

NTE7053 Integrated Circuit 22W Bridge–Stereo Amplifier for Car Radio

Description:

The NTE7053 is an audio power amplifier is a 11–Lead Staggered SIP type package designed for car radio applications.

Thanks to the fully complementary PNP/NPN output configuration, the high performance of this device is obtained without bootstrap capacitors.

A delay turn–on mute circuit eliminates audible ON/OFF noise, and a novel short circuit protection system prevents spurious intervention with highly inductive loads.

Features:

- Few External Components
- No Boucherot Cells
- No Bootstrap Capacitors
- High Output Power
- No Switch ON/OFF Noise
- Very Low Stand–by Current
- Fixed Gain (30dB Stereo)
- Programmable Turn–On Delay

Protections:

- Output AC–DC Short Circuit to GND and to Supply Voltage
- Very Inductive Loads
- Loudspeaker Protection
- Overrating Chip Temperature
- Load Dump Voltage
- Fortuitous Open Ground

Absolute Maximum Ratings:

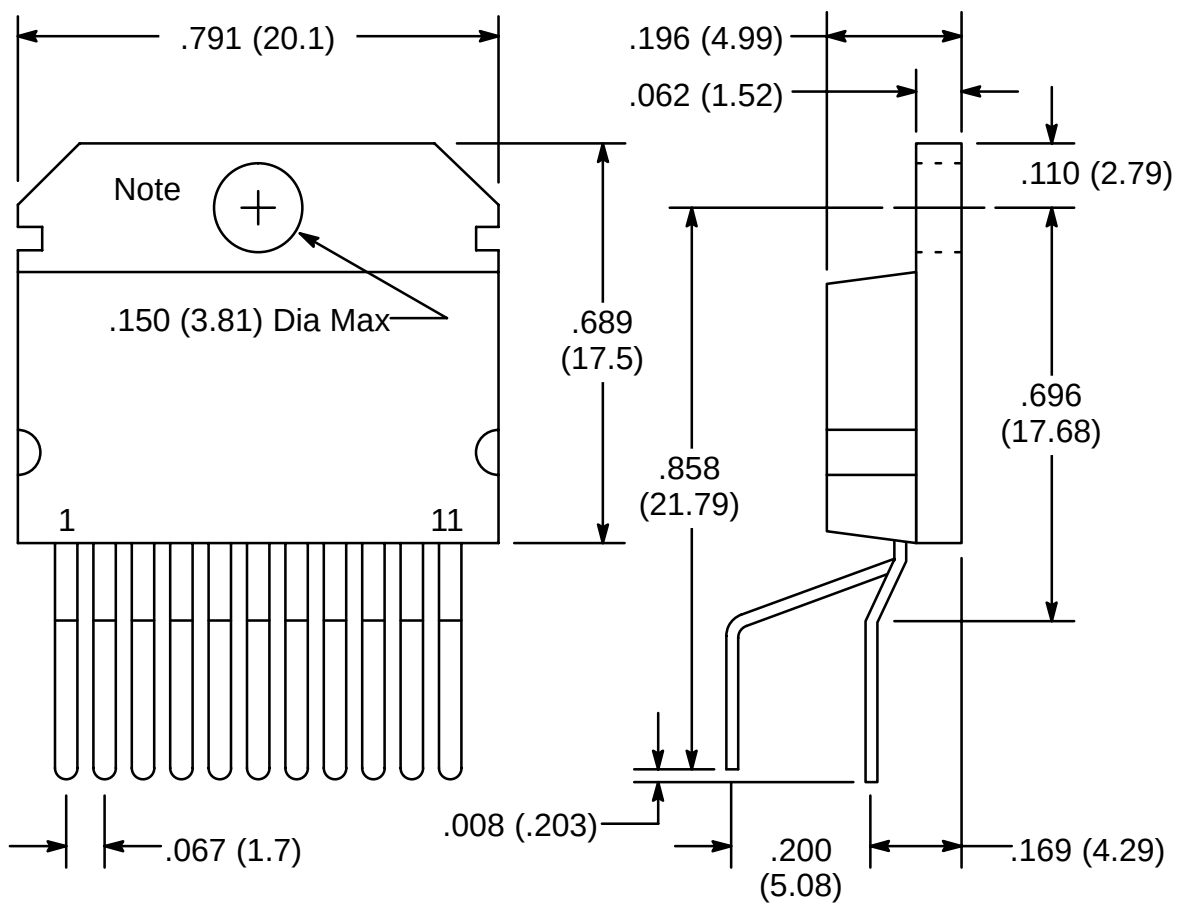
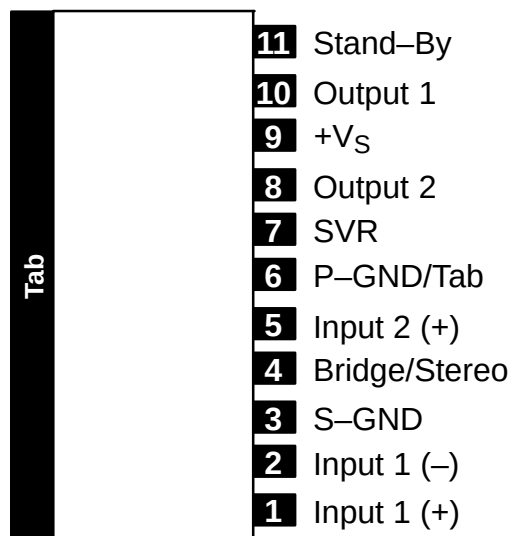
Operating Supply Voltage, V_S	18V
DC Supply Voltage, V_S	28V
Peak Supply Voltage (for $t = 50\text{ms}$), V_S	40V
Output Peak Current (Non–Repetitive for $t = 100\mu\text{s}$), I_O	5A
Output Peak Current (Repetitive Frequency $> 10\text{Hz}$), I_O	4A
Power Dissipation ($T_C = +85^\circ\text{C}$), P_{tot}	36W
Junction Temperature Range, T_J	-40° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Maximum Thermal Resistance, Junction–to–Case, R_{thJC}	1.8°C/W

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_S = 14.4\text{V}$, $f = 1\text{kHz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Supply Voltage Range	V _S			8	–	18	V
Total Quiescent Drain Current	I _d	Stereo Configuration		–	–	120	mA
Stand-By Attenuation	A _{SB}			60	80	–	dB
Stand-By Current	I _{SB}			–	–	100	μA
Thermal Shut-Down Junction Temperature	T _{sd}			–	150	–	°C
Stereo							
Output Power (Each Channel)	P _O	d = 10%	R _L = 2Ω	–	11	–	W
			R _L = 3.2Ω	7	8	–	W
			R _L = 4Ω	–	8.5	–	W
		d = 10%, V _S = 13.2V	R _L = 2Ω	–	9	–	W
			R _L = 3.2Ω	–	6.5	–	W
			R _L = 4Ω	–	5.5	–	W
Distortion	d	P _O = 0.1W to 4W, R _L = 3.2Ω		–	–	0.5	%
Supply Voltage Rejection	SVR	R _S = 10kΩ, f = 100Hz	C3 = 22μF	45	50	–	dB
			C3 = 100μF	–	57	–	dB
Crosstalk	CT	f = 1kHz		45	55	–	dB
		f = 10kHz		–	50	–	dB
Input Resistance	R _I			30	50	–	kΩ
Voltage Gain	G _V			27	29	31	dB
Voltage Gain Match	G _V			–	–	1	dB
Input Noise Voltage	E _{IN}	Note 1	R _S = 50Ω	–	2	–	μV
			R _S = 10kΩ	–	2.7	7	μV
Bridge							
Output Power (Each Channel)	P _O	d = 10%	R _L = 3.2Ω	16	22	–	W
			R _L = 4Ω	–	20	–	W
		d = 10%, V _S = 13.2V	R _L = 3.2Ω	–	19	–	W
			R _L = 4Ω	–	17.5	–	W
Distortion	d	P _O = 0.1W to 4W, R _L = 4Ω		–	–	1	%
Output Offset Voltage	V _{OS}			–	–	250	mV
Supply Voltage Rejection	SVR	R _S = 10kΩ, f = 100Hz	C3 = 22μF	45	50	–	dB
			C3 = 100μF	–	57	–	dB
Input Resistance	R _I			–	50	–	kΩ
Voltage Gain	G _V			33	35	37	dB
Input Noise Voltage	E _{IN}	Note 1	R _S = 50Ω	–	2.7	–	μV
			R _S = 10kΩ	–	3.2	–	μV

Note 1. 22Hz to 22kHz

Pin Connection Diagram
(Front View)



NOTE: Tab connected to Pin6