

BIPOLAR ANALOG INTEGRATED CIRCUIT

μ PC1298V

50 to 80 W POWER AMPLIFIER DRIVER

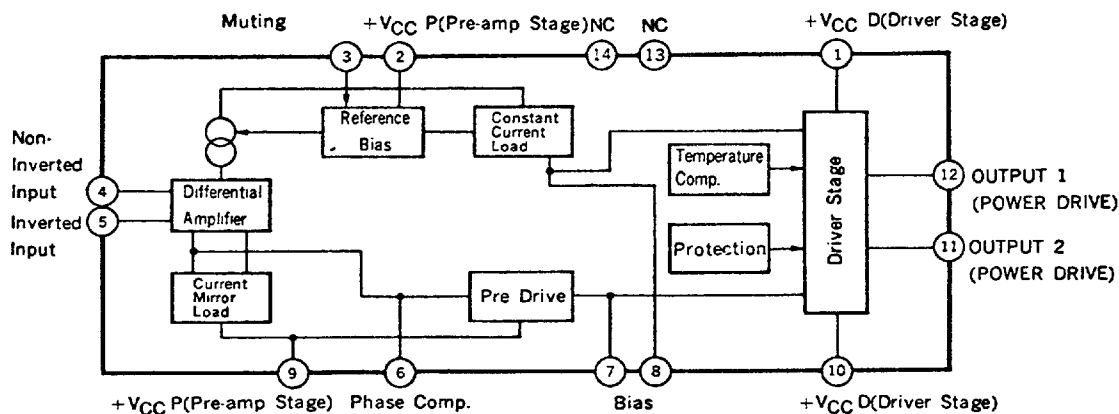
DESCRIPTION

μ PC1298V is a integrated monolithic circuit designed for 50 W to 80 W class HiFi audio power amplifier and consists of a input differential amplifier, a predriver circuit, a driver circuit and a over current protection circuit.

FEATURES

- Low Distortion.
0.002 % TYP. ($V_{CC} = \pm 46$ V, $f = 1$ kHz, $A_v = 30$ dB, $P_O = 50$ W, $R_L = 8 \Omega$ with Power Transistor)
0.006 % TYP. ($V_{CC} = \pm 46$ V, $f = 20$ kHz, $A_v = 30$ dB, $P_O = 50$ W, $R_L = 8 \Omega$ with Power Transistor)
- Wide Frequency Band.
900 kHz TYP. (-3 dB)
- Wide Power Band Width.
90 kHz TYP. ($P_O = 40$ W, THD = 0.1 %)

BLOCK DIAGRAM



NOTE: The built-in over current circuit protects μ PC1298V and cannot protect external power transistors.

NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Supply Voltage (Quiescent)	V_{CC1}	± 65	V
Supply Voltage (Operational)	V_{CC2}	± 60	V
Circuit Current	$I_{CC}(\text{peak})$	250	mA
Allowable Package Dissipation	P_D	7.5*	W
Operational Temperature	T_{opt}	-20 to $+75$	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to $+150$	$^\circ\text{C}$

* 100 x 100 x 2 mm Al heat sink

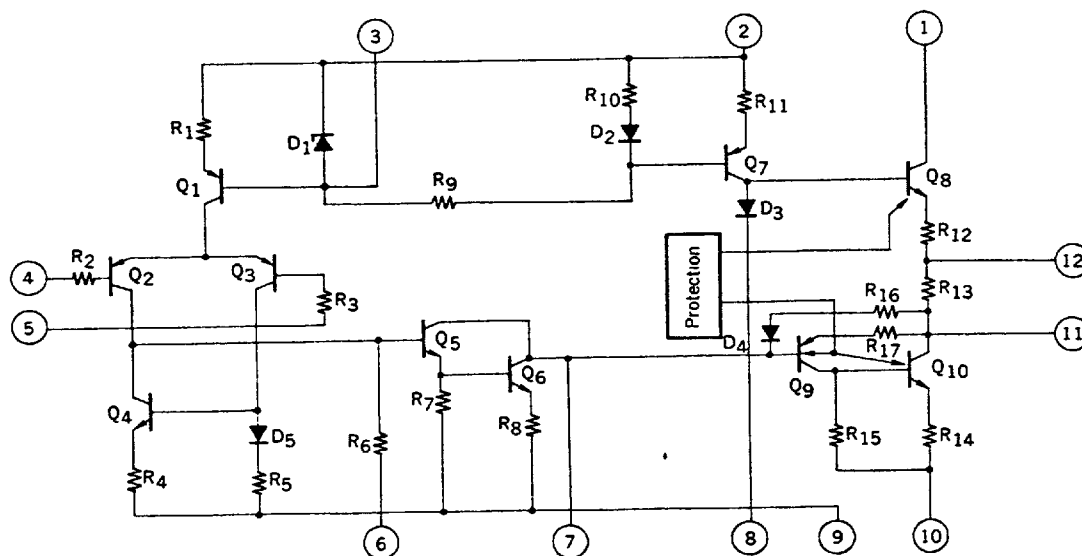
RECOMMENDED OPERATING CONDITION

Supply Voltage (Operational)	$V_{CC} = \pm 20$ to ± 46 V
Input Bias Resistance	$R_{IN} = 1$ to 50 to 100 k Ω
Power Transistor h_{FE}	$h_{FE} \geq 50$ at $P_O = 80$ W, $R_L = 8$ Ω , $T_j < 125^\circ\text{C}$
Closed Loop Voltage Gain	$A_v = 26$ to 30 dB
Junction Temperature	$T_j = -20$ to 125°C

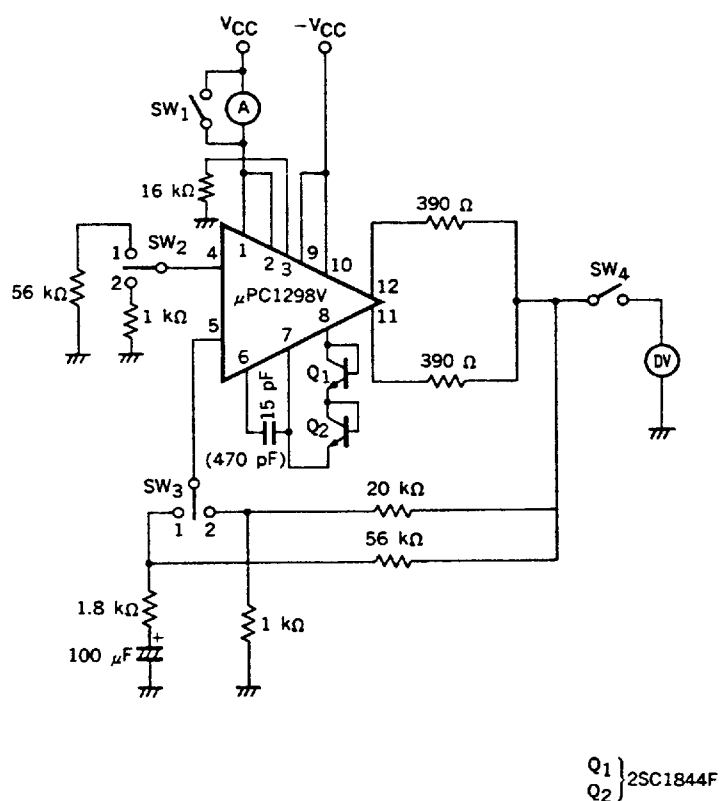
ELECTRICAL CHARACTERISTICS ($V_{CC} = \pm 46$ V, $A_v = 30$ dB, Use Standard Test Circuit, $T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITION
Output Offset Voltage	V_{offset}		± 5	± 50	mV	$V_{IN} = 0$
Quiescent Circuit Current	I_{CC}		20	40	mA	$V_{IN} = 0$
Maximum Output Voltage	V_{OM}	25	28		V	THD=0.05%, $f = 20$ Hz to 20 kHz
Open Loop Voltage Gain	A_{vo}	80	95		dB	$V_O = 1.5$ V, $f = 1$ kHz
Output Noise Voltage	V_n		0.07	0.14	mV	$R_G = 10$ k Ω
Rolloff Frequency	f_H		900		kHz	$V_O = 1.5$ V, -3 dB
Supply Voltage Rejection Ratio	SVR	55	70		dB	$R_G = 2.2$ k Ω , $f_{\text{ripple}} = 100$ Hz, $v_{\text{ripple}} = 1$ V _{r.m.s.}

EQUIVALENT CIRCUIT

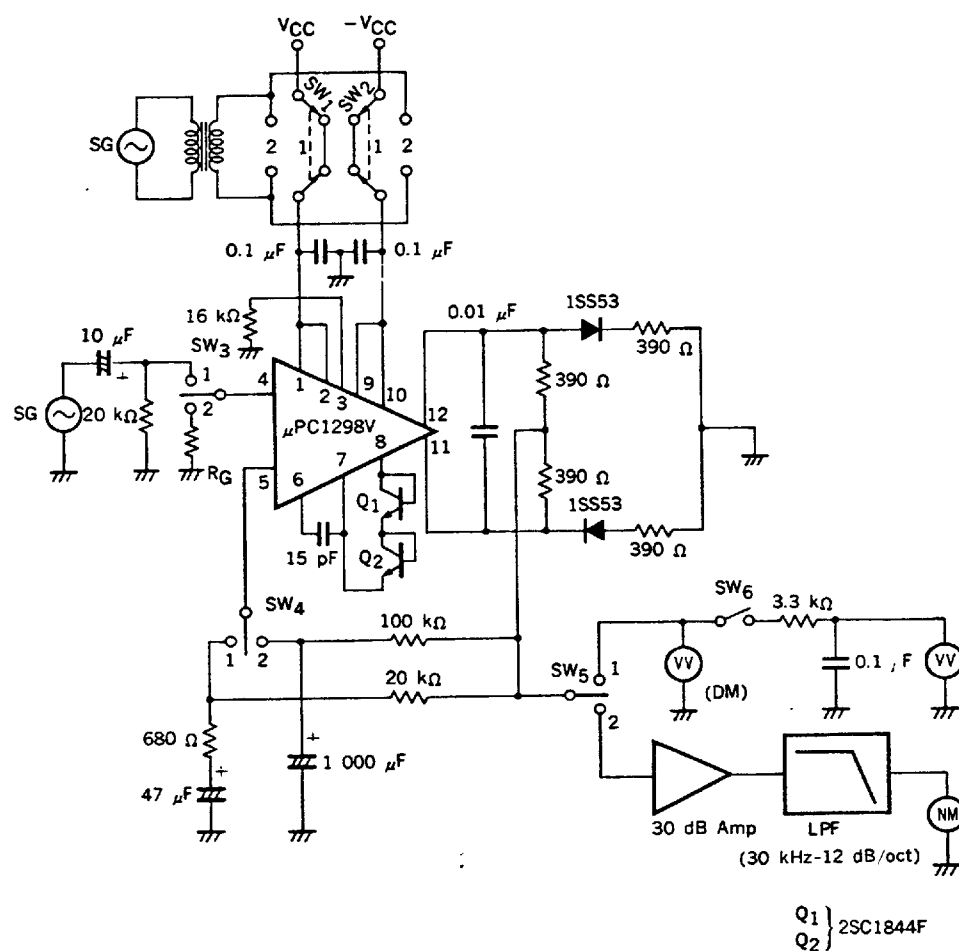


TEST CIRCUIT 1 (I_{CC} , V_{OFF})



SWITCH POSITION

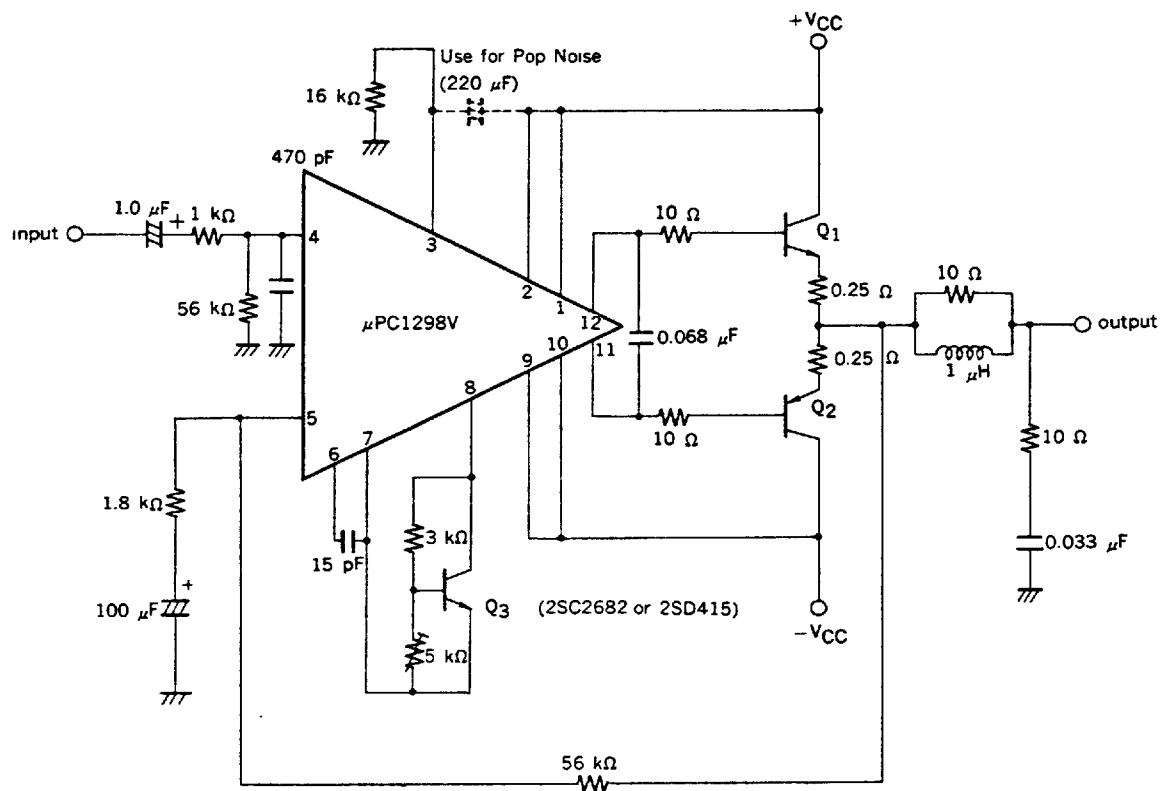
	SW ₁	SW ₂	SW ₃	SW ₄
I_{CC}	OFF	2	2	OFF
V_{OFF}	ON	1	1	ON

TEST CIRCUIT 2 (V_{OM} , A_v , A_{vO} , V_{NO} , SVR, PBW)

SWITCH POSITION

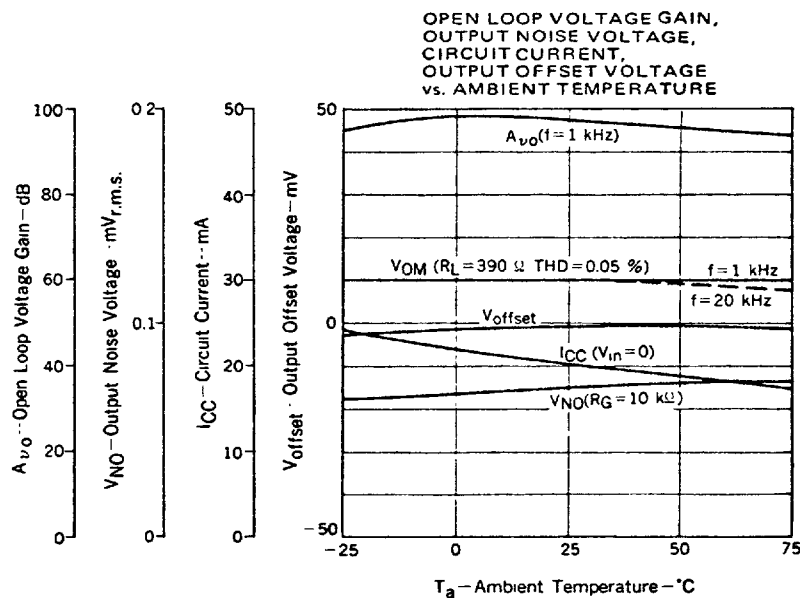
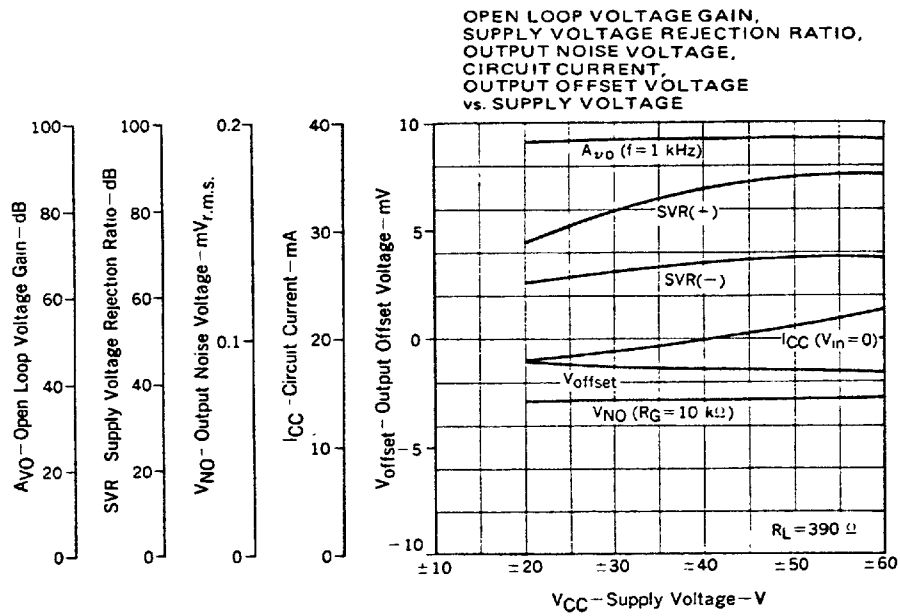
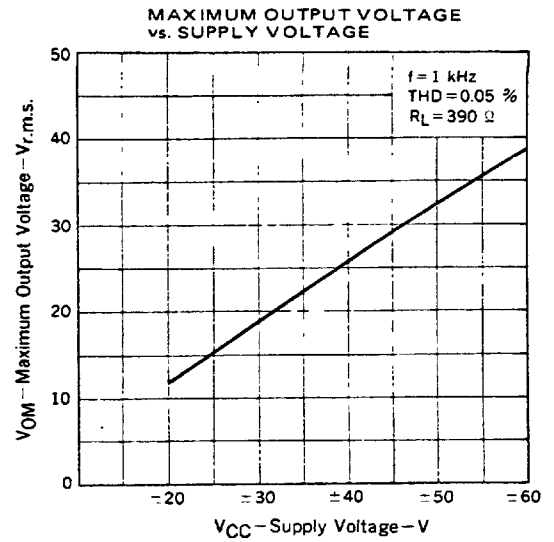
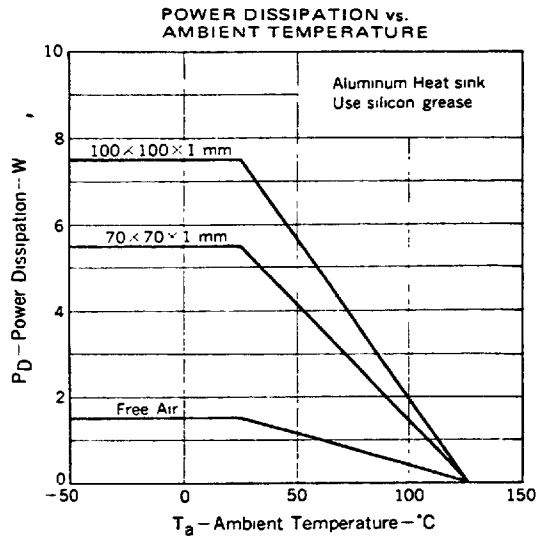
	SW ₁	SW ₂	SW ₃	SW ₄	SW ₅	SW ₆
V_{OM}	1	1	1	1	1	OFF
A_v	1	1	1	1	1	OFF
A_{vO}	1	1	1	2	1	OFF
V_{NO}	1	1	2	1	2	OFF
SVR	2/1	1/2	2	1	1	ON
PBW	1	1	1	1	1	OFF

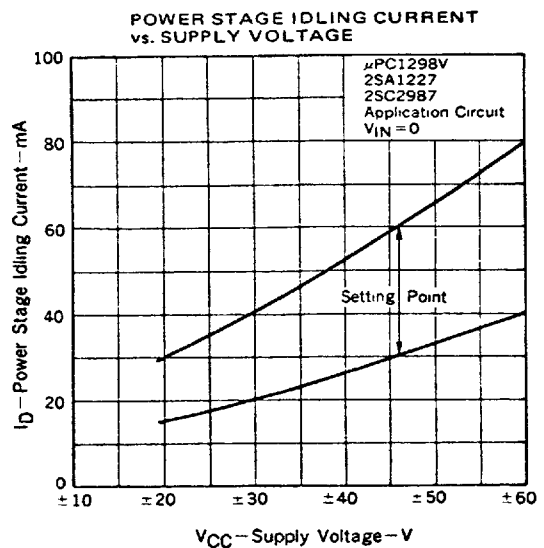
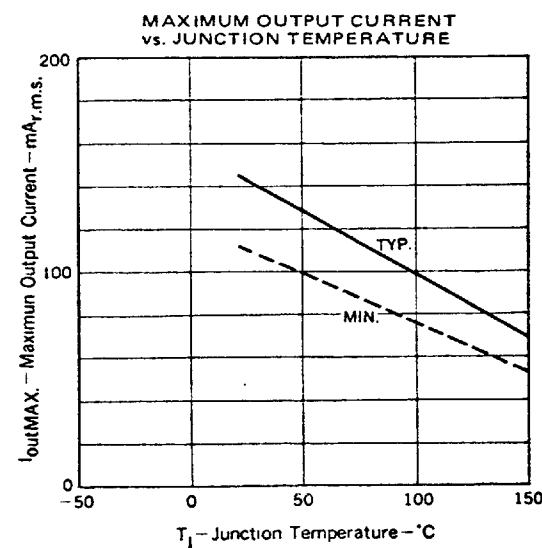
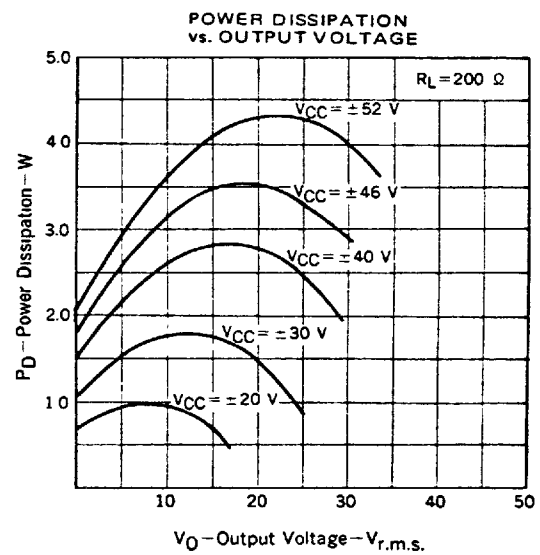
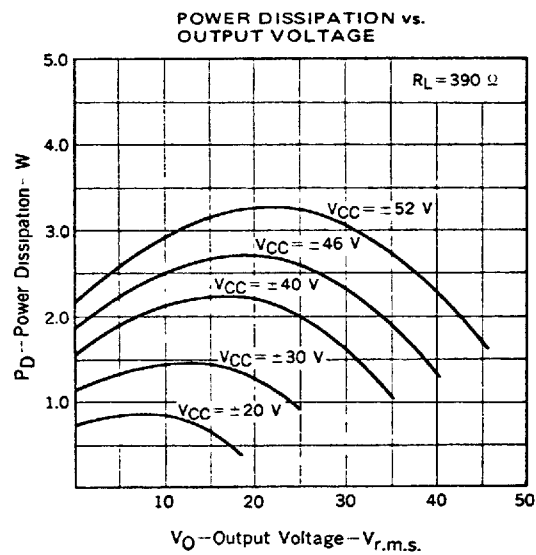
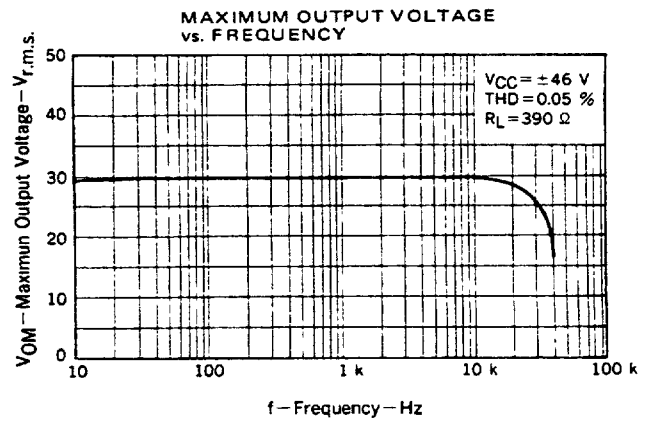
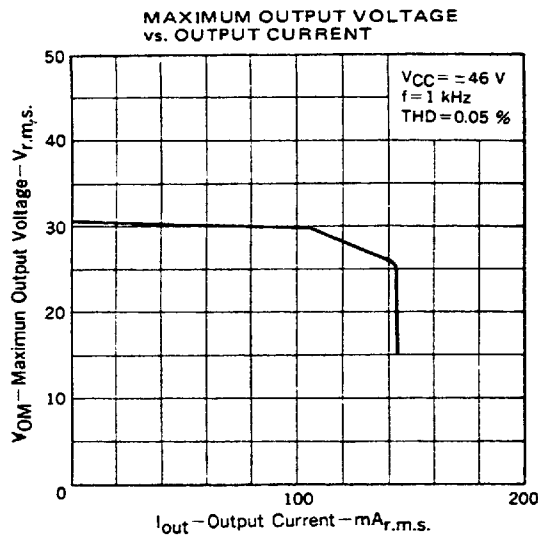
APPLICATION CIRCUIT

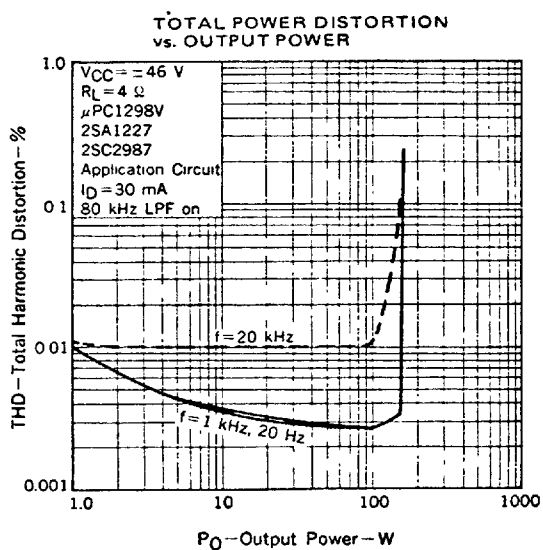
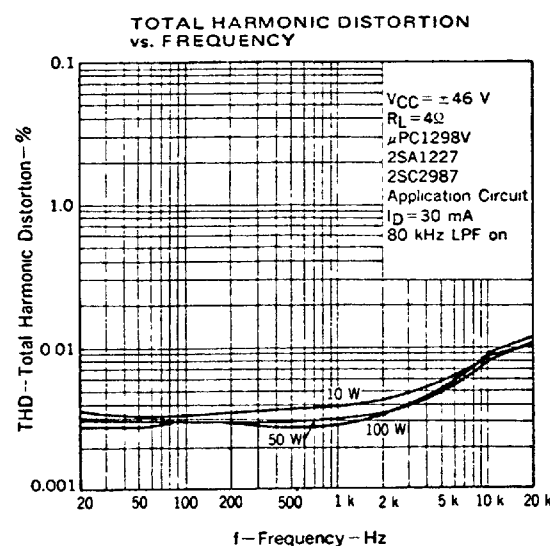
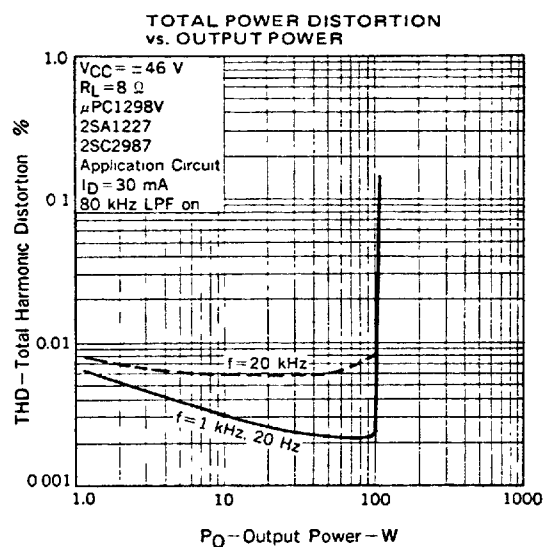
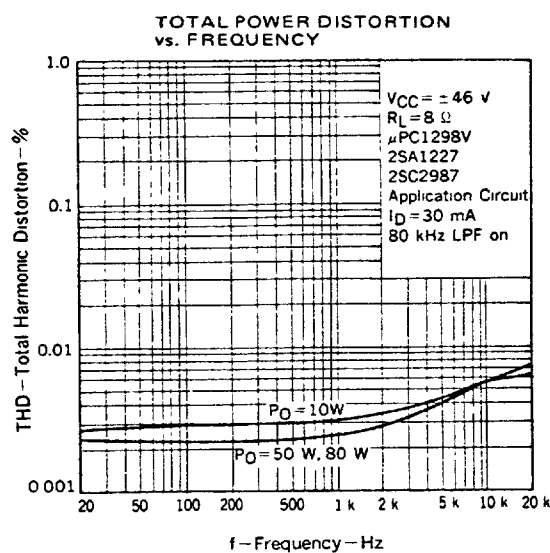
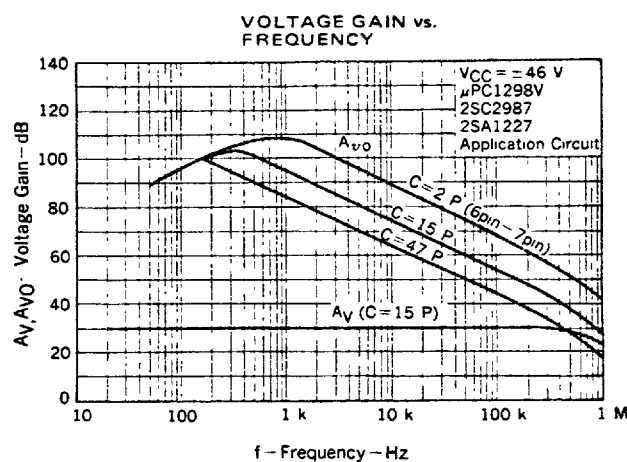
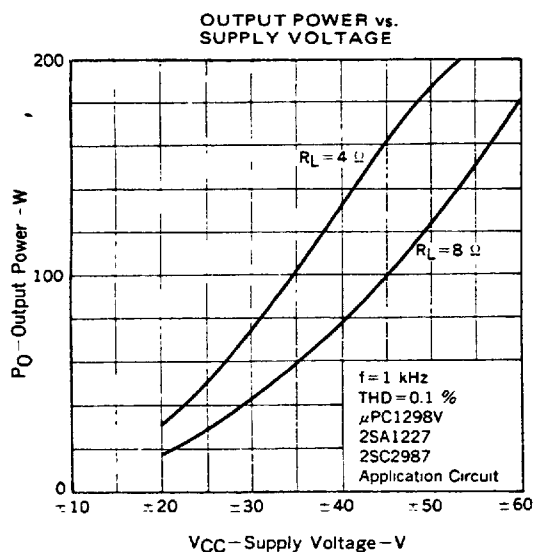


RECOMMENDED POWER TRANSISTOR

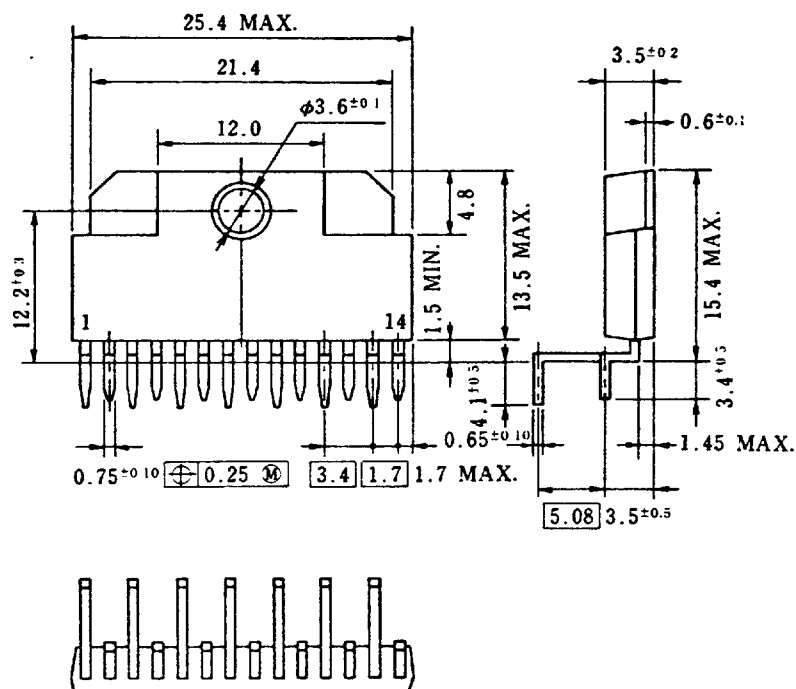
P _O	25 to 40 W	45 to 55 W	50 to 70 W	70 to 80 W
Q ₁	2SD1288 2SD2013	2SD1289 2SD1977	2SC3012 2SC4267	2SC2987 2SC2987A 2SC4268
Q ₂	2SB965 2SB1336	2SB966 2SB1315	2SA1232 2SA1631	2SA1227 2SA1227A 2SA1632







PACKAGE DIMENSIONS (Unit : mm)



PIN CONNECTION DIAGRAM

PIN No.	PIN CONNECTION
1	+V _{CCD} (for Driver)
2	+V _{CCP} (for Preamp)
3	MUTING
4	INPUT
5	NFB
6	PHASE COMP
7	BIAS
8	BIAS
9	-V _{CCP} (for Preamp)
10	-V _{CCD} (for Driver)
11	LOWER OUTPUT
12	UPPER OUTPUT
13	NC
14	NC