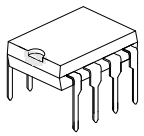
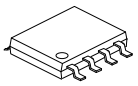
3541 CMOS IC

CLASS AB STEREO HEADPHONE DRIVER WITH MUTE



DIP-8



SOP-8

■ DESCRIPTION

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

■ FEATURES

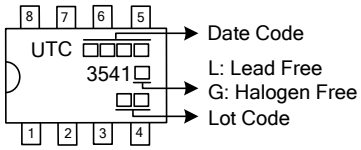
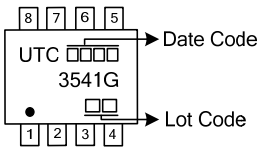
* Built-in Mute Function
* No Switch ON/OFF pops
* Short-Circuit Protection
* Low Power Consumption
* Large Output Voltage Swing
* High Signal-to-Noise Ratio

■ ORDERING INFORMATION

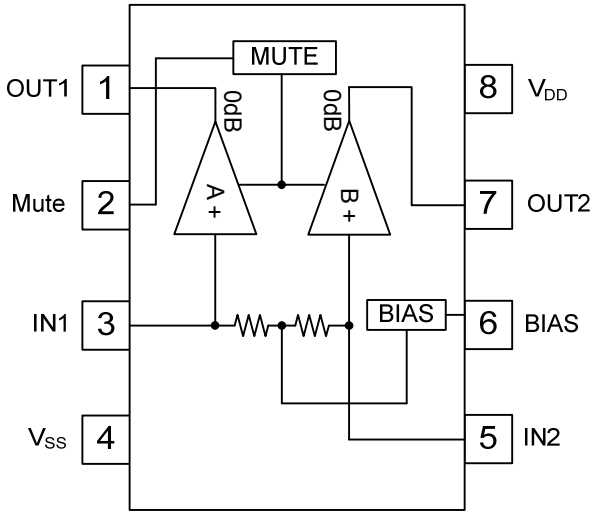
Ordering Number		Package	Packing
Lead Free	Halogen Free		
3541L-D08-T	3541G-D08-T	DIP-8	Tube
-	3541G-S08-R	SOP-8	Tape Reel

3541L-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) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING

DIP-8	SOP-8
	

■ 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°C, P_D=1W)	$t_{SC(O)}$	20	S
Junction Temperature	T_J	150	°C
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-65 ~ +150	°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 DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	DIP-8	θ_{JA}	108	°C/W
	SOP-8		210	
Junction to Case	DIP-8	θ_{JC}	45	°C/W
	SOP-8		40	

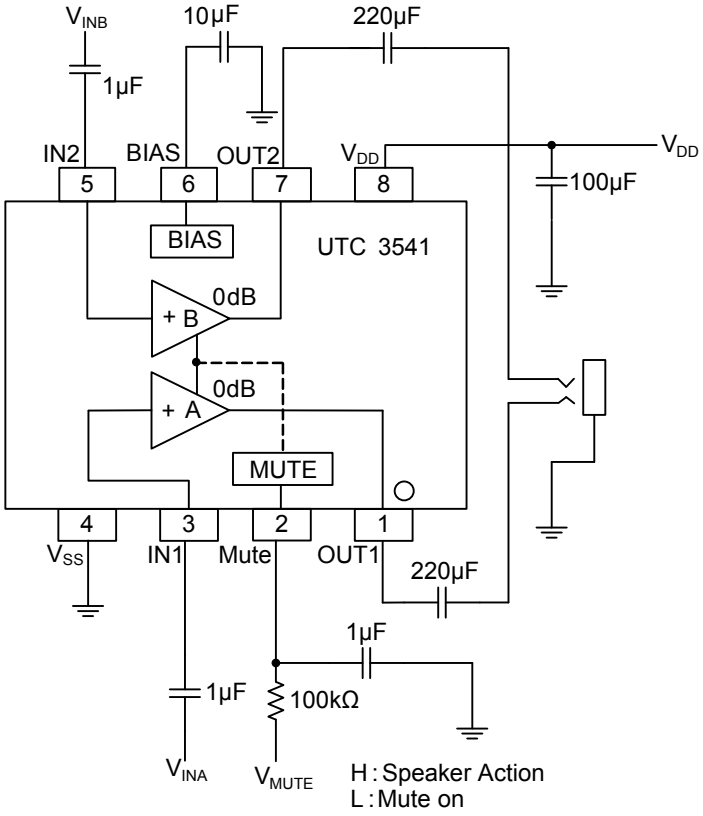
Note: θ_{JA} is measured with the component mounted on a high effective thermal conductivity test board in free air.

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=0dBV, V_{CC}=5V, T_A=25°C, f=1kHz, R_L=32Ω, unless otherwise specified.)

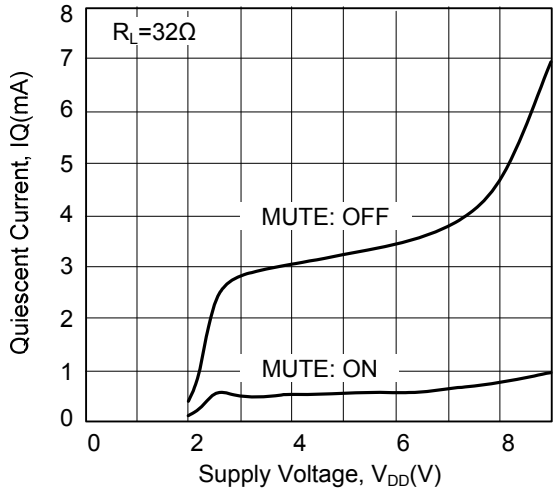
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Voltage	V_{DD}			3.0	5.0	6.0	V
Mute Terminal Voltage	V_{TM}			0.3	0.7	1.6	V
Quiescent Current	I_Q	V_{IN} = 0V_{RMS}			3.5	5	mA
Mute Current	I_{MUTE}				200		μA
Voltage Gain	G_{VCL}	V_{IN}=1V_{RMS}, f =1kHz, R_L=32Ω		-2	0	2	dB
Differential Channel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

■ TEST AND APPLICATION CIRCUIT

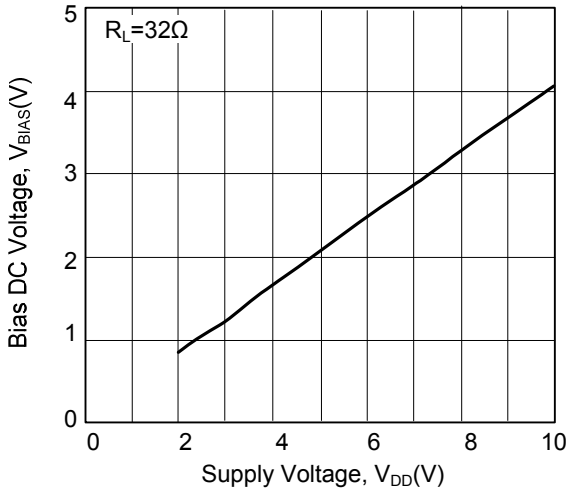


■ TYPICAL CHARACTERISTICS

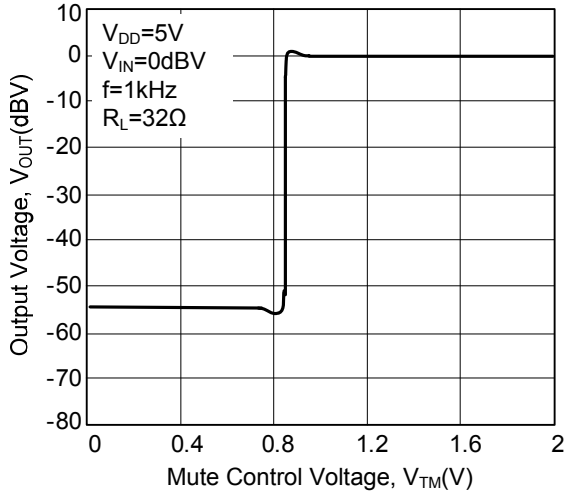
Quiescent Current VS. Supply Voltage



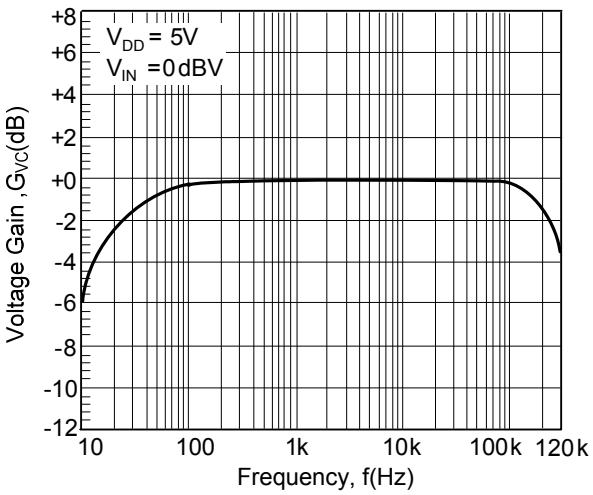
Bias DC Voltage VS. Supply Voltage



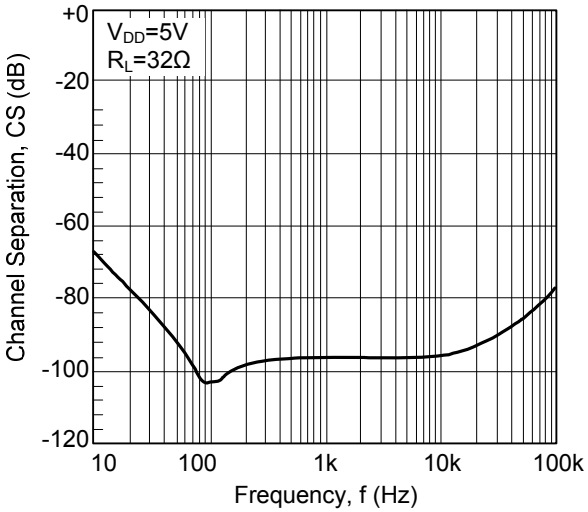
Output Voltage VS. Mute Control Voltage



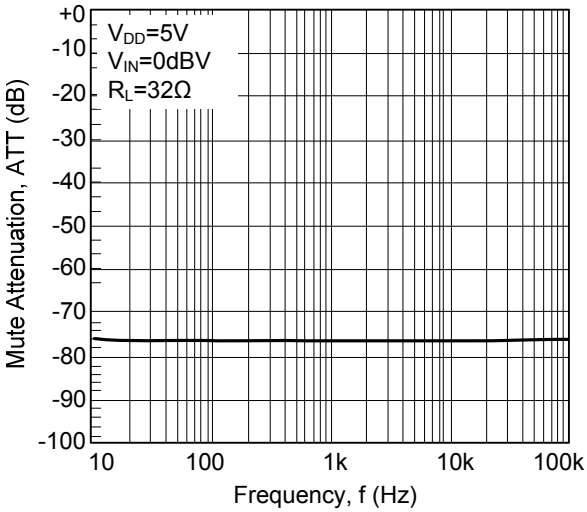
Voltage Gain VS. Frequency



Channel Separation VS. Frequency



Mute Attenuation VS. Frequency



■ TYPICAL CHARACTERISTICS(Cont.)