ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

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:

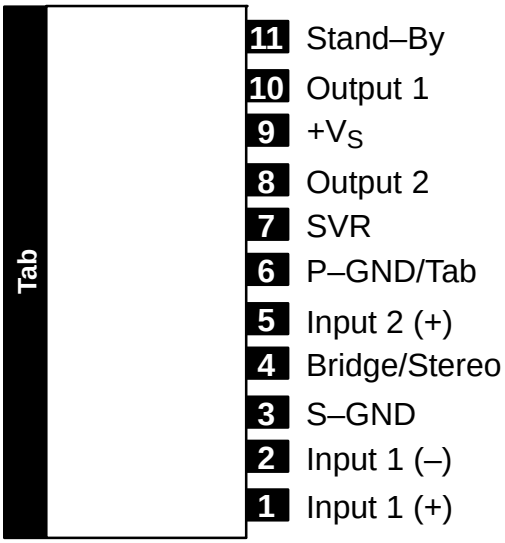
Operating Supply Voltage, V_S 18V
DC Supply Voltage, V_S 28V
Peak Supply Voltage (for t = 50ms), V_S 40V
Output Peak Current (Non–Repetitive for t = 100μs), I_O 5A
Output Peak Current (Repetitive Frequency > 10Hz), I_O 4A
Power Dissipation (T_C = +85°C), P_{tot} 36W
Junction Temperature Range, T_J .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

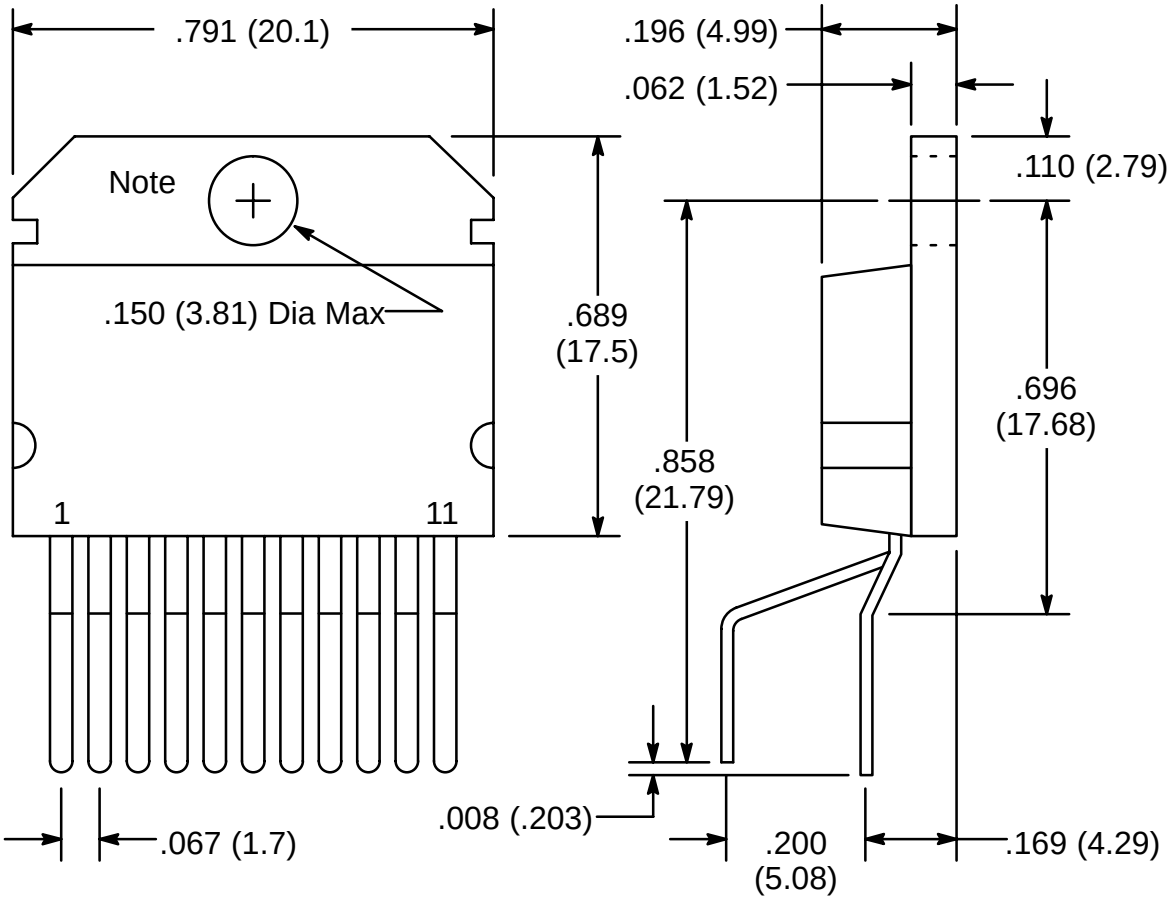
Electrical Characteristics: (T_A = +25°C, V_S = 14.4V, f = 1kHz unless otherwise specified)

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