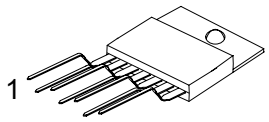
A7240 **LINEAR INTEGRATED CIRCUIT**

20W BRIDGE AMPLIFIER FOR CAR RADIO



TO-220Z7

*Pb-free plating product number: A7240L

■ DESCRIPTION

The UTC **A7240** is a 20W bridge audio amplifier IC and designed for car radio applications.

A comprehensive array of on-chip protection, include protection against AC and DC output short circuits (to ground and across the load), load dump transients, and junction over temperature, is feature to provide reliable operation. Furthermore, the UTC **A7240** protects the loudspeaker when one output is short-circuited to ground.

■ FEATURES

* Few External Components
* Output Protected Against short Circuits to Ground and Across Load
* Dump Transient
* Thermal Shutdown
* Loudspeaker Protection
* High Current Capability
* Low Distortion/Low Noise

■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead Free Plating		
A7240-TB7-T	A7240L-TB7-T	TO-220Z7	Tube

A7240L-TB7-T (1)Packing Type (2)Package Type (3)Lead Plating	(1) T: Tube (2) TB7: TO-220Z7 (3) Lead Free Plating Blank: Pb/Sn

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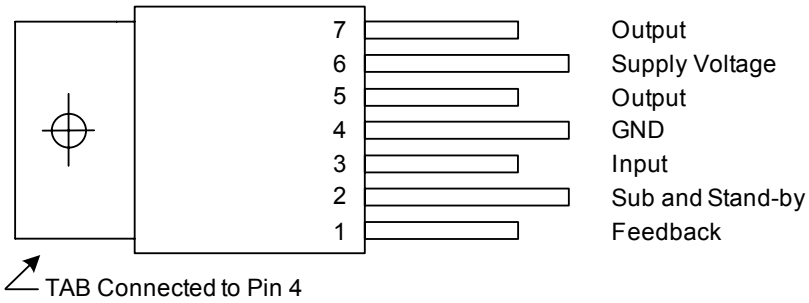
■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Operating Supply Voltage	V_{SS}	18	V
DC Supply Voltage	V_{SS}	28	V
Peak Supply Voltage (for 50ms)	$V_{SS(PEAK)}$	40	V
Peak Output Current (non repetitive t = 0.1ms)	$I_{O(PEAK)}$(*)	4.5	A
Peak Output Current (repetitive f .10Hz)	$I_{O(PEAK)}$(*)	3.5	A
Power Dissipation at T_C = 85°C	P_D	16	W
Storage and Junction Temperature	T_{STG}, T_J	-40~+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.
(*) Internally limited

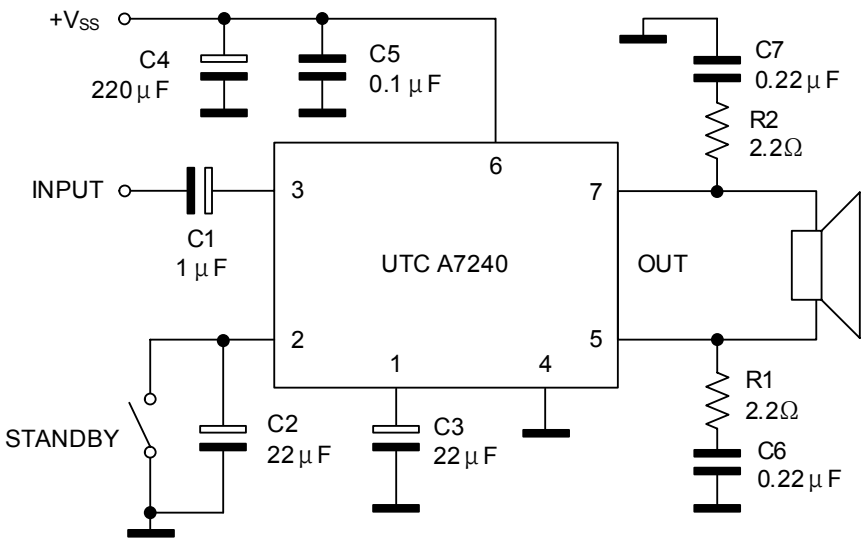
■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction-case	θ_{JC}	4	V

■ ELECTRICAL CHARACTERISTICS(Ta = 25°C, R_{TH} (heatsink)= 4°C/W, V_{SS} = 14.4V)

PARAMETER		SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Voltage		V_{SS}					18	V
Output Offset Voltage		$V_{O(OFF)}$					150	mV
Total Quiescent Current		I_Q	R_L =4Ω			65	120	mA
Output Power		P_{OUT}	f = 1kHz, d= 10%	R_L =4Ω	18	20		W
				R_L =8Ω	10	12		
Distortion		THD	f = 1kHz, P_{OUT} = 50MW ~ 12W	R_L =4Ω		0.1	0.5	%
				R_L =8Ω		0.05	0.5	
Voltage Gain		G_V	f = 1KHz		39.5	40	40.5	dB
Supply Voltage Rejection		SVR	f = 100Hz, Rg = 10KΩ		35	40		dB
Total Input Noise		eN	Rg = 10KΩ	B= Curve A		2		μV
				B = 22Hz~22KHz		3	10	
Efficiency		η	R_L =4Ω, f = 1KHz			65		%
Input Resistance		R_{IN}	f = 1kHz		70			kΩ
Input Sensitivity		V_{IN}	f = 1kHz, P_{OUT} = 2W, R_L =4Ω			28		mV
Frequency Roll Off (-3dB)	Low	f_L	P_{OUT} = 15W, R_L =4Ω		88		129	Hz
	High	f_H			25			kHz
Stand-by Threshold		$V_{THD\ (PIN2)}$					1	V
Stand-by Current		I_{STN-BY}				200		μA
Stand-by Attenuation		A_{STN-BY}	V_{OUT} = 2Vrms		70	90		dB

■ TEST AND APPLICATION CIRCUIT

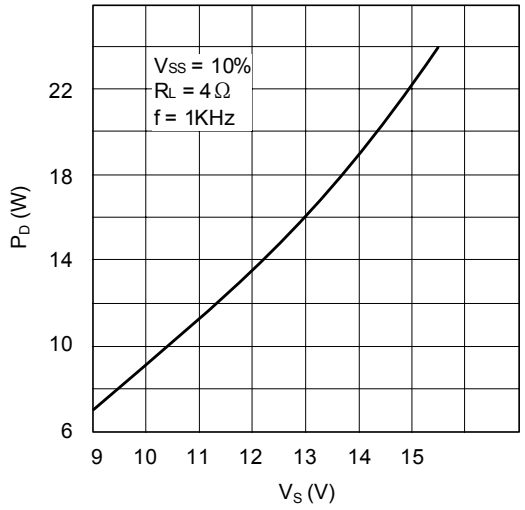


COMPONENT USAGE SUGGESTION

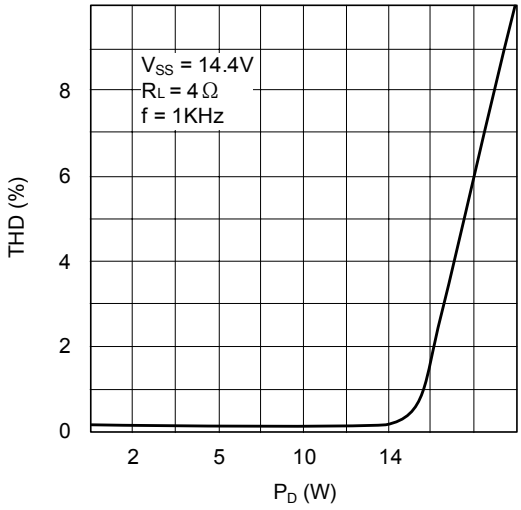
Component	Suggest	Purpose	Larger than	Smaller than
R1, R2	2.2W	Frequency Stability	Danger of High Frequency Oscillation	
C1	1μF	Input DC Decoupling	Higher Turn On and Stand-by Delay	Higher Turn On Pop. Higher Low Frequency Cutoff
C2	22μF	Ripple Rejection	Increase of SVR Increase of the Turn On Delay	Degradation of SVR
C3	22μF	Feedback low Frequency Cutoff		Higher Low Frequency Cutoff
C4	220μF	Supply Filter		Danger of Oscillation
C5	0.1μF	Supply Bypass		Danger of Oscillation
C6, C7	0.22μF	Frequency Stability		Danger of Oscillation

■ TYPICAL CHARACTERISTICS

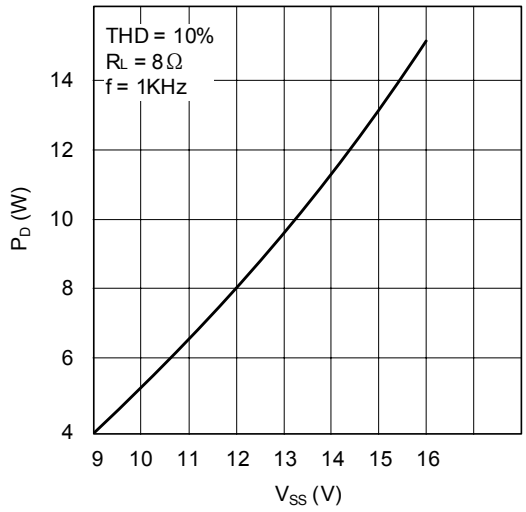
OutputPower vs. Supply Voltage



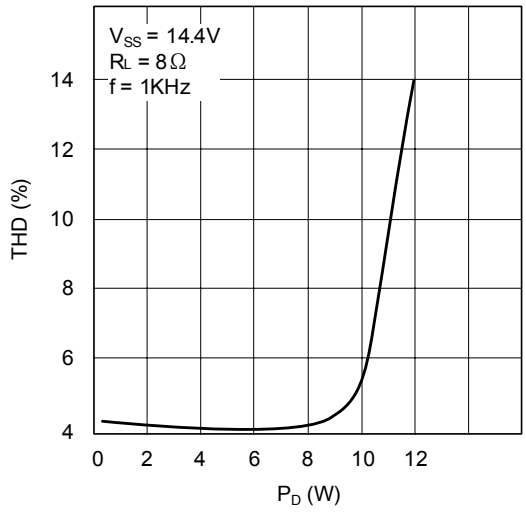
Distortion vs. Output Power



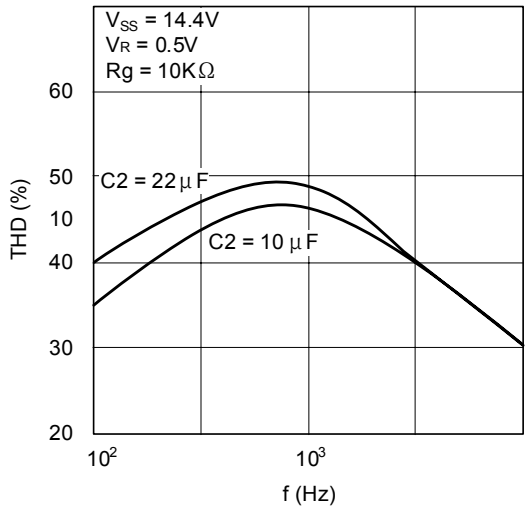
OutputPower vs. Supply Voltage



Distortion vs. Output Power



SupplyVoltage Rejection vs Frequency



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