

CAR AUDIO

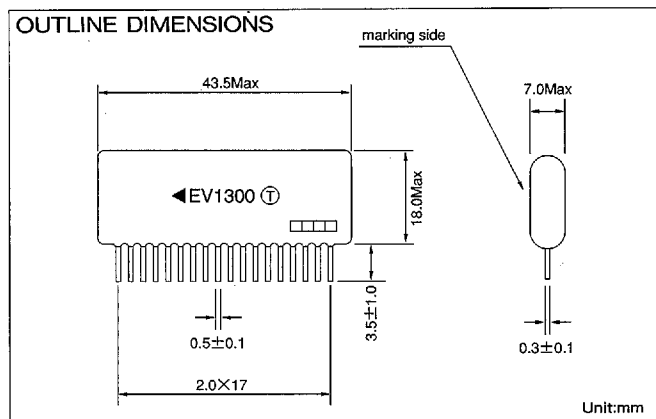
Electronic Potentiometer

EV1300 is a highly integrated hybrid IC which contains in its inside TC9222, which is an IC electronically controllable volume, loudness, fader and tone (bass, middle and treble), and its auxiliary circuits.

FEATURES

- Super small size is realized by direct bonding of TC9222.
- Ordinary micro computer can control the volume as serial control is done at 5V input.
- Potentiometer: 81 positions between 0dB and -79dB (1dB step) and to $-\infty$ can be controllable separately by L and R.
- Loudness function is contained.
- Fader: Rear side or front side output only can be variable at 16 positions.
- 3 band tone control of bass/treble/middle: ± 14 dB can be variable at 13 positions of 2dB each.
- Four output buffer circuits are contained.

OUTLINE DIMENSIONS

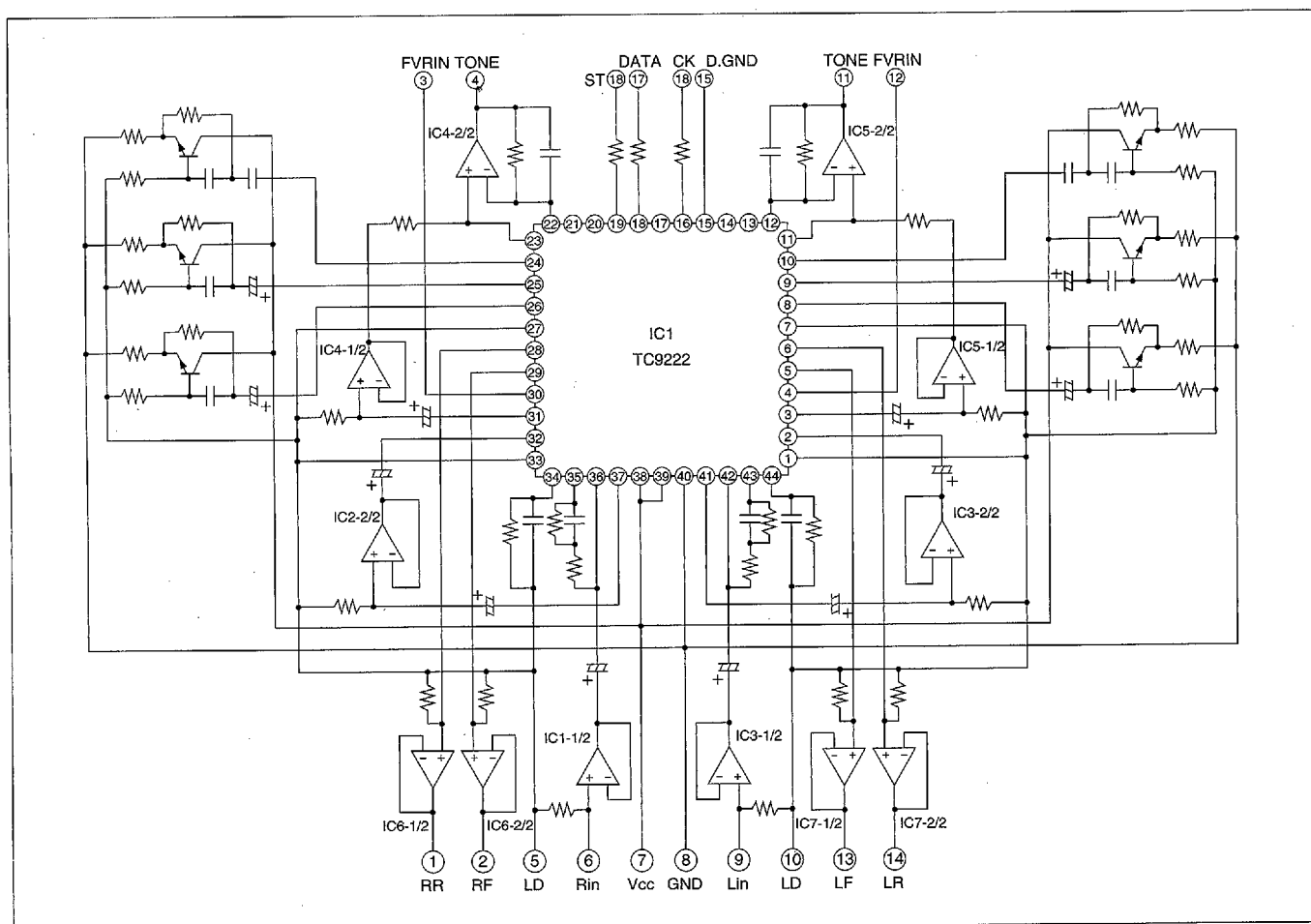


ABSOLUTE MAXIMUM RATINGS

(TA = 25°C, unless specified)

Item	Symbol	Rating	Unit
Supply voltage	Vcc	12	V
Supply current	Icc	50	mA
Power dissipation	Pd	700	mW
Operating temperature	Topr	-20 ~ +75	°C
Storage temperature	Tstg	-40 ~ +85	°C

INTERNAL CIRCUIT



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ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$, $V_{CC} = 8.0 \pm 0.1\text{V}$, Loudness: off, Main, Tone & Fader: 0dB
unless specified.

No.	Item		Symbol	Specifications			Unit	Conditions	
				Min	Typ	Max			
1	Supply current		I _{CC}		35	45	mA	Quiescent	
2	Voltage gain		G _v	-1	0	+1	dB	f=1kHz Input level V _i =300mV _{rms}	
3	Frequency characteristics		V _f	-1	0	+1	dB	f=20 20kHz, based on f=1kHz output	
4	Tone change	Bass boost	TB ₁	10.5	12	13.5	dB	f=60Hz	Bass; +12dB
		Bass cut	TB ₂	11	12.5	14	dB		
		Mid boost	TM ₁	10.5	12	13.5	dB	f=800Hz	Mid; +12dB
		Mid cut	TM ₂	11	12.5	14	dB		
		Treble boost	TT ₁	10.5	12	13.5	dB	f=10kHz	Treble; +12dB
		Treble cut	TT ₂	11	12.5	14	dB		
5	Loudness characteristics		LD ₁	6	8.5	11	dB	f=100Hz	Main; -20dB Change at Loudness off→on
			LD ₂	4	6.5	9	dB	f=10kHz	
6	Volume attenuation		V min		-90	-80	dB	Main; -∞ Input level V _i =1V _{rms}	
7	Fader attenuation		F min		-80	-70	dB	Fader; -∞	
8	Total harmonic distortion		THD		0.007	0.03	%	30kHz LPF used	
9	Max. output voltage		V _o max	1.4	1.8	10	V _{rms}	THD=1%	
10	Noise level		V _N		4		μV _{rms}	DIN-audio	

TEST CIRCUIT

