Thick Film Hybrid IC

**STK4038X** 



# AF Power Amplifier (Split Power Supply) (60W min, THD = 0.008%)

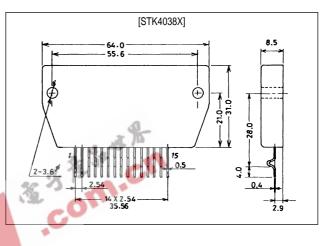
## Features

- Compact package for thin-type audio sets
- Member of pin-compatible series with outputs of 30 to 100W
- Easy heatsink design to disperse heat generated in thintype stereo sets
- Current mirror circuit for low 0.008% total harmonic distortion
- External supply switch-on and switch-off shock noise muting, load short-circuit protection, thermal shutdown and other circuits can be tailored-designed.

# **Package Dimensions**

unit: mm

4062



## **Specifications**

#### Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> max		±57	V
Thermal resistance	Өј-с		1.4	°C/W
Junction temperature	Tj		150	°C
Operating substrate temperature	Тс		125	°C
Storage temperature	Tstg		-30 to +125	°C
Available time for load short-circuit <sup>1</sup>	t <sub>s</sub>	$V_{CC} = \pm 39.5$ V, $R_L = 8\Omega$ , $f = 50$ Hz, $P_O = 60$ W	1	s

#### **Recommended Operating Conditions** at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V <sub>CC</sub>		±39.5	V
Load resistance	RL		8	Ω

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## **Operating Characteristics**

at Ta = 25°C,  $V_{CC}$  = ±39.5V,  $R_L$  = 8 $\Omega$  (noninductive load), Rg = 600 $\Omega$ , VG = 40dB, 100kHz LPF on

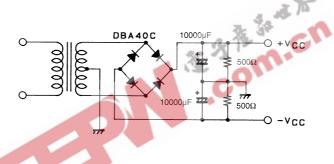
Parameter	Symbol	Conditions	min	typ	max	Unit
Quiescent current	Icco	$V_{CC} = \pm 47V$	15	-	120	mA
Output power	P <sub>O</sub> (1)	THD = 0.008%, f = 20Hz to 20kHz	60	_	_	W
	P <sub>O</sub> (2)	$V_{CC} = \pm 33.5 \text{V}, \text{THD} = 0.04\%,$ $R_{L} = 4\Omega, \text{ f} = 1 \text{kHz}$	60	_	_	W
Total harmonic distortion	THD	P <sub>O</sub> = 1.0W, f = 1kHz	-	-	0.008	%
Frequency response	f <sub>L</sub> , f <sub>H</sub>	$P_0 = 1.0W, {}^{+0}_{-3} dB$	-	20 to 50k	-	Hz
Input impedance	r <sub>i</sub>	P <sub>O</sub> = 1.0W, f = 1kHz	-	55	-	kΩ
Output noise voltage <sup>2</sup>	V <sub>NO</sub>	$V_{CC} = \pm 47$ V, Rg = 10k $\Omega$	-	_	1.2	mVrms
Neutral voltage	V <sub>N</sub>	$V_{CC} = \pm 47V$	-70	0	+70	mV

#### Notes.

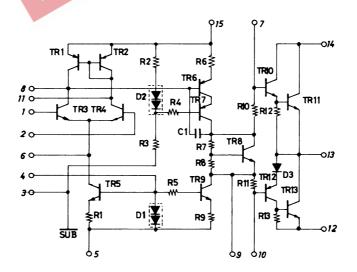
All tests are measured using a constant-voltage supply unless otherwise specified.

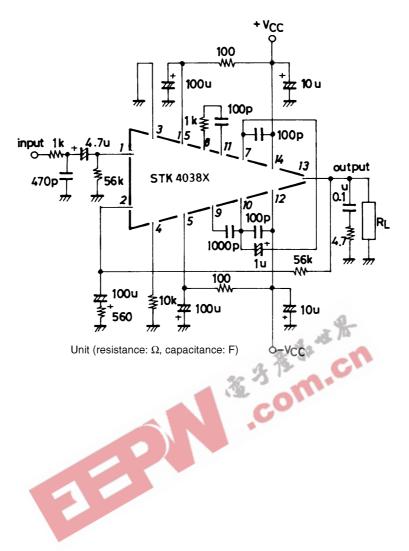
Available time for load short-circuit and output noise voltage are measured using the transformer supply specified below.
The output noise voltage is the peak value of an average-reading meter with an rms value scale. The noise voltage waveform does not inlcude any pulse noise.

#### Specified Transformer Supply (MG-200 or Equivalent)



# **Equivalent Circuit**





## Sample Application Circuit (60W min AF Power Amplifier)

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