

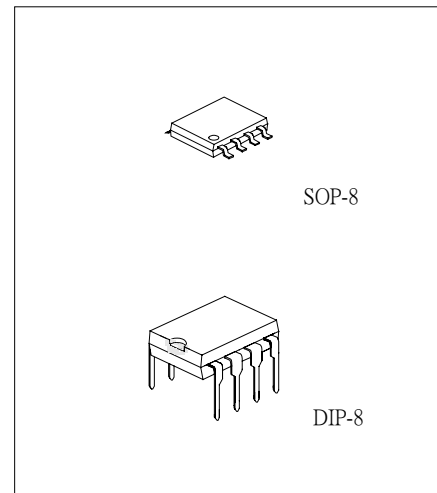
**CLASS AB STEREO HEADPHONE DRIVER WITH MUTE**

**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

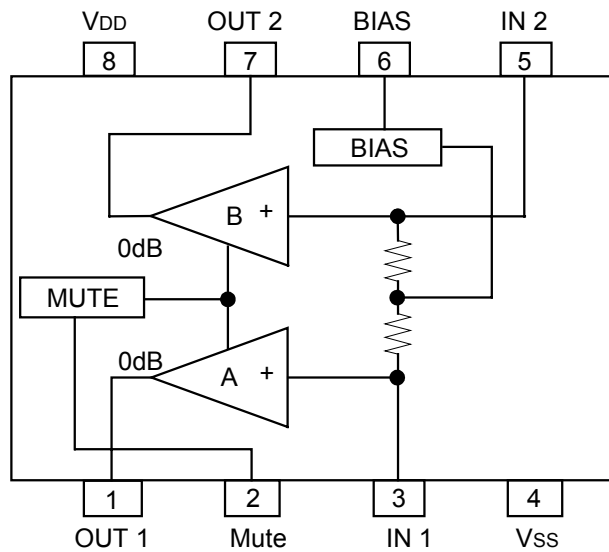


\*Pb-free plating product number: 3541L

**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	Vss		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	VDD		Power supply input

**BLOCK DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{DD}$	7	V
Electrostatic Discharge	$V_{ESD}$	-3000 ~ 3000 *1	V
Output Short-circuit Duration ( $T_a=25^\circ\text{C}$ , $P_{tot}=1\text{W}$ )	$t_{sc(o)}$	20	S
Operating Ambient Temperature range	$T_a$	-40 ~ 85	$^\circ\text{C}$
Maximum Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 ~ 150	$^\circ\text{C}$
Soldering Temperature (10 seconds)	$T_{solder}$	260	$^\circ\text{C}$

\*1. Human body model:  $C=100\text{pF}$ ,  $R=1500\Omega$ , 3 positive pulses plus 3 negative pulses.

**THERMAL CHARACTERISTICS**

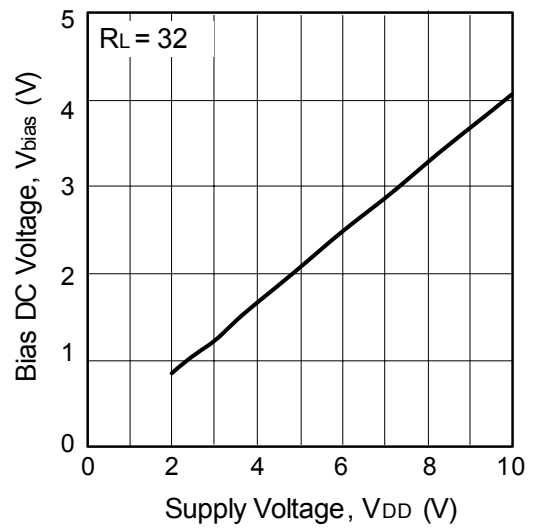
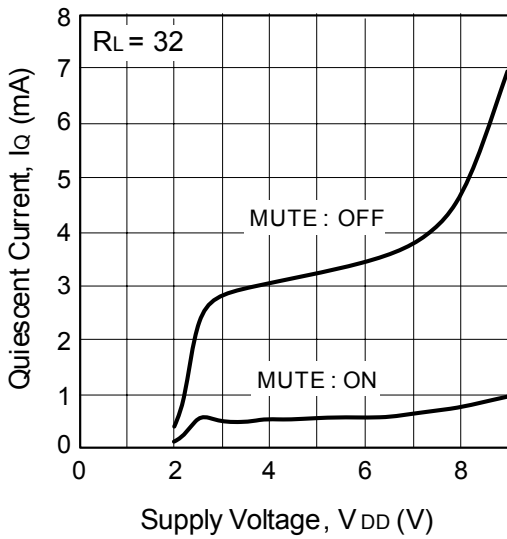
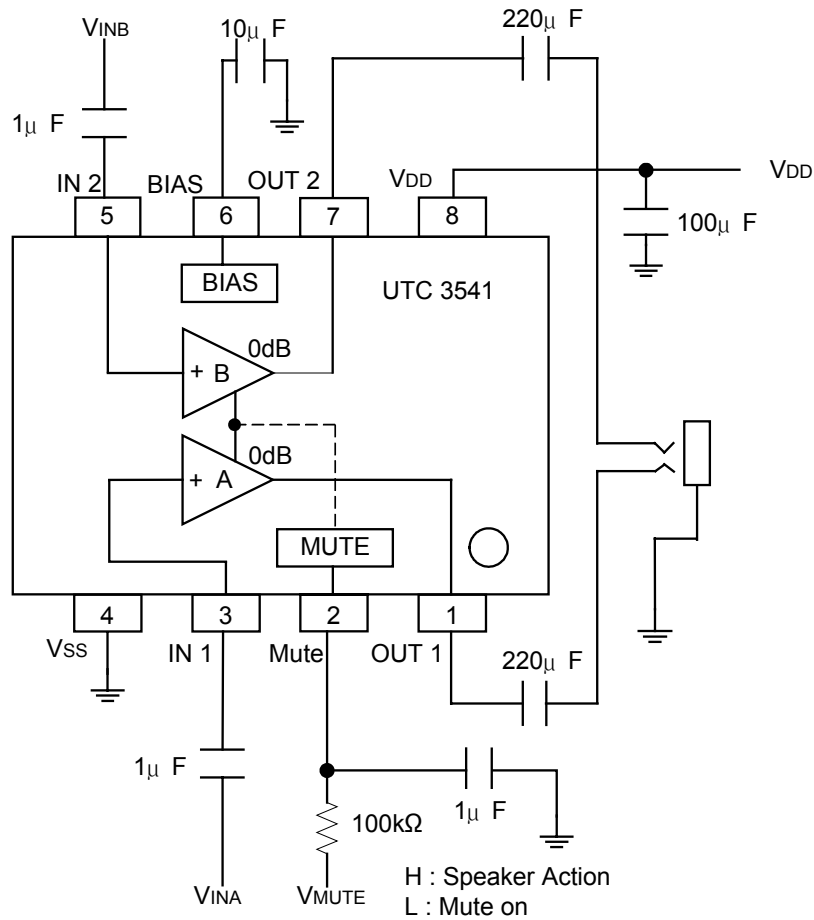
PARAMETER		SYMBOL	RATINGS	UNIT
Thermal Resistance from Junction to Ambient in Free Air	DIP-8	$\theta_{JA}$	109	K/W
	SOP-8		210	
Thermal Resistance from Junction to Case	DIP-8	$\theta_{JC}$	45	K/W
	SOP-8		40	

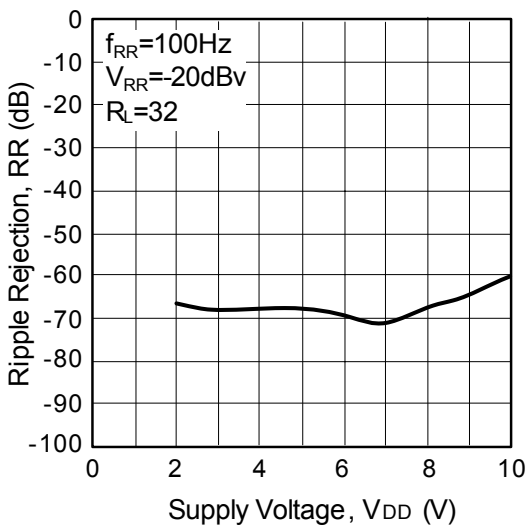
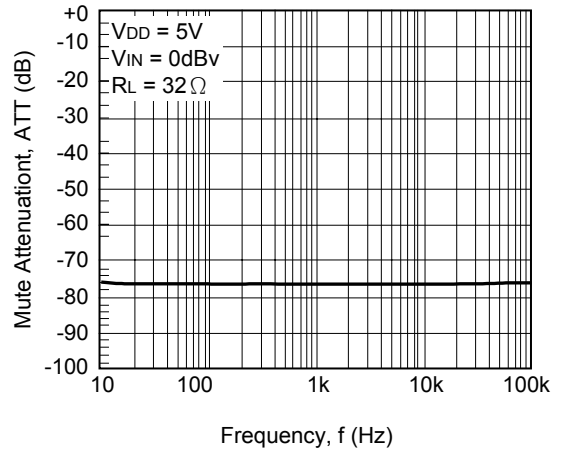
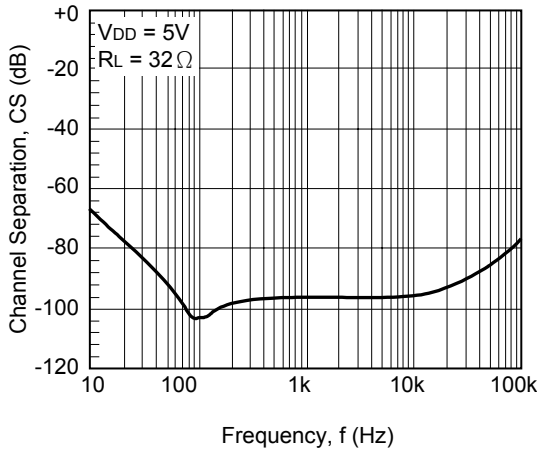
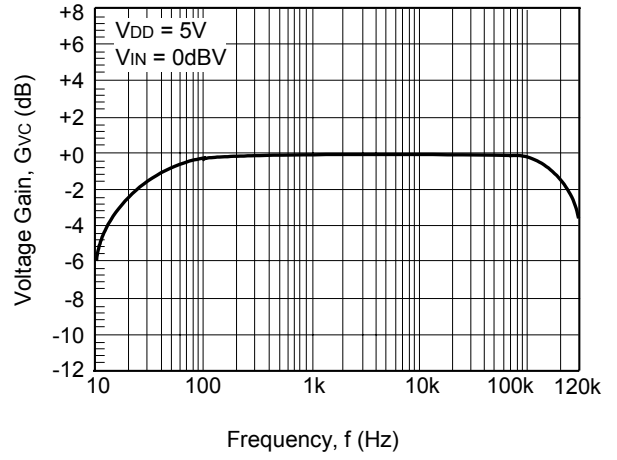
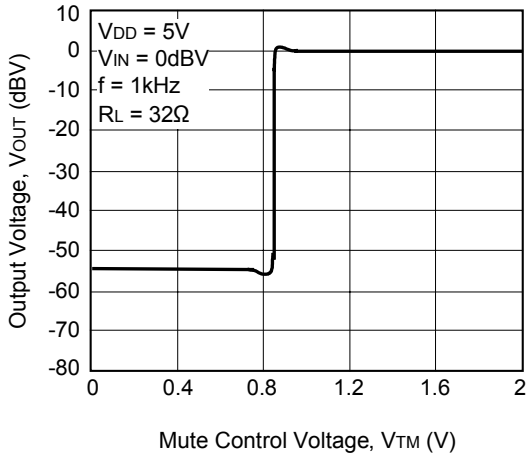
**ELECTRICAL CHARACTERISTICS**

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

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	$I_Q$	$V_{IN} = 0\text{Vrms}$		3.5	5	mA
Mute Current	$I_{mute}$			200		$\mu\text{A}$
Voltage Gain	$G_{VCL}$	$V_{IN} = 1\text{Vrms}$ , $f = 1\text{kHz}$ , $R_L = 32\Omega$	-2	0	2	dB
Differential Channel Voltage Gain	$\Delta G_{VCL}$		-0.5	0	0.5	dB
Total Harmonic Channel Distortion Factor	THD	$BW < 120\text{ kHz}$		0.03	0.1	%
Rated Output Power 1	$P_{O1}$	$R_L = 32\Omega$ , $\text{THD} + \text{N} = 0.1\%$ , $BW < 120\text{ kHz}$	50	55		mW
Rated Output Power 2	$P_{O2}$	$R_L = 16\Omega$ , $\text{THD} + \text{N} = 0.1\%$ , $BW < 120\text{ kHz}$	105	110		mW
Output Noise Voltage	$V_{NO}$	$BW = 20 \sim 20\text{ kHz}$ , $V_{IN} = 0\text{Vrms}$		-93	-85	dBv
Channel Separation	CS	$f = 1\text{ kHz}$	-90	-92.5		dB
Mute Attenuation	ATT	$V_{IN} = 1\text{Vrms}$ , $f = 1\text{ kHz}$ , $\text{Mute} = \text{L}$	65	70		dB
Ripple Rejection	RR	$F_{RR} = 100\text{Hz}$ , $V_{RR} = -20\text{dBV}$	50	60		dB

TEST AND APPLICATION CIRCUIT





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