# SGS-THOMSON
MICROELECTRONICS

TEA2025B

STEREO AUDIO AMPLIFIER

- DUAL OR BRIDGE CONNECTION MODES
- FEW EXTERNAL COMPONENTS
- WORKS WITH LOW SUPPLY VOLTAGE: 3V
- HIGH CHANNEL SEPARATION
- NO SHOCK NOISE WHEN SWITCH ON OR OFF
- MAXIMUM VOLTAGE GAIN OF 45dB (ADJUSTABLE WITH EXTERNAL RE-SISTOR)
- SOFT CLIPPING

- THERMAL PROTECTION
- $3V \leqslant V_{CC} \leqslant 12V$
- $P = 2 \times 1W, V_{CC} = 6V, R_L = 4\Omega$
  $P = 2 \times 2.3W, V_{CC} = 9V, R_L = 4\Omega$
 $P = 2 \times 0.1W, V_{CC} = 3V, R_L = 4\Omega$

Powerdip
12 + 2 + 2

ORDERING NUMBER: TEA 2025B
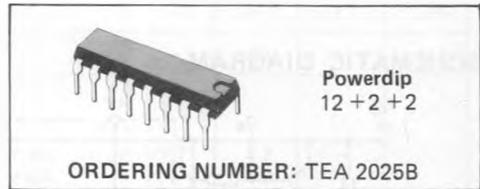
MAXIMUM RATINGS

V_S	Supply voltage	15	V
I_O	Output peak current	1.5	A
T_i	Junction temperature	150	°C
T_{stg}	Storage temperature	-40 to +150	°C

BLOCK DIAGRAM

88TEA2025B-B1

PIN CONNECTION

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    BRIDGE  [ 1        16 ]  +Us
     OUT.2  [ 2        15 ]  OUT.1
    BOOT.2  [ 3        14 ]  BOOT.1
       GND  [ 4        13 ]  GND
       GND  [ 5        12 ]  GND
  FEEDBACK  [ 6        11 ]  FEEDBACK
    IN.2(+) [ 7        10 ]  IN.1(+)
       SVR  [ 8         9 ]  GND (sub.)
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881EA2025-C1
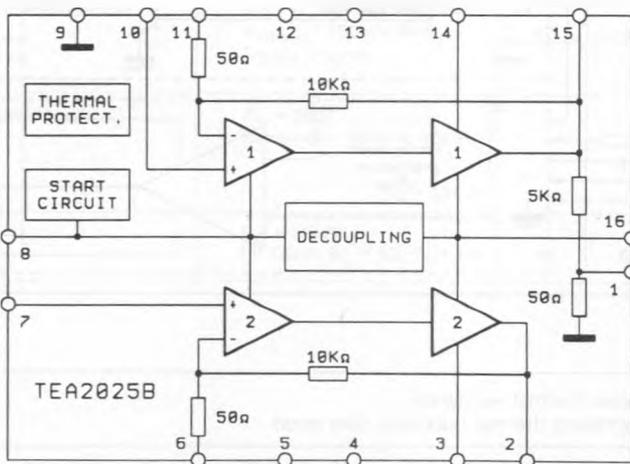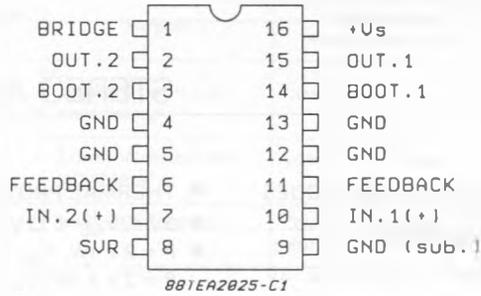
SCHEMATIC DIAGRAM
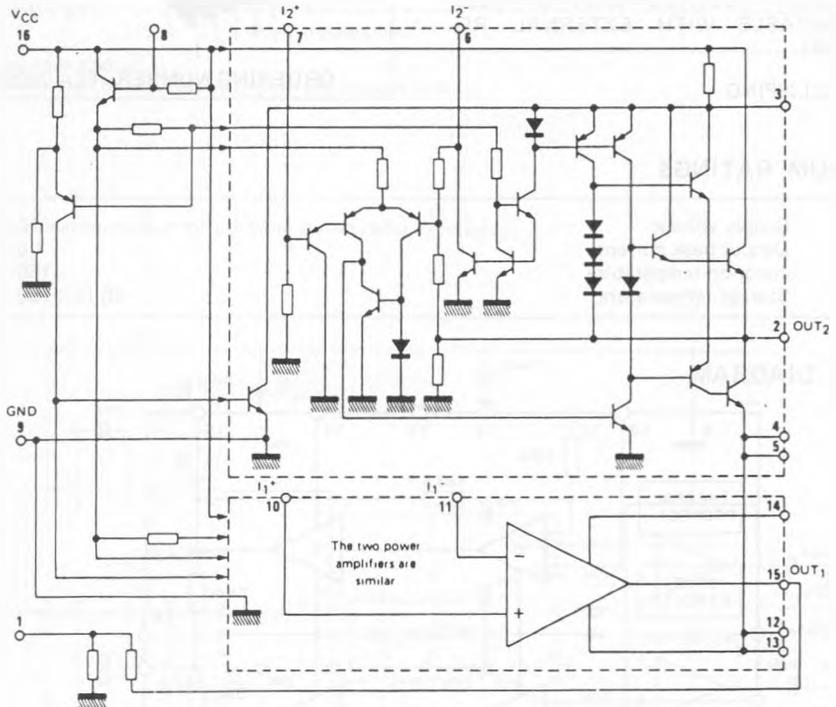
THERMAL DATA

$R_{th(j-c)}$	Junction–case thermal resistance	15	°C/W
$R_{th(j-a)}$	Junction–ambient thermal resistance (See note)	60	°C/W

Note: The $R_{th(j-a)}$ is measured on devices bonded on a 10 x 5 x 0.15cm glass–epoxy substrate with a 35μm thick copper surface of 5 cm³.

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ELECTRICAL CHARACTERISTICS $(T_{amb} = 25°C, V_{CC} = 9V,$ Stereo unless otherwise specified)

	Parameter	Test Conditions		Min	Typ	Max	Unit
V_S	Supply voltage			3	—	12	V
I_Q	Quiescent current			—	40	50	mA
V_O	Quiescent output voltage			—	4.5	—	V
A_V	Voltage gain	Stereo		43	45	47	dB
		Bridge		49	51	53	
ΔA_V	Voltage gain difference			—	—	± 1	dB
R_i	Imput impedance			—	30	—	kΩ
P_O	Output power	$f = 1KHz; d = 10\%$					
		Stereo – per channel					
		$V_{CC} = 9V : R_L = 4\Omega$		1.7	2.3	—	
		$R_L = 8\Omega$		—	1.3	—	
		$V_{CC} = 6V : R_L = 4\Omega$		0.7	1	—	
		$R_L = 8\Omega$		—	0.6	—	W
		$V_{CC} = 3V : R_L = 4\Omega$		—	0.1	—	
		Bridge					
		$V_{CC} = 9V : R_L = 8\Omega$		—	4.7	—	
		$V_{CC} = 6V : R_L = 4\Omega$		—	2.8	—	
d	Distortion	$V_{CC} = 9V; R_L = 4\Omega$ $f = 1KHz; P_O = 250$ mW					
			Stereo	—	0.3	1.5	%
			Bridge	—	0.5	—	
SVR	Supply voltage rejection	$R_G = 0, A_V = 45$ dB, $V_{ripple} = 150$mV RMS, $f_{ripple} = 100$Hz		40	46		dB
V_n	Input noise voltage	$A_V = 200,$ Bandwidth: 20Hz to 20KHz					
		$R_G = 0$		—	1.5	3	µV
		$R_G = 10k\Omega$		—	3	6	
CT	Cross-talk	$R_G = 10k\Omega;$ $f = 1KHz; R_L = 4\Omega; P_O = 1W$		40	55	—	dB

Fig. 1 - Distortion versus output power

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Vs = 6V
RL = 4Ω
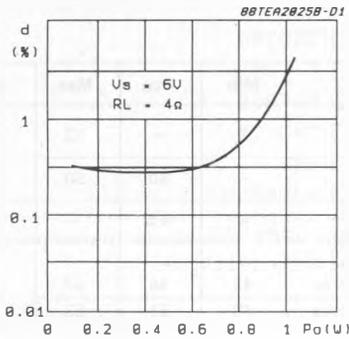
Fig. 2 - Distortion versus output power

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Vs = 9V
RL = 8Ω
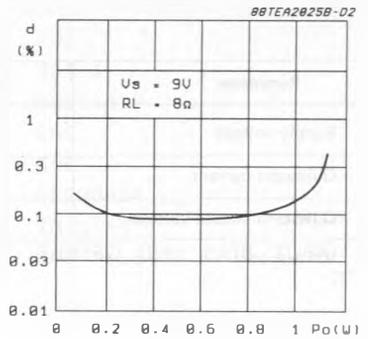
Fig. 3 - Distortion versus output frequency

88TEA2025B-D3

Vs = 9V
RL = 4Ω
Po = 0.25W
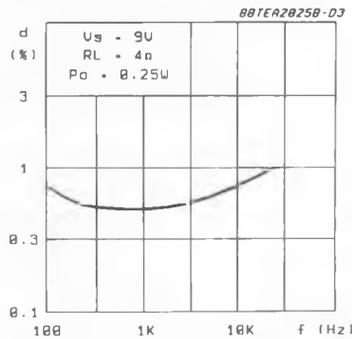
Fig. 4 - Output power/versus supply voltage

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f = 1KHz
d = 10%
RL = 4Ω
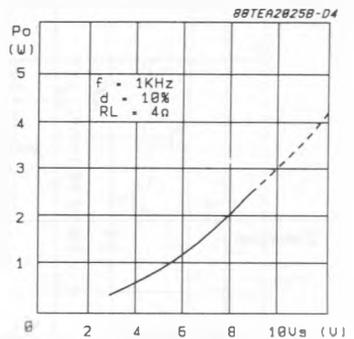
Fig. 5 - Bridge application

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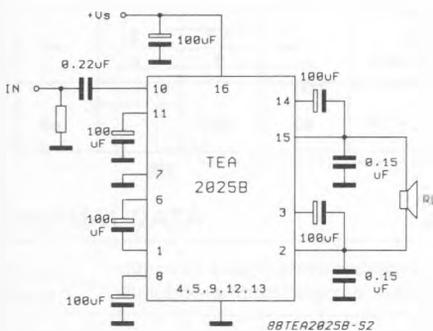
Fig. 6 - Stereo application

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