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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





ON Semiconductor®

<http://onsemi.com>

LA4537MC

Monolithic Linear IC

Power Amplifier

for 1.5V Headphone Stereos

Features

- Low current drain
- 16Ω load drive capability
- Excellent reduced voltage characteristics
- Excellent power supply ripple rejection
- Minimum number of external parts required (no input capacitor, feedback capacitor required)
- Less harmonic interference in radio band
- On-chip power switch function, muting function

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max	Quiescent	4.5	V
Allowable power dissipation	Pd max		290	mW
Operating temperature	T _{opr}		–20 to +75	°C
Storage temperature	T _{stg}		–40 to +125	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}		1.5	V
Operating voltage range	V _{CC} op		0.9 to 4.0	V
Recommended load resistance	R _L		16 to 32	Ω

LA4537MC

Electrical Characteristics at $T_a = 25^\circ\text{C}$, $R_L = 16\Omega$, $R_g = 600\Omega$, See specified Test Circuit.

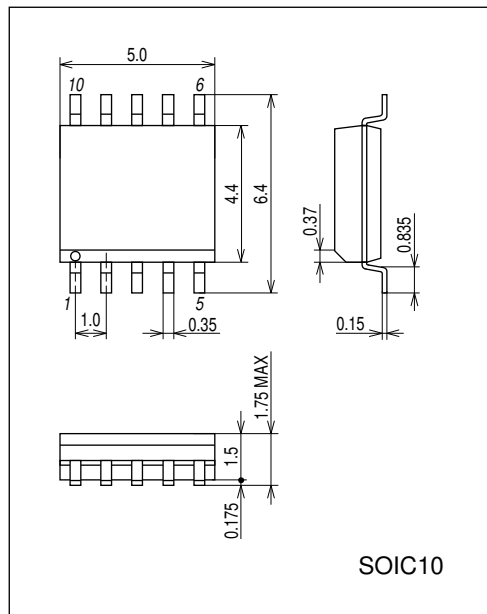
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I_{CCO1}	$V_{CC} = 1.2\text{V}$, quiescent		3.5	6.0	mA
	I_{CCO2}	$V_{CC} = 2.5\text{V}$, pin 10 \rightarrow GND		1.4	2.5	mA
	I_{CCO3}	$V_{CC} = 2.5\text{V}$, pin 1 \rightarrow GND			1.0	μA
Voltage gain	VG	$V_{CC} = 1.2\text{V}$, $f = 1\text{kHz}$, $V_O = -20\text{dBm}$	28.5	30.0	31.5	dB
Voltage gain difference	ΔVG	$V_{CC} = 1.2\text{V}$, $f = 1\text{kHz}$, $V_O = -20\text{dBm}$			1.0	dB
Total harmonic distortion	THD	$V_{CC} = 1.2\text{V}$, $f = 1\text{kHz}$, $P_O = 0.5\text{mW}$		0.5	1.5	%
Output power	P_O	$V_{CC} = 1.5\text{V}$, $f = 1\text{kHz}$, THD = 10%	5	8		mW
Crosstalk	CT	$V_{CC} = 1.2\text{V}$, $f = 100\text{Hz}$, $R_g = 1\text{k}\Omega$, $V_O = -20\text{dB}$	40	45		dB
Ripple rejection	SVRR	$V_{CC} = 1.0\text{V}$, $f = 100\text{Hz}$, $R_g = 1\text{k}\Omega$, $V_R = -30\text{dBm}$, BPF = 100Hz	40	46		dB
Output noise voltage	V_{NO}	$V_{CC} = 2.5\text{V}$, $R_g = 1\text{k}\Omega$, BPF = 20Hz to 20kHz		55	80	μV
Power on current sensitivity	I_1 (on)	$V_{CC} = 0.85\text{V}$, $V_5 \geq 0.5\text{V}$		0.1	1.0	μA
Power off voltage sensitivity	V_1 (off)	$V_{CC} = 0.85\text{V}$, $V_5 \leq 0.1\text{V}$	0.5	0.6		V
Muting off current sensitivity	I_{10} (off)	$V_{CC} = 0.85\text{V}$, $V_5 \geq 0.5\text{V}$		0.1	1.0	μA
Muting on voltage sensitivity	V_{10} (on)	$V_{CC} = 0.85\text{V}$, $V_5 \leq 0.1\text{V}$	0.5	0.6		V

Note) The quiescent current is respresented by the current flowing into pin 6. The respective maximum currents flowing into pin 1 and pin 10 are calculated by (pin voltage -0.5) / 16 [V/k Ω] and the total current increases by these current values.

Package Dimensions

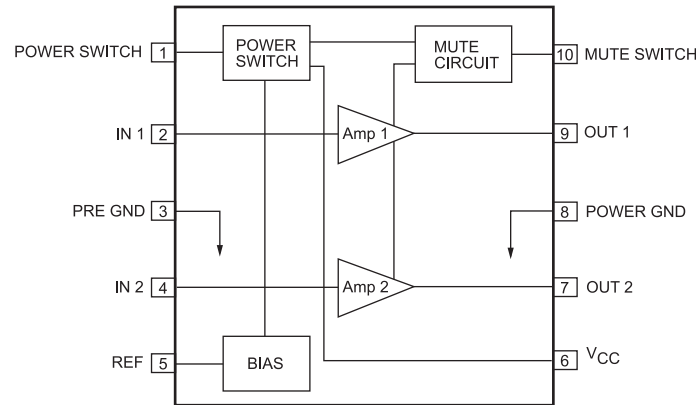
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3426

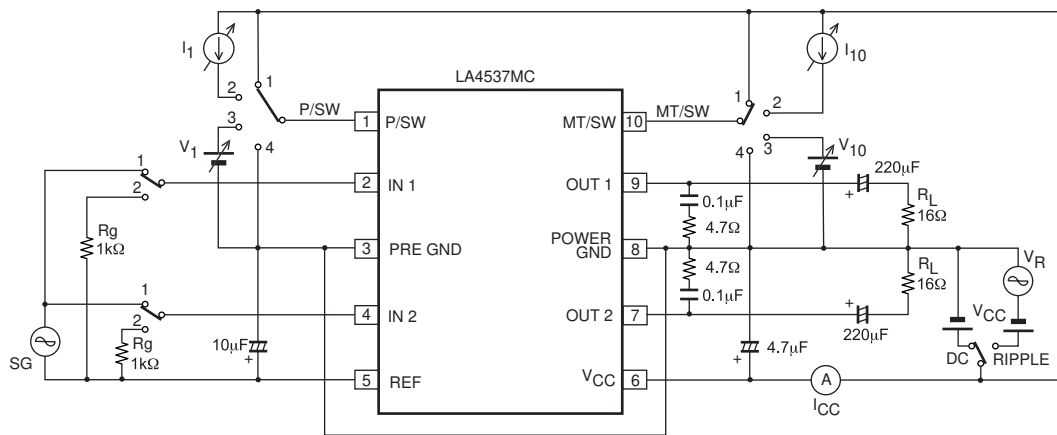


LA4537MC

Block Diagram

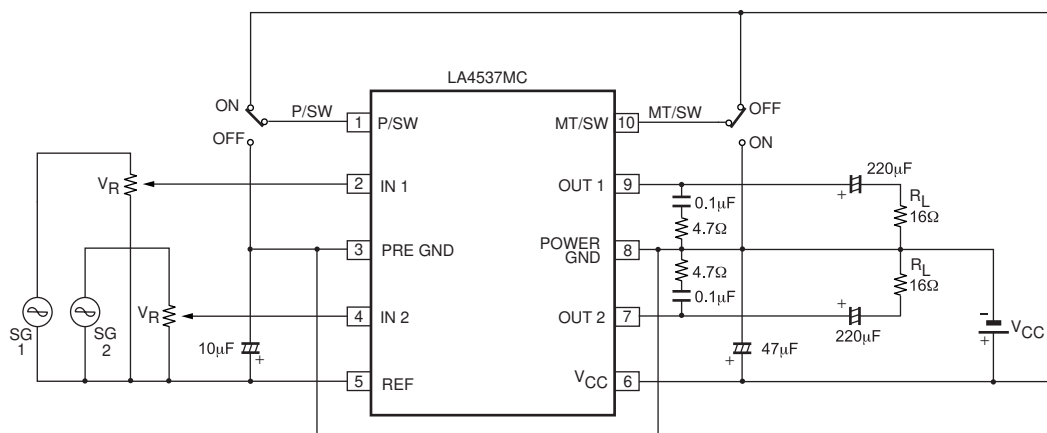


Test Circuit



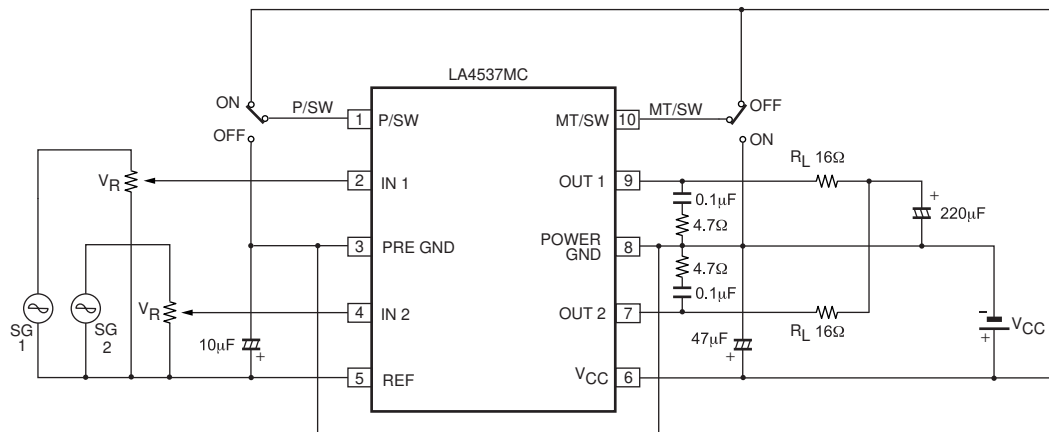
Sample Application Circuit 1

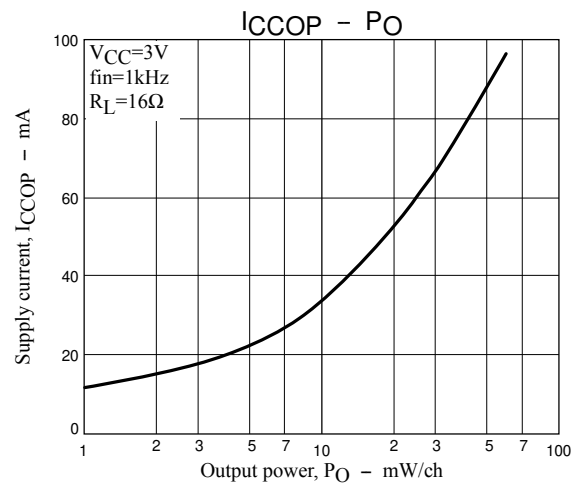
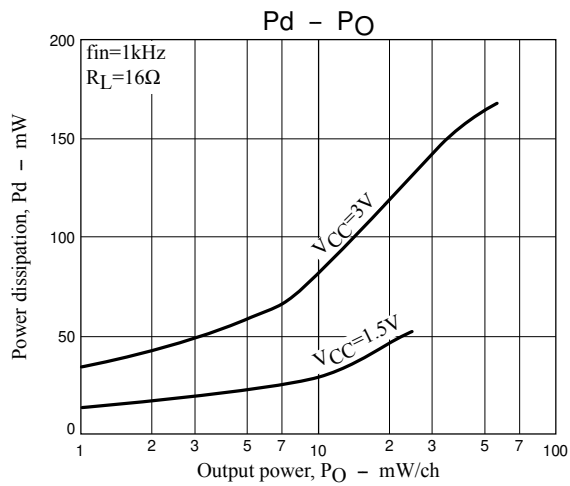
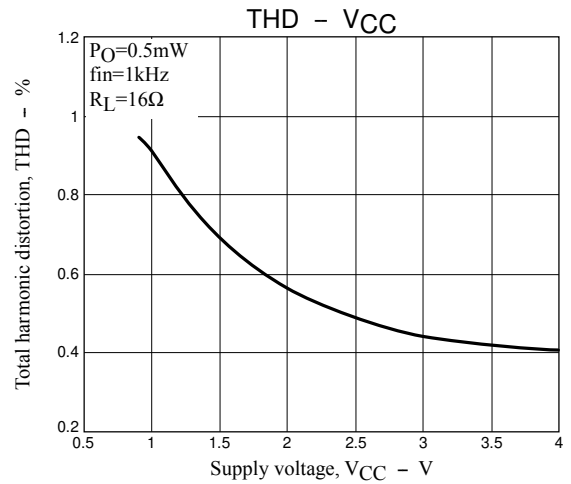
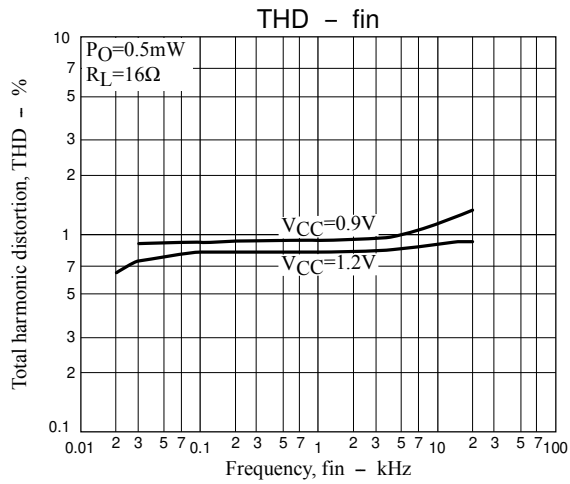
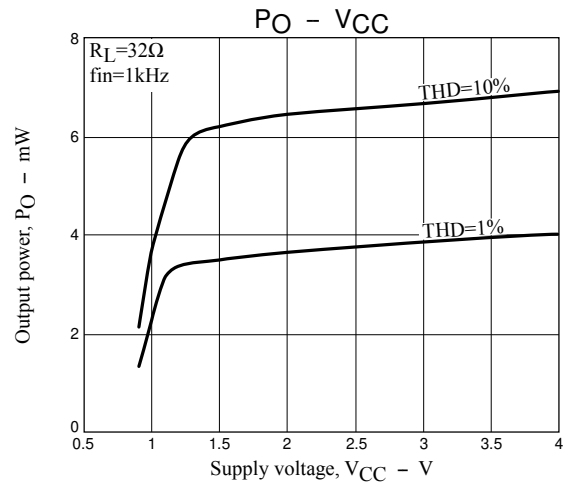
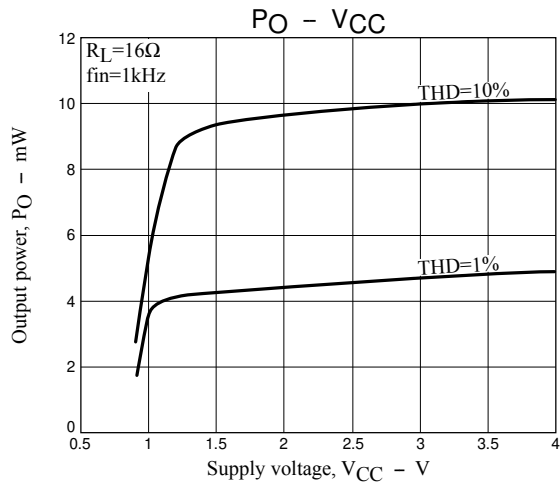
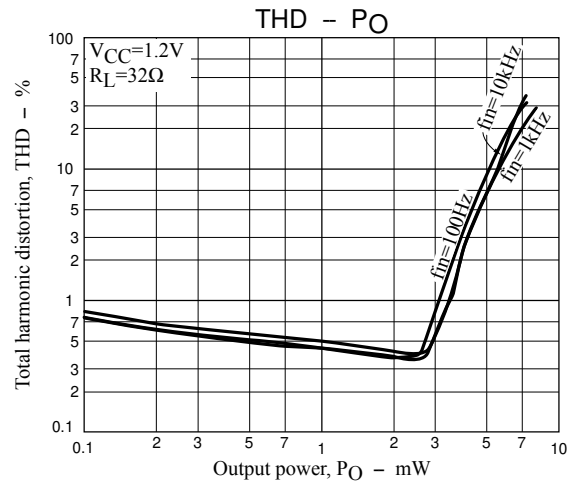
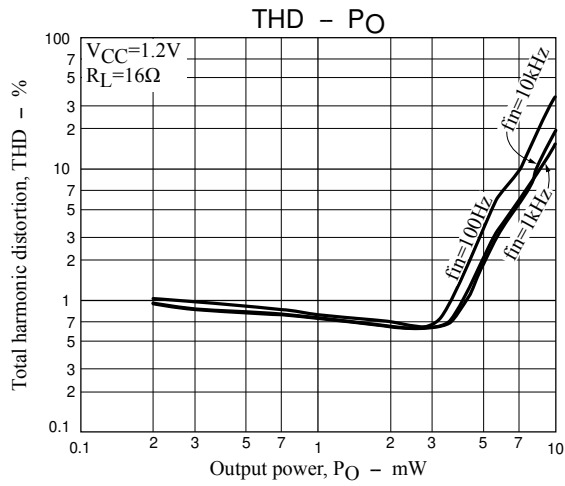
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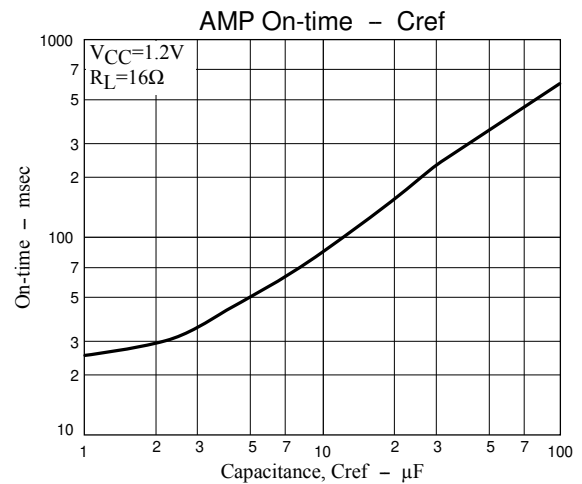
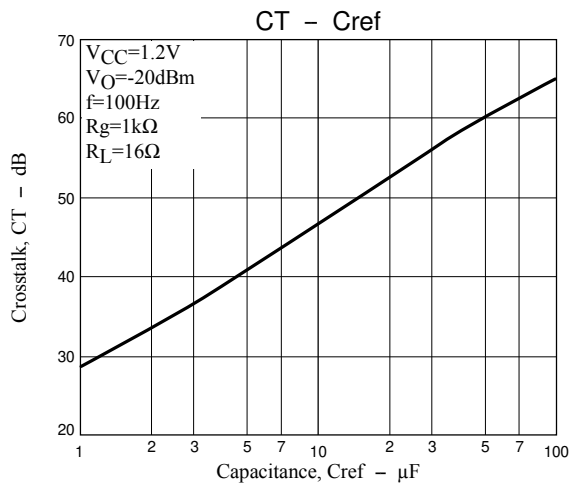
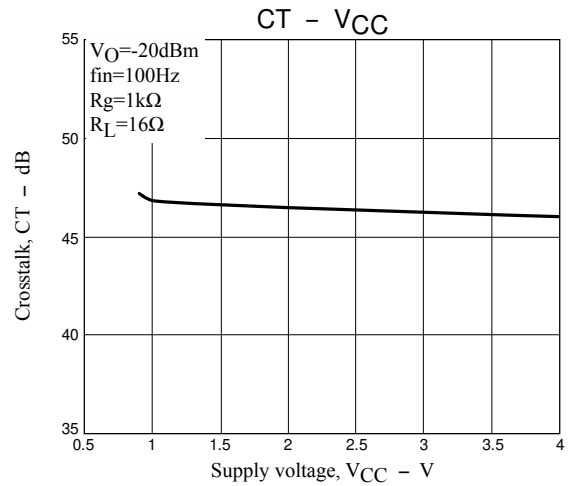
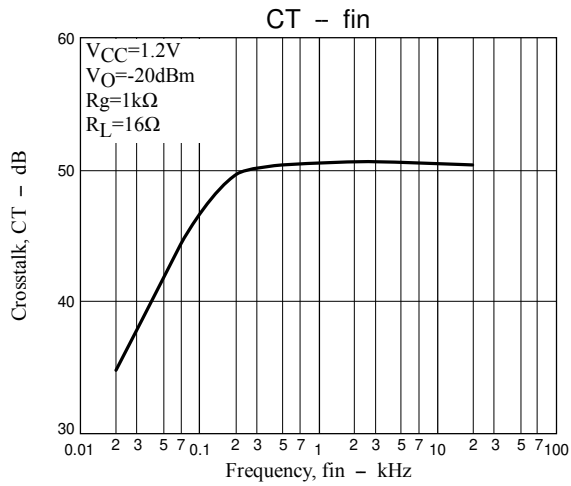
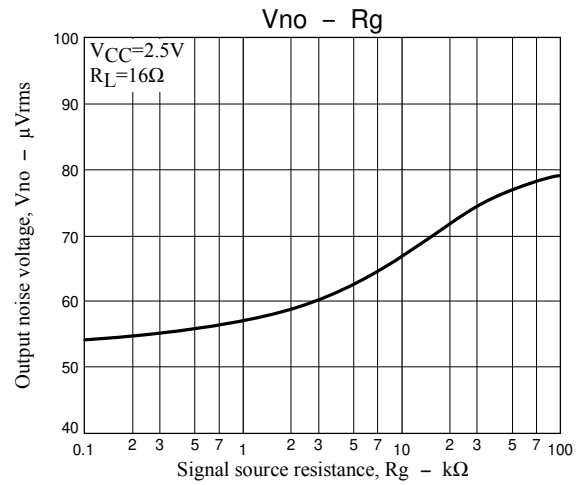
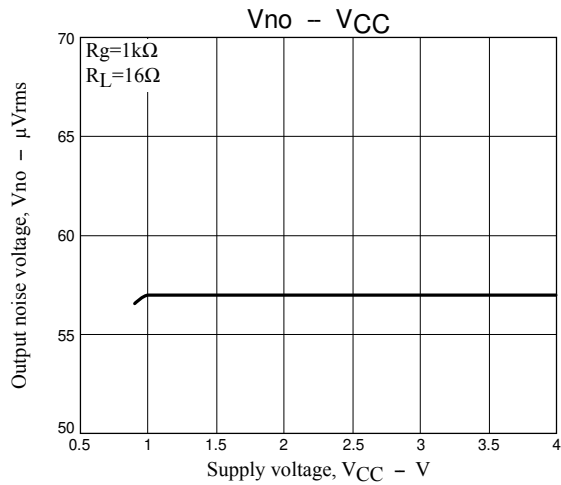
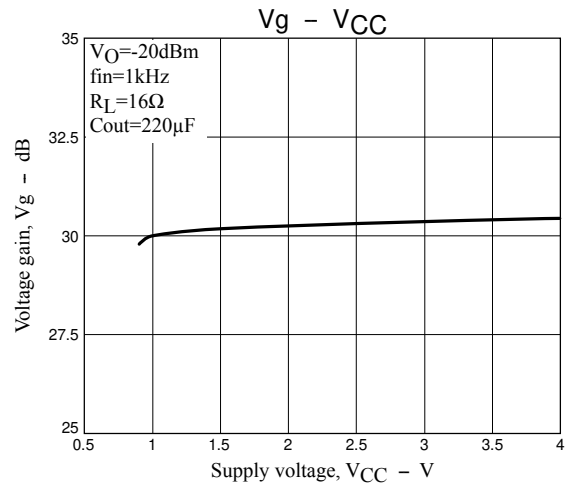
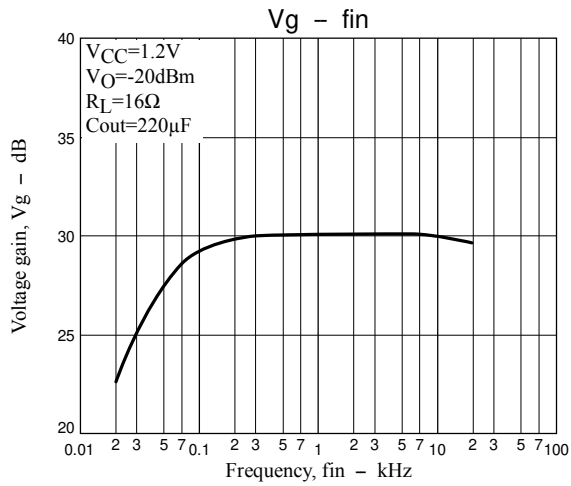


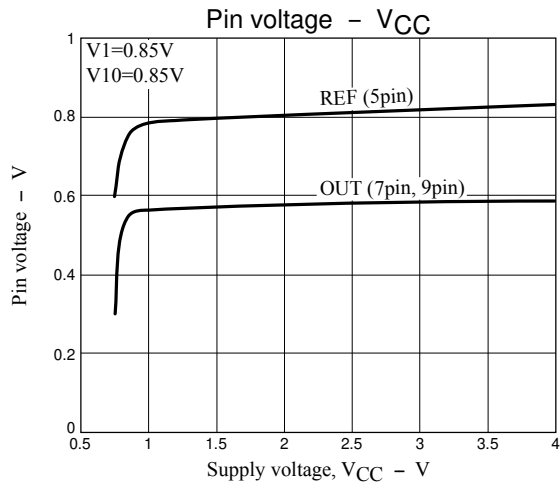
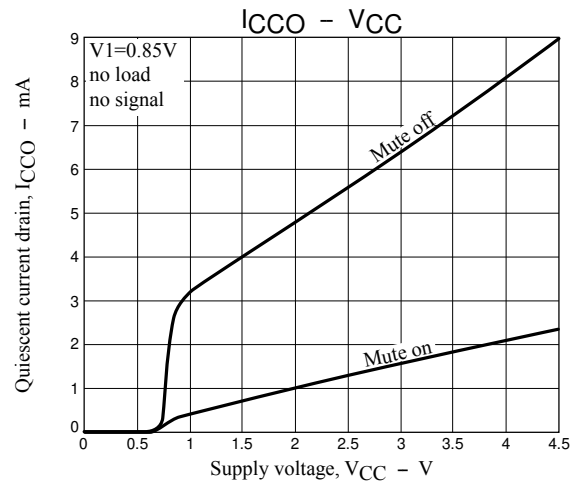
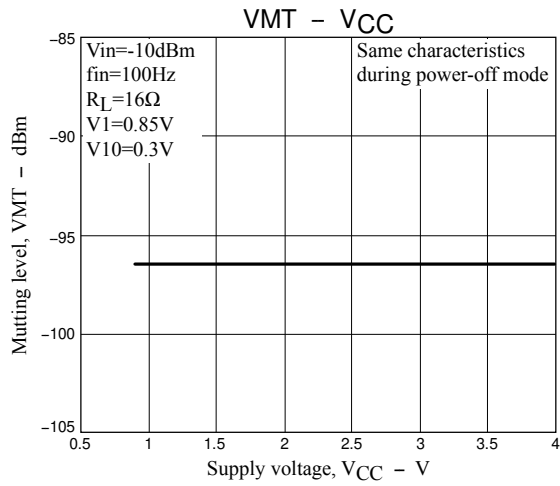
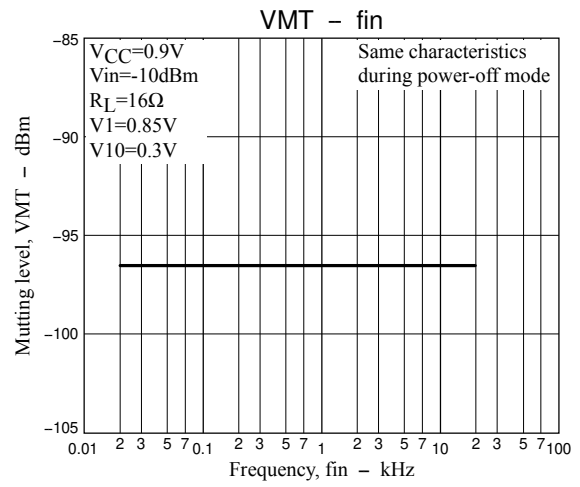
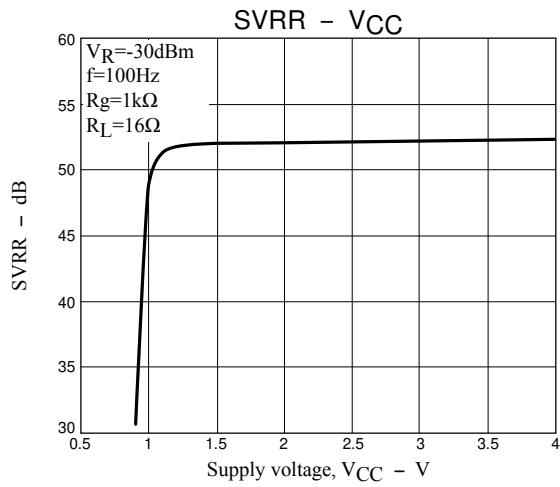
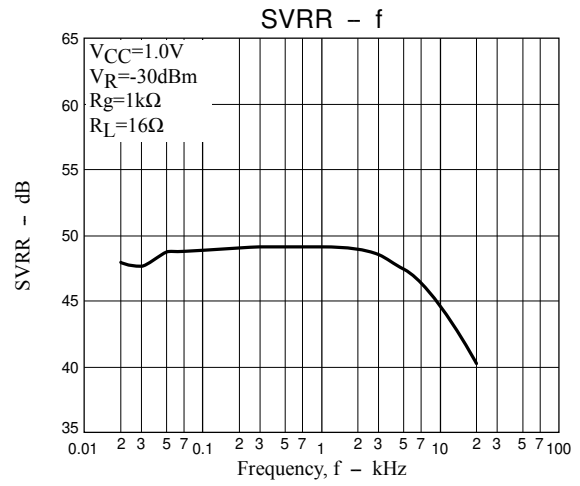
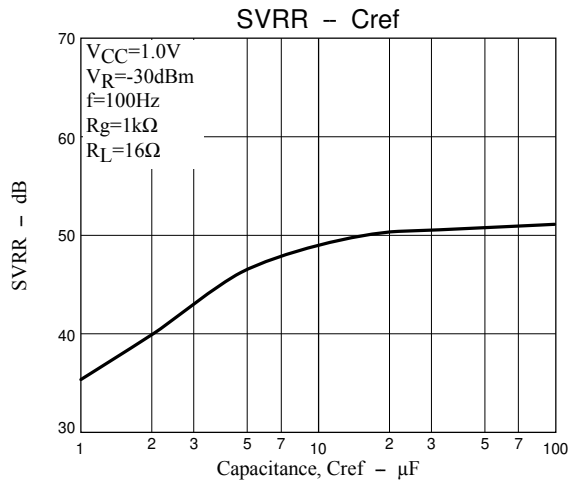
Sample Application Circuit 2

(Output capacitor shared)









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