



3541

CMOS IC

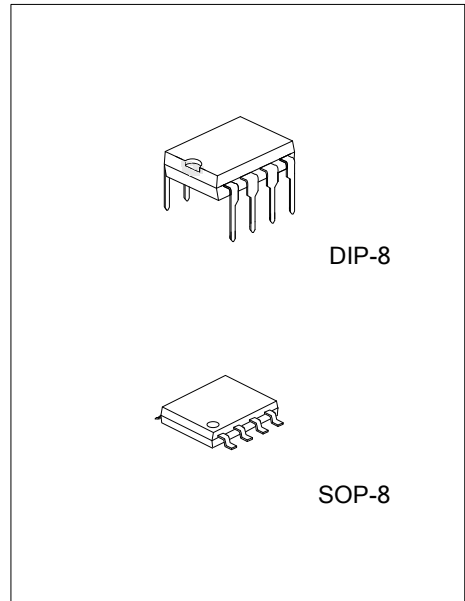
**CLASS AB STEREO
HEADPHONE DRIVER WITH
MUTE**

■ **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



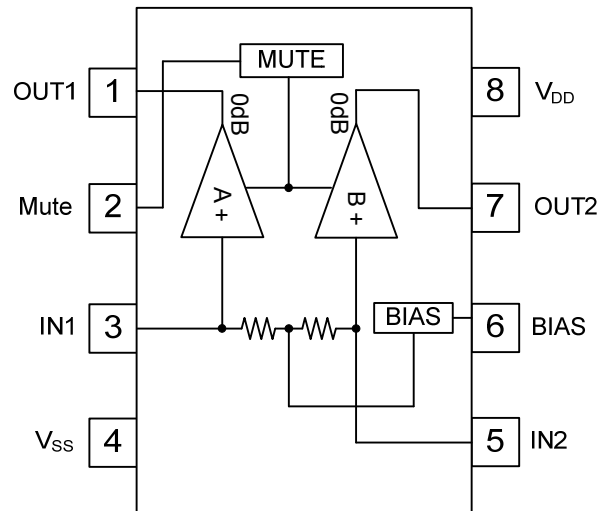
Lead-free: 3541L
Halogen-free:3541G

■ **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 (2)Package Type (3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube (2) D08: DIP-8, S08: SOP-8 (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 _{SS}		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 _{DD}		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	

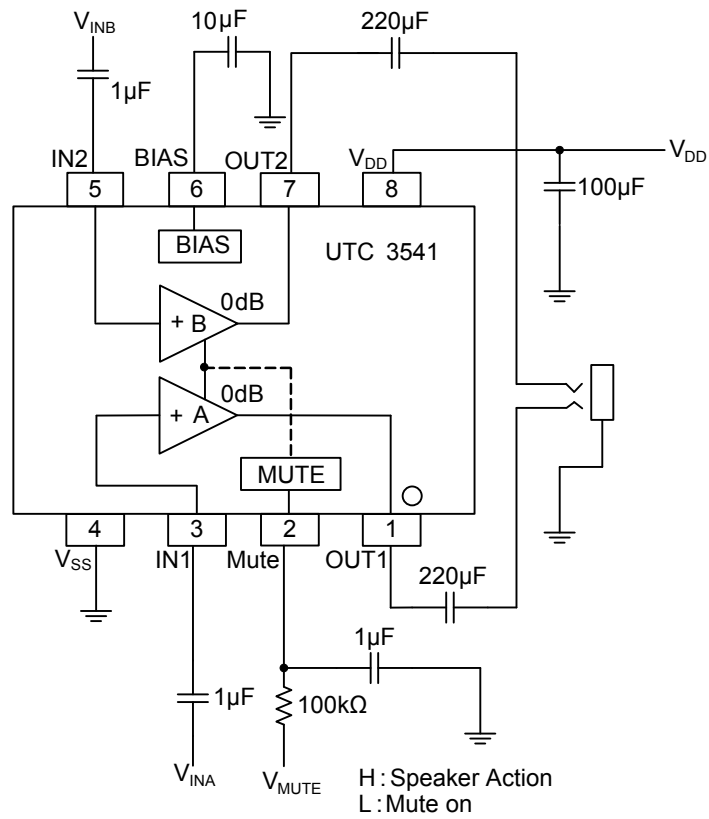
Note: θ_{JA} is measured with the component mounted on a high effective thermal conductivity test board in free air.

■ ELECTRICAL CHARACTERISTICS

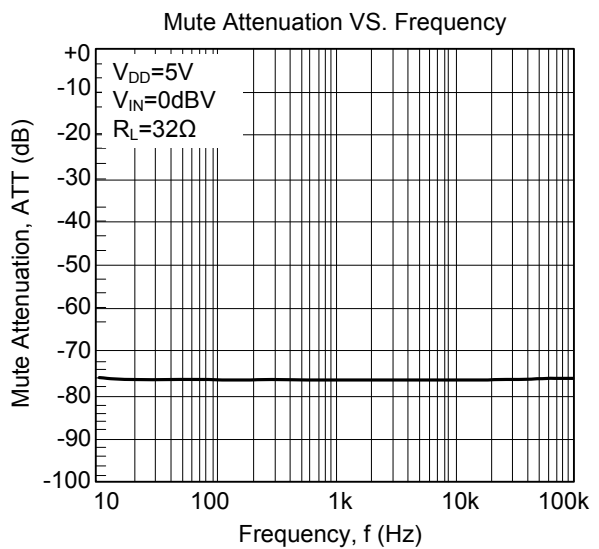
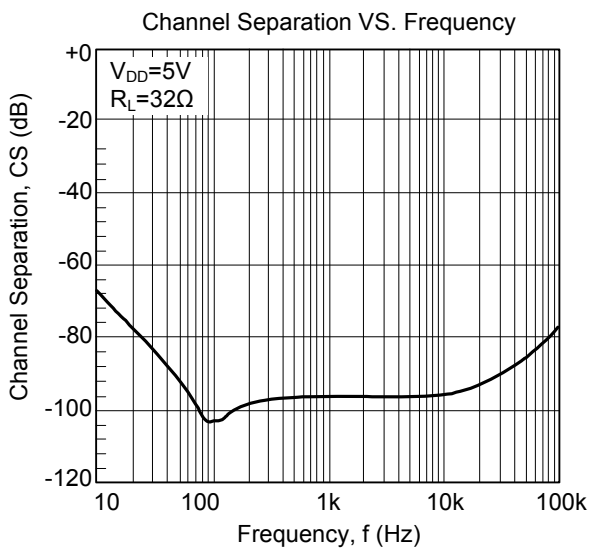
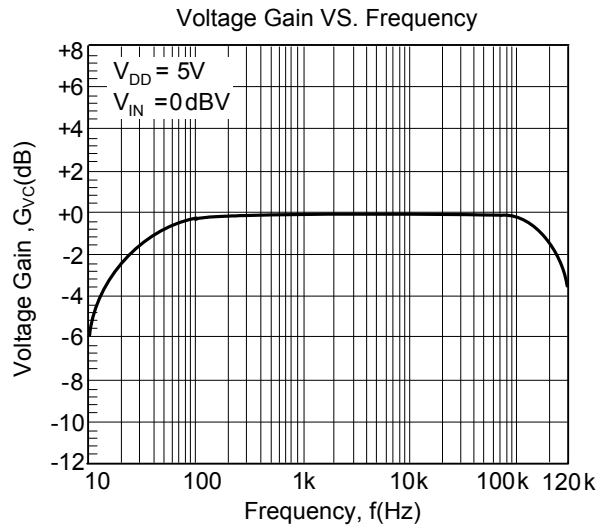
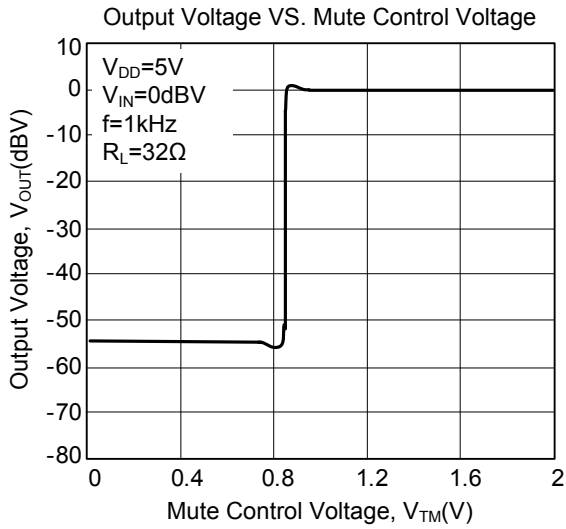
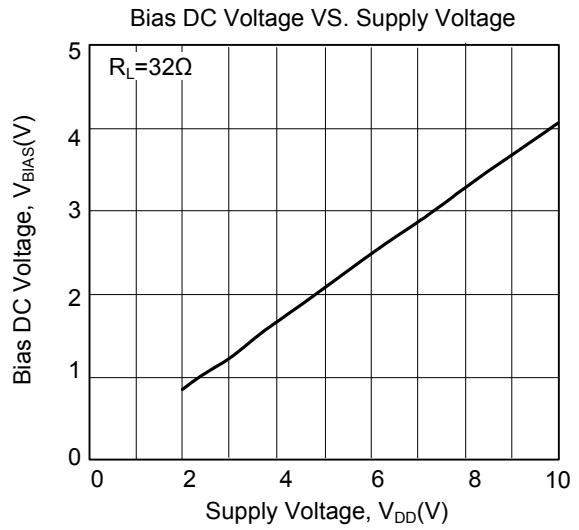
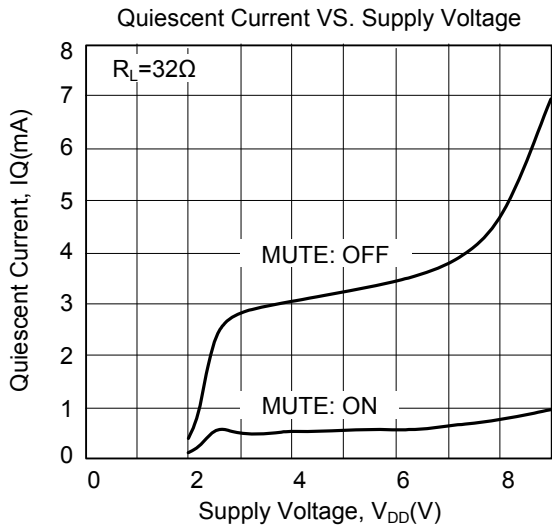
($V_{IN}=0\text{dBV}$, $V_{CC}=5\text{V}$, $T_a=25^\circ\text{C}$, $f=1\text{kHz}$, $R_L=32\Omega$, unless otherwise specified.)

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		μA
Voltage Gain	G_{VCL}	$V_{IN}=1V_{rms}$, $f=1\text{kHz}$, $R_L=32\Omega$	-2	0	2	dB
Differential Channel Voltage Gain	ΔG_{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

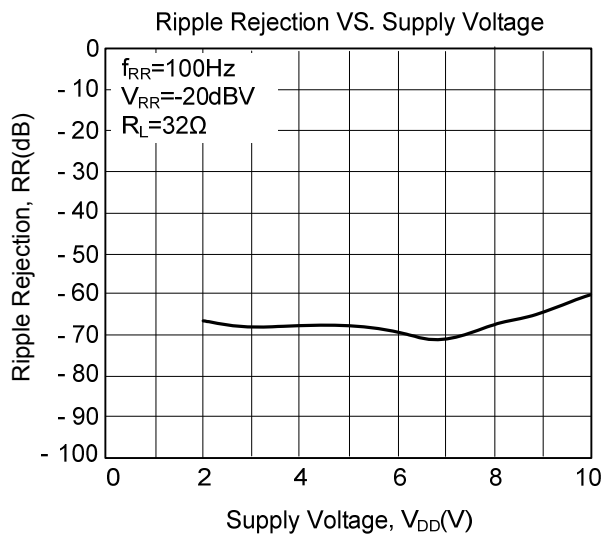
■ TEST AND APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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