



3541

CMOS IC

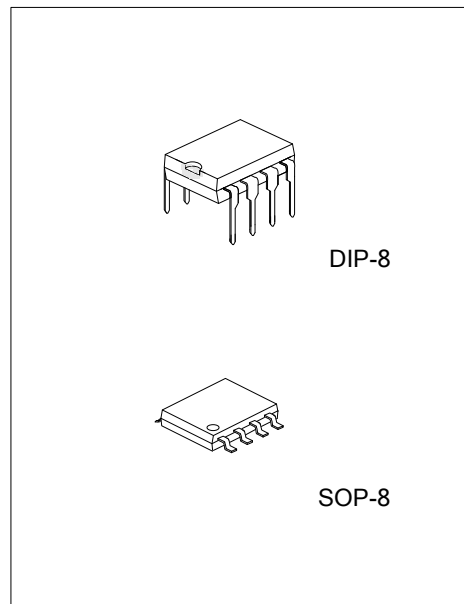
CLASS AB STEREO HEADPHONE DRIVER WITH MUTE

DESCRIPTION

The UTC 3541 is a class AB stereo headphone driver with Mute feature.

FEATURES

- \* Built-in Mute Function
- \* No Switch ON/OFF pops
- \* Short-Circuit Protection
- \* Low Power Consumption
- \* Large Output Voltage Swing
- \* High Signal-to-Noise Ratio



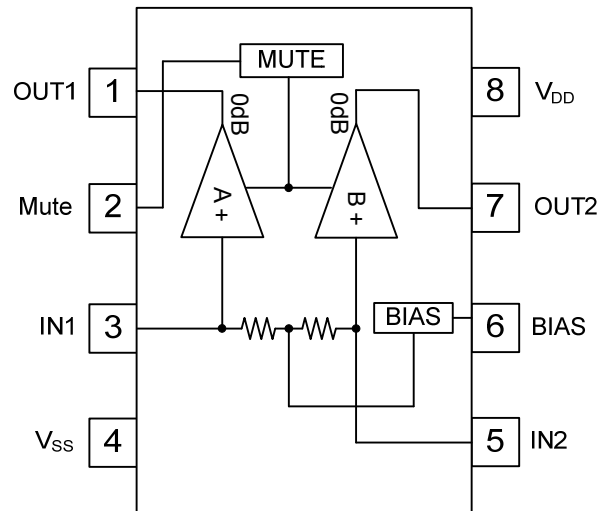
Lead-free: 3541L  
Halogen-free:3541G

ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
3541-D08-T	3541L-D08-T	3541G-D08-T	DIP-8	Tube
3541-S08-R	3541L-S08-R	3541G-S08-R	SOP-8	Tape Reel

<p>3541L-D08-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) D08: DIP-8, S08: SOP-8</p> <p>(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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### ■ BLOCK DIAGRAM



### ■ PIN DESCRIPTION

PIN NO.	PIN NAME	I/O	DESCRIPTION
1	OUT 1	O	Output pin for Channel A
2	Mute	I	Mute control input, high for normal operation
3	IN 1	I	Input pin for Channel A
4	V <sub>SS</sub>		Power ground
5	IN 2	I	Input pin for Channel B
6	BIAS	I	Right channel bias input pin
7	OUT 2	O	Output pin for Channel B
8	V <sub>DD</sub>		Power supply input

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{DD}$	7	V
Output Short-Circuit Duration ( $T_a=25^\circ\text{C}$ , $P_D=1\text{W}$ )	$t_{sc(o)}$	20	S
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Operating Temperature	$T_{OPR}$	-40 ~ +85	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

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.

### ■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	DIP-8	108	$^\circ\text{C}/\text{W}$
	SOP-8	210	
Junction to Case	DIP-8	45	$^\circ\text{C}/\text{W}$
	SOP-8	40	

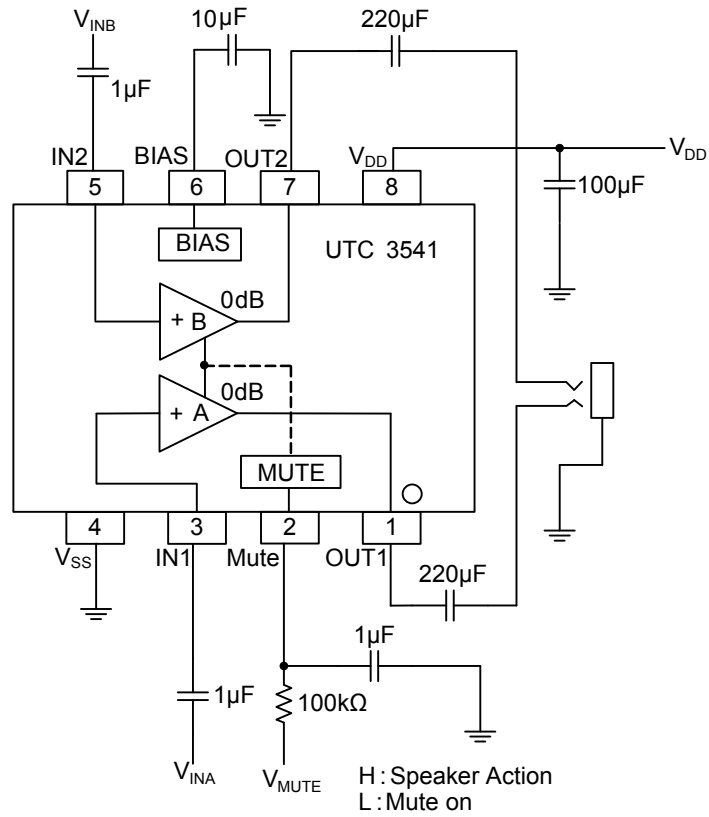
Note:  $\theta_{JA}$  is measured with the component mounted on a high effective thermal conductivity test board in free air.

### ■ ELECTRICAL CHARACTERISTICS

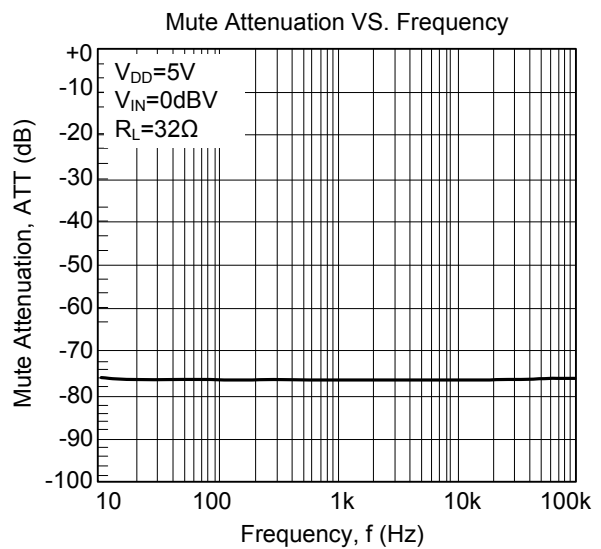
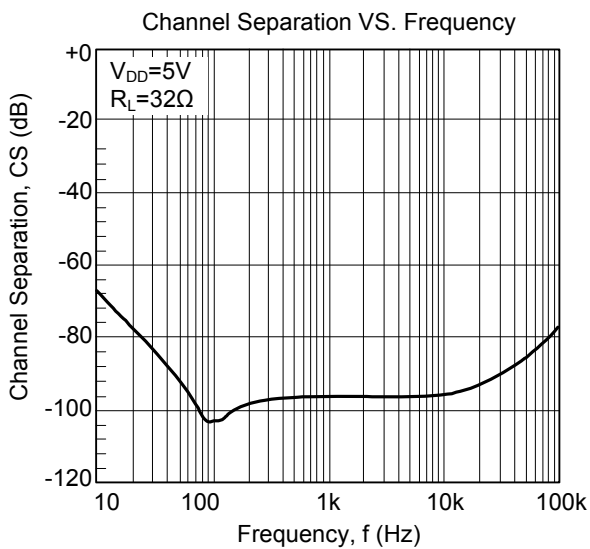
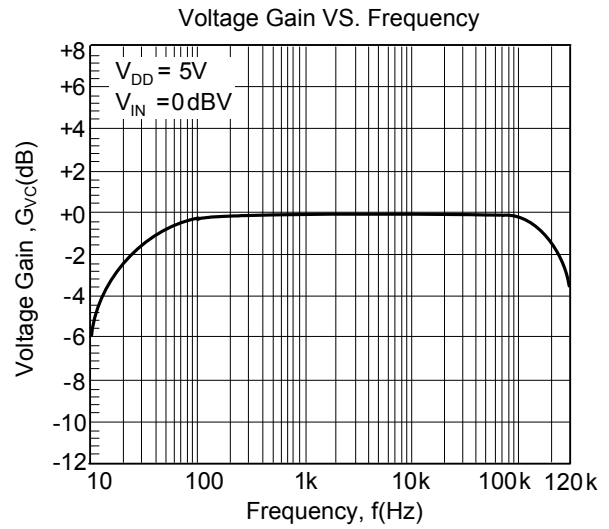
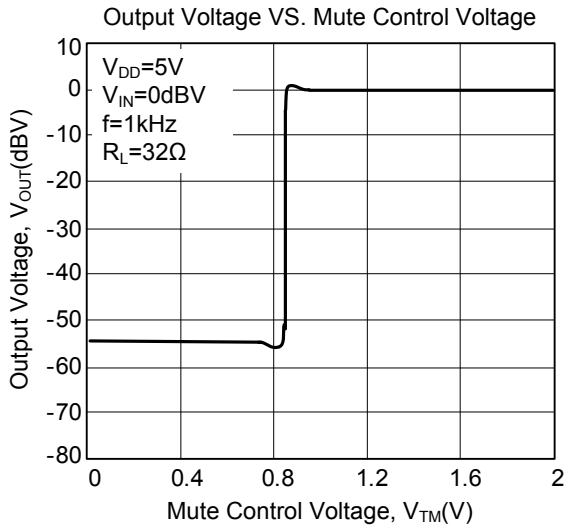
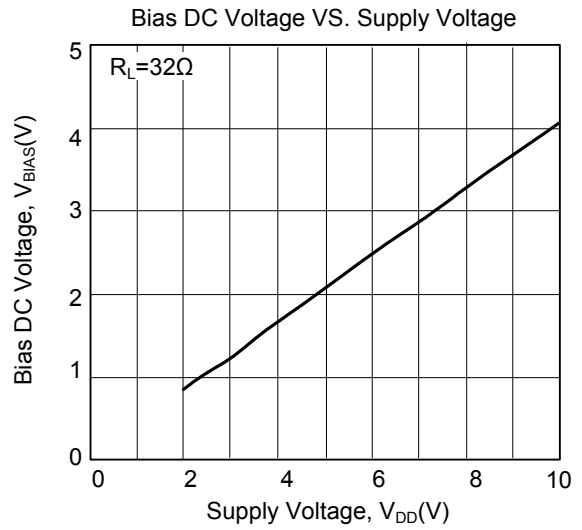
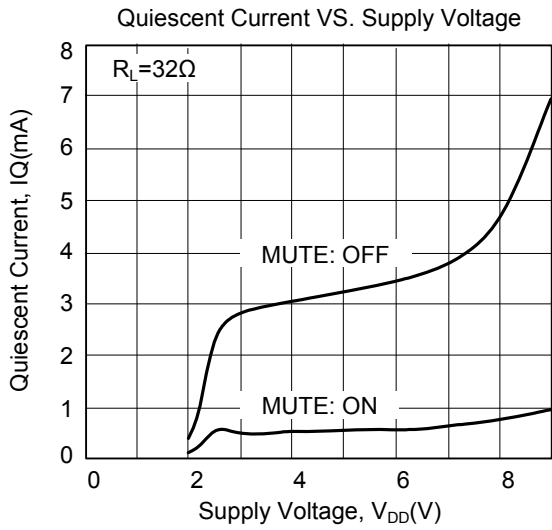
( $V_{IN}=0\text{dBV}$ ,  $V_{CC}=5\text{V}$ ,  $T_a=25^\circ\text{C}$ ,  $f=1\text{kHz}$ ,  $R_L=32\Omega$ , unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{DD}$		3.0	5.0	6.0	V
Mute Terminal Voltage	$V_{TM}$		0.3	0.7	1.6	V
Quiescent Current	$I_Q$	$V_{IN} = 0V_{rms}$		3.5	5	mA
Mute Current	$I_{MUTE}$			200		$\mu\text{A}$
Voltage Gain	$G_{VCL}$	$V_{IN}=1V_{rms}$ , $f=1\text{kHz}$ , $R_L=32\Omega$	-2	0	2	dB
Differential Channel Voltage Gain	$\Delta G_{VCL}$		-0.5	0	0.5	dB
Channel Separation	CS	$f=1\text{kHz}$	-90	-92.5		dB
Mute Attenuation	ATT	$V_{IN} = 1V_{rms}$ , $f=1\text{kHz}$ , Mute=L	65	70		dB
Ripple Rejection	RR	$F_{RR} = 100\text{Hz}$ , $V_{RR} = -20\text{dBV}$	50	60		dB
Output Noise Voltage	$V_{NO}$	$BW = 20\sim 20\text{kHz}$ , $V_{IN}=0V_{rms}$		-93	-85	dBV
Total Harmonic Distortion	THD	$BW < 120\text{kHz}$		0.03	0.1	%
Rated Output Power 1	$P_{O1}$	THD+N = 0.1%, $BW < 120\text{kHz}$	$R_L=32\Omega$	50	55	mW
Rated Output Power 2	$P_{O2}$		$R_L=16\Omega$	105	110	mW

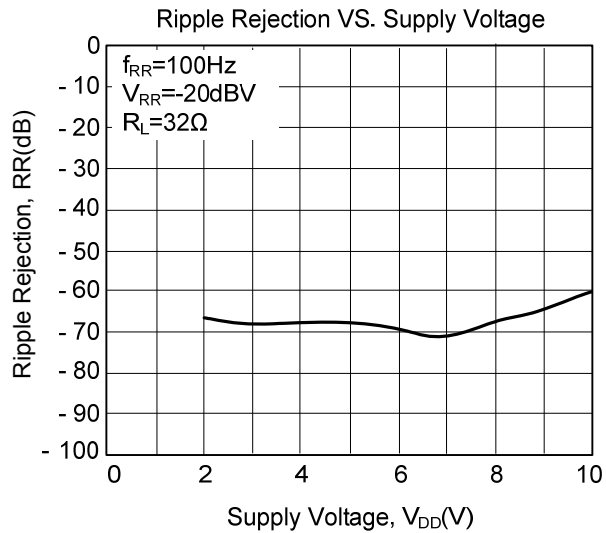
■ TEST AND APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS(Cont.)



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