



TDA7560

4 x 45W QUAD BRIDGE CAR RADIO AMPLIFIER PLUS HSD

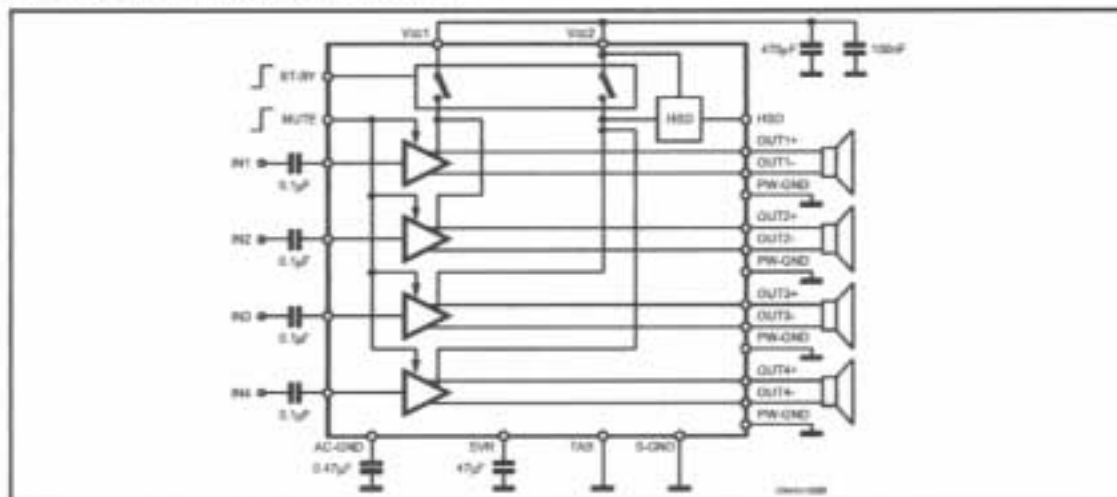
PRODUCT PREVIEW

- SUPERIOR OUTPUT POWER CAPABILITY:
 - 4 x 50W/4Ω MAX.
 - 4 x 45W/4Ω EIAJ
 - 4 x 30W/4Ω @ 14.4V, 1KHz, 10%
 - 4 x 80W/2Ω MAX.
 - 4 x 77W/2Ω EIAJ
 - 4 x 55W/2Ω @ 14.4V, 1KHz, 10%
- EXCELLENT 2Ω DRIVING CAPABILITY
- HI-FI CLASS DISTORTION
- LOW OUTPUT NOISE
- ST-BY FUNCTION
- MUTE FUNCTION
- AUTOMUTE AT MIN. SUPPLY VOLTAGE DETECTION
- LOW EXTERNAL COMPONENT COUNT:
 - INTERNALLY FIXED GAIN (26dB)
 - NO EXTERNAL COMPENSATION
 - NO BOOTSTRAP CAPACITORS
- ON BOARD 0.35A HIGH SIDE DRIVER

PROTECTIONS:

- OUTPUT SHORT CIRCUIT TO GND, TO V_S , ACROSS THE LOAD
- VERY INDUCTIVE LOADS
- OVERRATING CHIP TEMPERATURE WITH SOFT THERMAL LIMITER
- LOAD DUMP VOLTAGE

BLOCK AND APPLICATION DIAGRAM



MULTIPOWER BCD TECHNOLOGY

MOSFET OUTPUT POWER STAGE



FLEXIWATT25

ORDERING NUMBER: TDA7560

- FORTUITOUS OPEN GND
- REVERSED BATTERY
- ESD

DESCRIPTION

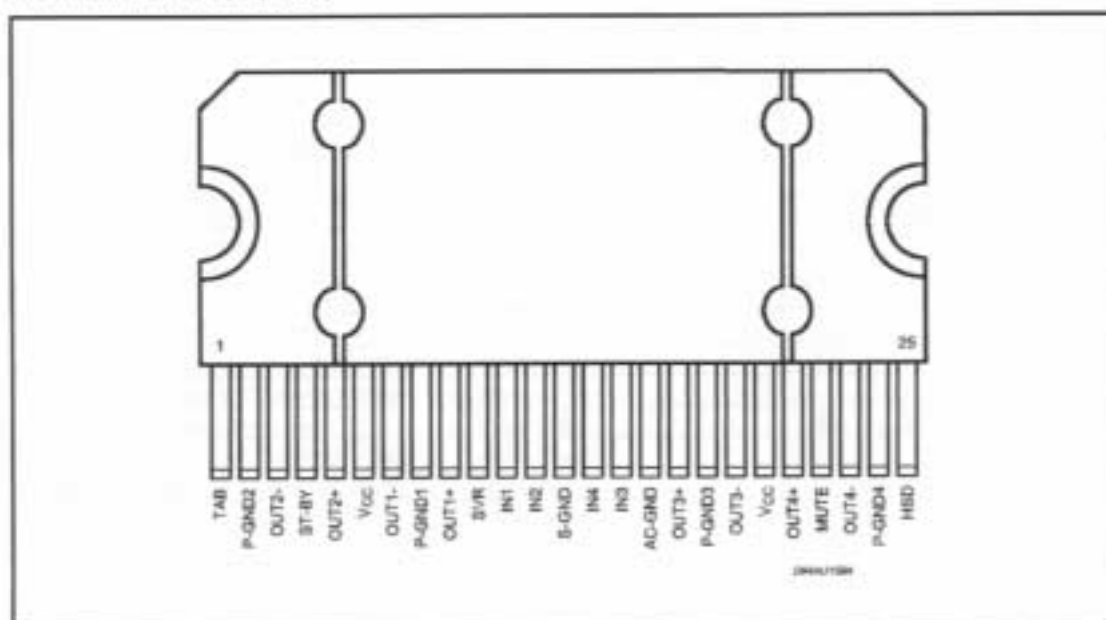
The TDA7560 is a breakthrough BCD (Bipolar / CMOS / DMOS) technology class AB Audio Power Amplifier in Flexiwatt 25 package designed for high power car radio

The fully complementary P-Channel/N-Channel output structure allows a rail to rail output voltage swing which, combined with high output current and minimised saturation losses sets new power references in the car-radio field, with unparalleled distortion performances.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Operating Supply Voltage	18	V
$V_{CC(DC)}$	DC Supply Voltage	28	V
$V_{CC(pk)}$	Peak Supply Voltage ($t = 50ms$)	50	V
I_o	Output Peak Current: Repetitive (Duty Cycle 10% at $f = 10Hz$) Non Repetitive ($t = 100\mu s$)	9 10	A A
P_{tot}	Power dissipation, ($T_{case} = 70^{\circ}C$)	80	W
T_j	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature	- 55 to 150	$^{\circ}C$

PIN CONNECTION (Top view)



THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{\theta j-case}$	Thermal Resistance Junction to Case	Max. 1	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($V_S = 13.2V$; $f = 1KHz$; $R_g = 600\Omega$; $R_L = 4\Omega$; $T_{amb} = 25^\circ C$;
Refer to the test and application diagram, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
I_{yt}	Quiescent Current	$R_L = \infty$	120	200	320	mA
V_{OS}	Output Offset Voltage	Play Mode			± 80	mV
dV_{OS}	During mute ON/OFF output offset voltage				± 80	mV
G_v	Voltage Gain		25	26	27	dB
dG_v	Channel Gain Unbalance				± 1	dB
P_o	Output Power	$V_S = 13.2V$; THD = 10%	23	25		W
		$V_S = 13.2V$; THD = 1%	16	19		W
		$V_S = 14.4V$; THD = 10%	28	30		W
		$V_S = 14.4V$; THD = 1%	20	23		W
		$V_S = 13.2V$; THD = 10%, 2 Ω	42	45		W
		$V_S = 13.2V$; THD = 1%, 2 Ω	32	34		W
$P_{D\ EIAJ}$	EIAJ Output Power (*)	$V_S = 13.7V$; $R_L = 4\Omega$	41	45		W
		$V_S = 13.7V$; $R_L = 2\Omega$	75	77		W
$P_{D\ max.}$	Max. Output Power (*)	$V_S = 14.4V$; $R_L = 4\Omega$		50		W
		$V_S = 14.4V$; $R_L = 2\Omega$		80		W
THD	Distortion	$P_o = 4W$		0.006	0.05	%
		$P_o = 10W$; $R_L = 2\Omega$		0.015	0.07	%
e_{No}	Output Noise	*A* Weighted		35	50	μV
		Bw = 20Hz to 20KHz		50	70	μV
SVR	Supply Voltage Rejection	$f = 100Hz$; $V_i = 1V_{rms}$	50	70		dB
f_{ch}	High Cut-Off Frequency	$P_O = 0.5W$	100	300		KHz
R_i	Input Impedance		80	100	120	K Ω
C_T	Cross Talk	$f = 1KHz$; $P_O = 4W$	60	70	-	dB
		$f = 10KHz$; $P_O = 4W$		60	-	dB
I_{reg}	St-By Current Consumption	$V_{St-By} = 1.5V$			75	μA
I_{stand}	St-by pin Current	$V_{St-By} = 1.5V$ to 3.5V			± 10	μA
$V_{SB\ out}$	St-By Out Threshold Voltage	(Amp: ON)	3.5			V
$V_{SB\ in}$	St-By in Threshold Voltage	(Amp: OFF)			1.5	V
A_M	Mute Attenuation	$P_{Out} = 4W$	80	90		dB
$V_{M\ out}$	Mute Out Threshold Voltage	(Amp: Play)	3.5			V
$V_{M\ in}$	Mute in Threshold Voltage	(Amp: Mute)			1.5	V
$V_{AM\ in}$	V_S Automute Threshold	(Amp: Mute) Att $\geq 80dB$; $P_{Out} = 4W$	6.5	7		V
		(Amp: Play) Att $< 0.1dB$; $P_O = 0.5W$		7.5	8	V
I_{pin22}	Muting Pin Current	$V_{MUTE} = 1.5V$ (Sourced Current)	7	12	18	μA
		$V_{MUTE} = 3.5V$	-5		18	μA
HSD SECTION						
$V_{dropout}$	Dropout Voltage	$I_O = 0.35A$; $V_S = 9$ to 16V		0.25	0.6	V
I_{limit}	Current Limits		400		800	mA

(*) Saturated square wave output.