	80	mW	
		THD=1% $f=40\text{Hz}\sim 15\text{kHz}$	SOP-8	$V_{CC}=6\text{V}, R_L=16\Omega$ ( Note )	0.8	W	
				$V_{CC}=4\text{V}, R_L=8\Omega$ ( Note )	350	460	mW
				$V_{CC}=3\text{V}, R_L=4\Omega$ ( Note )	200	300	mW
				$V_{CC}=2\text{V}, R_L=4\Omega$	80	mW	
				DIP-8	$V_{CC}=6\text{V}, R_L=8\Omega$	1.0	W
					$V_{CC}=4.5\text{V}, R_L=4\Omega$	0.6	W
$V_{CC}=4\text{V}, R_L=8\Omega$	380	mW					
Total Harmonic Distortion	THD	$P_{OUT}=0.5\text{W}, R_L=8\Omega, f=1\text{kHz}$	DIP-8	0.2		%	
		$V_{CC}=4\text{V}, R_L=8\Omega, P_{OUT}=200\text{mW}, R_L=8\Omega, f=1\text{kHz}$	SOP-8	0.2		%	
Close Loop Voltage Gain	$G_V$	$f=1\text{kHz}$	41	44	47	dB	
Input Impedance	$Z_{IN}$	$f=1\text{kHz}$	100			k $\Omega$	
Equivalent Input Noise Voltage	$V_{NI1}$	$R_S=10\text{k}\Omega, \text{A Curve}$		2		$\mu\text{V}$	
	$V_{NI2}$	$R_S=10\text{k}\Omega, \text{B}=22\text{Hz}\sim 22\text{kHz}$		2.5		$\mu\text{V}$	
Ripple Rejection	RR	$f=100\text{Hz}$		40		dB	
Cutoff Frequency	$f_H$	$G_V=-3\text{dB}$ from $f=1\text{kHz}, R_L=8\Omega, P_{OUT}=1\text{W}$	DIP-8	130		kHz	
		$G_V=-3\text{dB}$ from $f=1\text{kHz}, R_L=16\Omega, P_{OUT}=0.5\text{W}$	SOP-8	130		kHz	

Note: At on PC Board

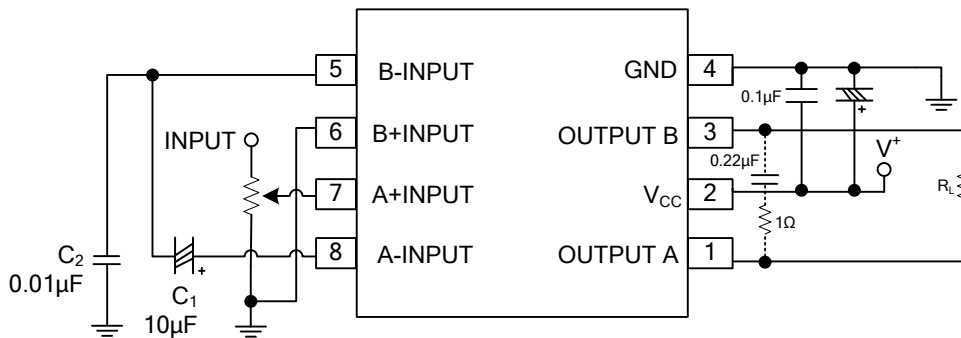
### ■ ELECTRICAL CHARACTERISTICS(Cont.)

#### Stereo Configuration (Page 7)

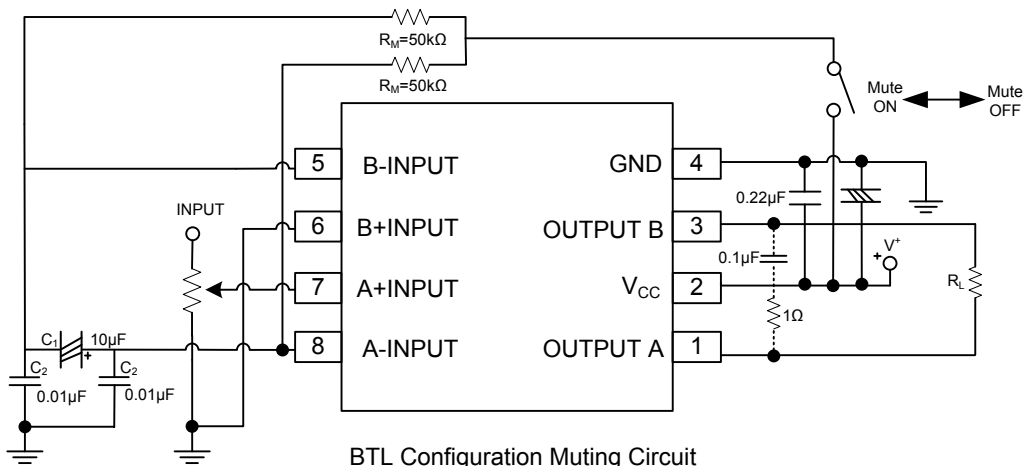
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT	
Operating Voltage	$V_{CC}$			1.8		15	V	
Output Voltage	$V_{OUT}$				2.7		V	
Operating Current	$I_{CC}$	$R_L = \infty$			6	9	mA	
Input Bias Current	$I_{I(BIAS)}$				100		nA	
Output Power (Each Channel)	$P_{OUT}$	THD=10% f=1kHz	$V_{CC} = 6V, R_L = 4\Omega$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

Note: At on PC Board

APPLICATION CIRCUITS FOR BTL MODE



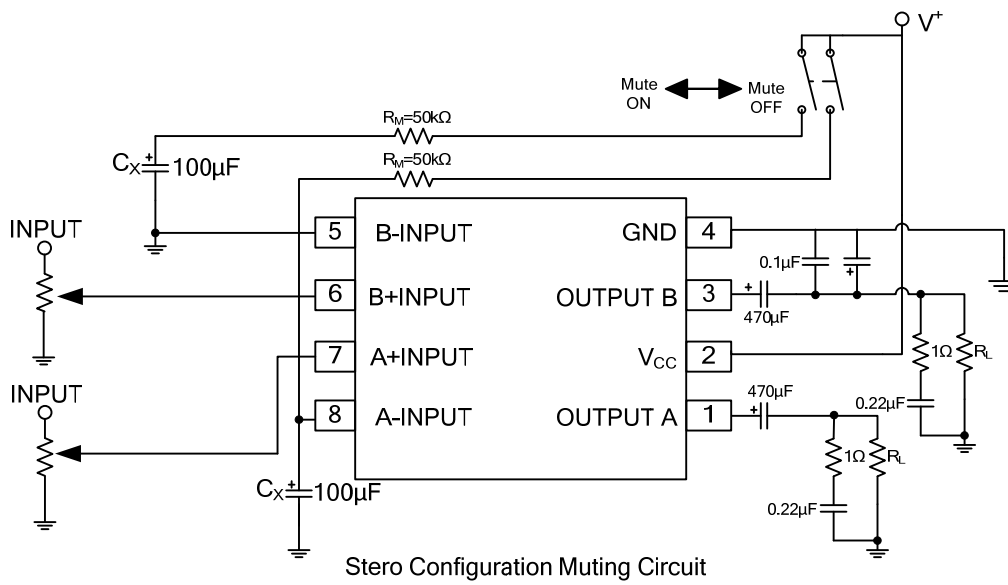
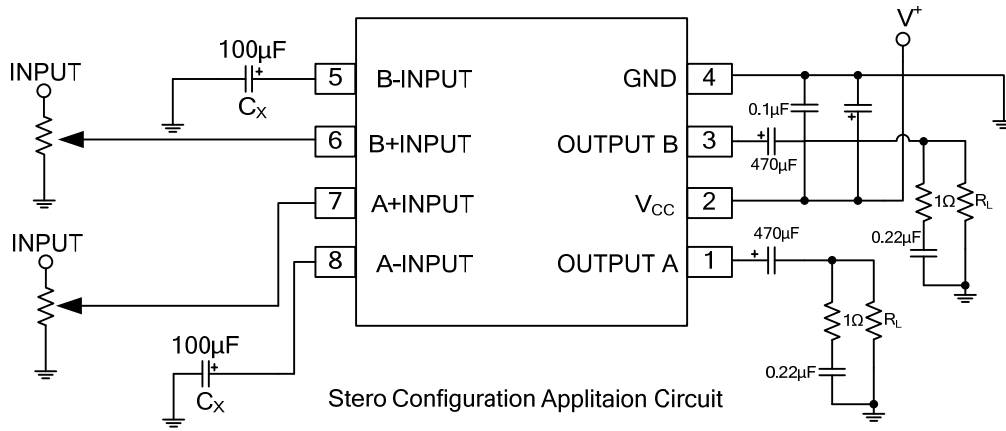
BTL Configuration Applaitaion Circuit



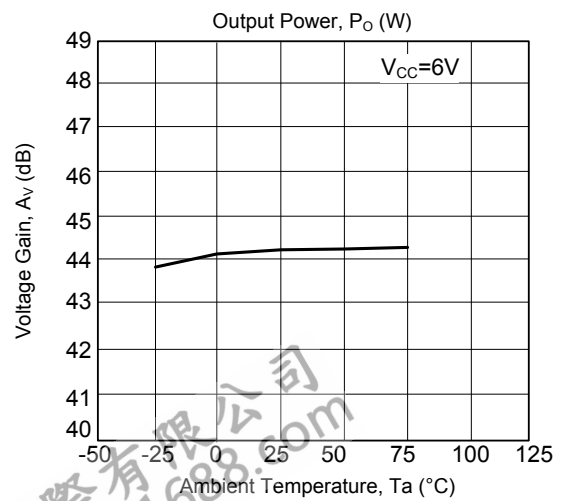
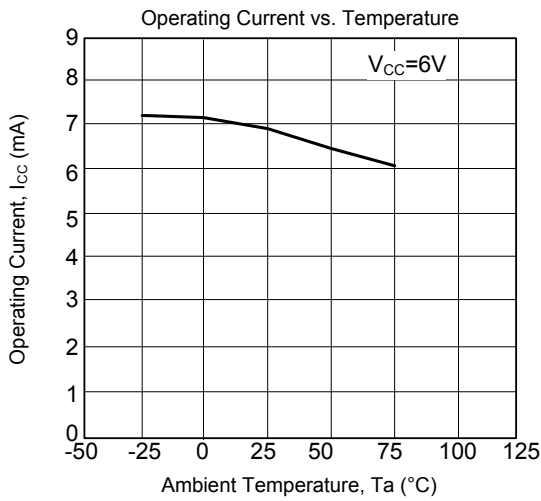
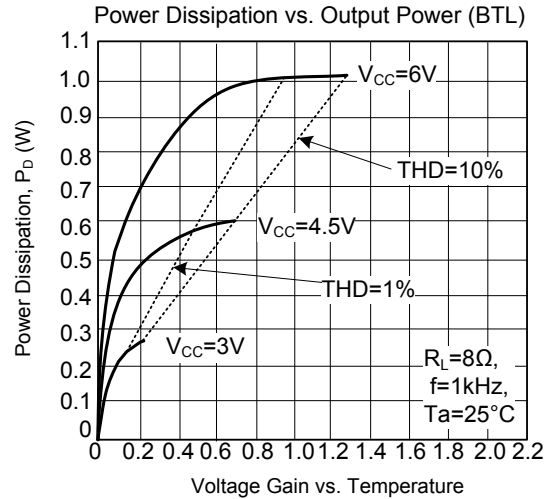
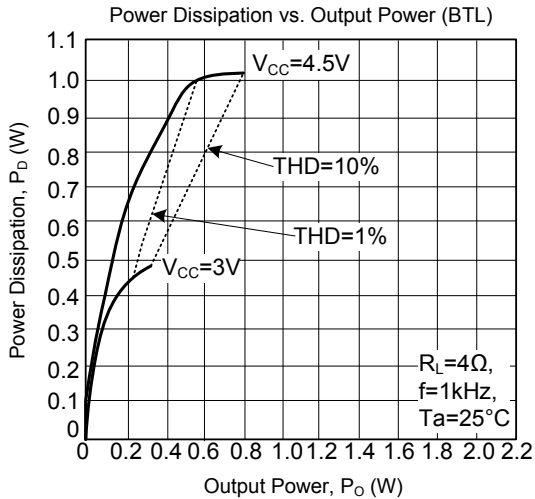
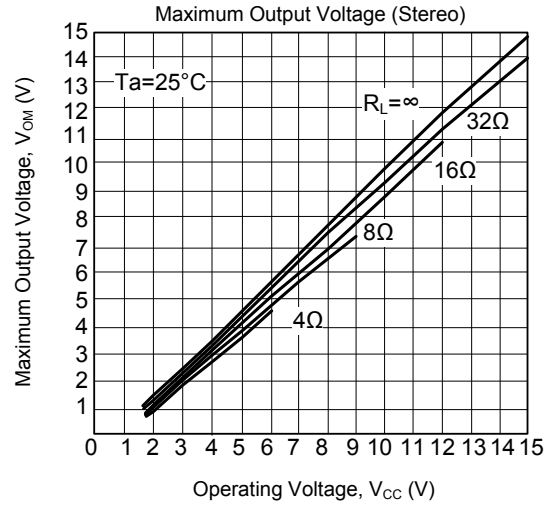
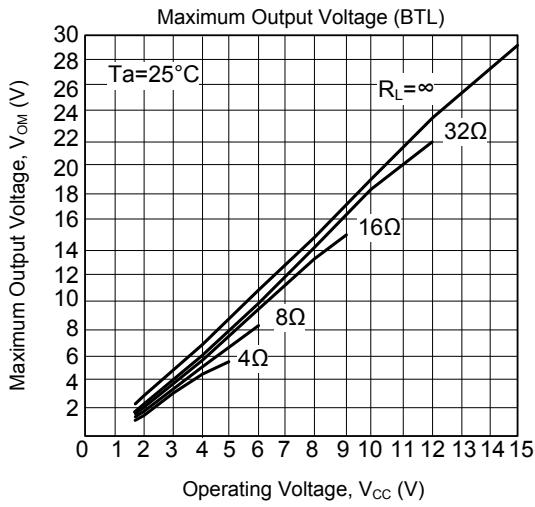
BTL Configuration Muting Circuit

FLYING 汎翔國際有限公司  
www.flying1688.com

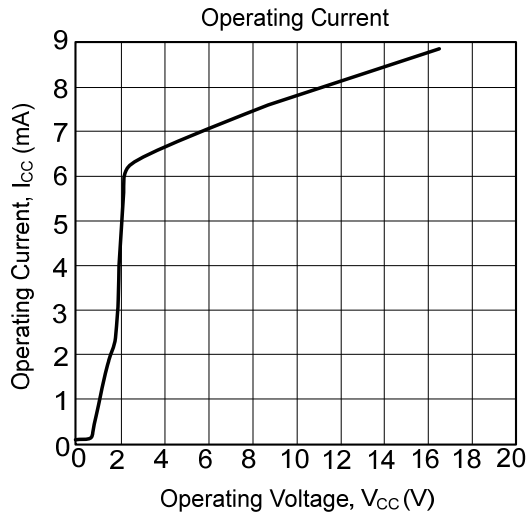
APPLICATION CIRCUITS FOR STEREO MODE



■ TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS (Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.