

SANYO

No.341G

2SB632,632K/2SD612,612K

PNP/NPN Epitaxial Planar Silicon Transistors

25V/35V, 2A Low-Frequency Power Amp Applications**Features**

- High collector dissipation and wide ASO.

(): 2SB632, 632K

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

		2SB632, D612	2SB632K, D612K	unit
Collector-to-Base Voltage	V_{CB0}	(-)25	(-)35	V
Collector-to-Emitter Voltage	V_{CE0}	(-)25	(-)35	V
Emitter-to-Base Voltage	V_{EB0}		(-)5	V
Collector Current	I_C	(-)2		A
Collector Current (Pulse)	I_{CP}	(-)3		A
Collector Dissipation	P_C	1		W
		10		W
Junction Temperature	T_j	150		$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150		$^\circ\text{C}$

 $T_c = 25^\circ\text{C}$ **Electrical Characteristics at $T_a = 25^\circ\text{C}$**

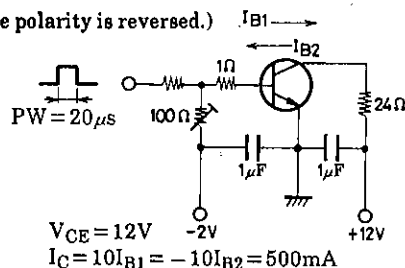
			min	typ	max	unit
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu\text{A}, I_E = 0$	B632, D612 (-)25			V
			B632K, D612K (-)35			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$	B632, D612 (-)25			V
			B632K, D612K (-)35			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu\text{A}, I_C = 0$	(-)5			V
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)20\text{V}, I_E = 0$			(-)1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)1	μA
DC Current Gain	$h_{FE}(1)$	$V_{CE} = (-)2\text{V}, I_C = (-)500\text{mA}$	60%		320%	
	$h_{FE}(2)$	$V_{CE} = (-)2\text{V}, I_C = (-)1.5\text{A}$	30			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$		100		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(45)30		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)1.5\text{A}, I_B = (-)0.15\text{A}$		(-0.4)(-0.9)		V
				0.3 0.8		
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)1.5\text{A}, I_B = (-)0.15\text{A}$		(-)1.1(-)1.5		V
Turn-ON Time	t_{on}	See specified Test Circuit.		(60)50		ns
Fall Time	t_f	"		(80)100		ns
Storage Time	t_{stg}	"		400		ns

※ : The 2SB632/2SD612 are classified by 500mA h_{FE} as follows.

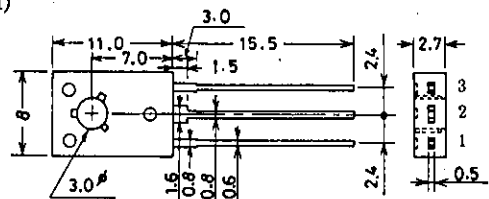
60	D	120	100	E	200	160	F	320
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Switching Time Test Circuit

(For PNP, the polarity is reversed.)

**Package Dimensions 2009B**

(unit : mm)



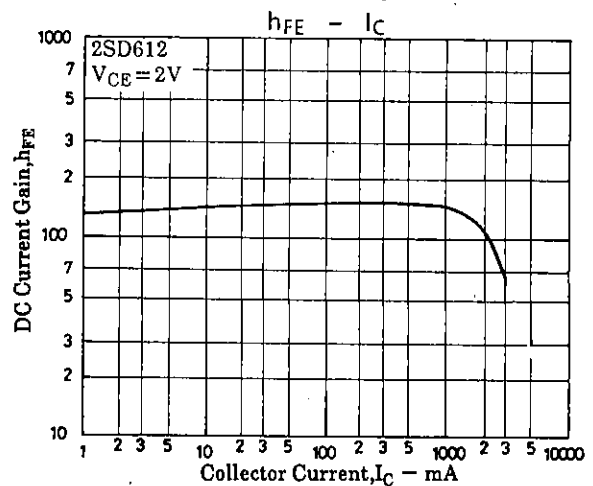
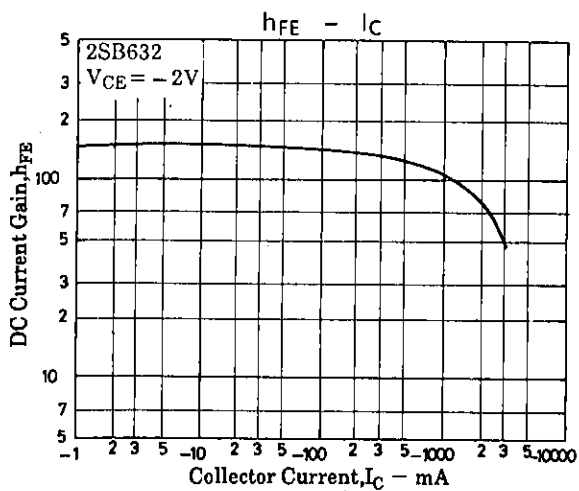
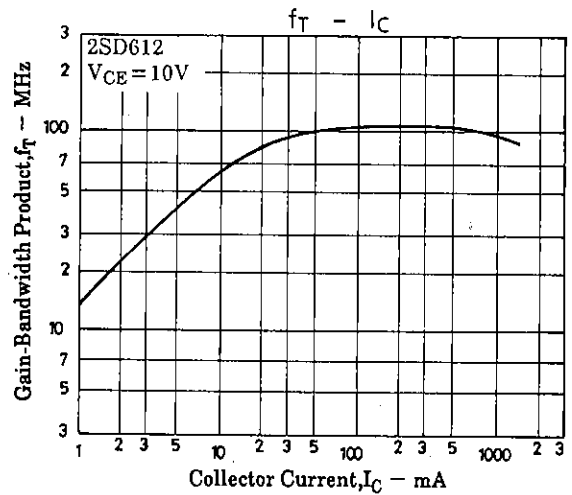
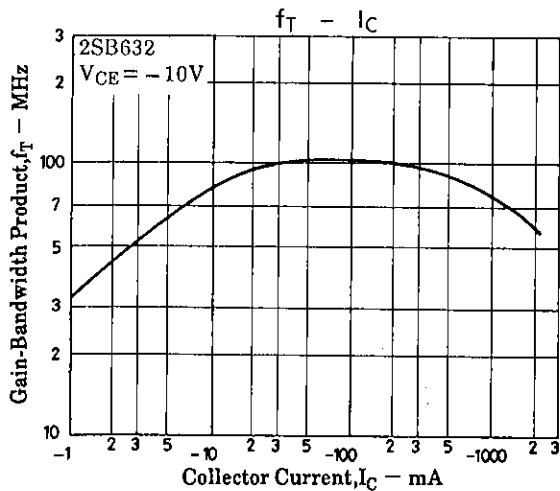
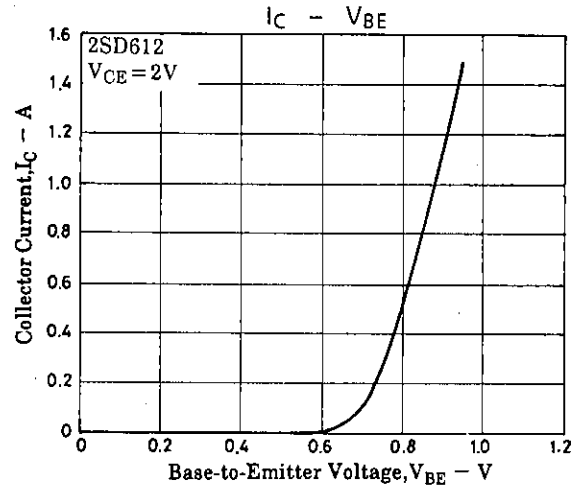
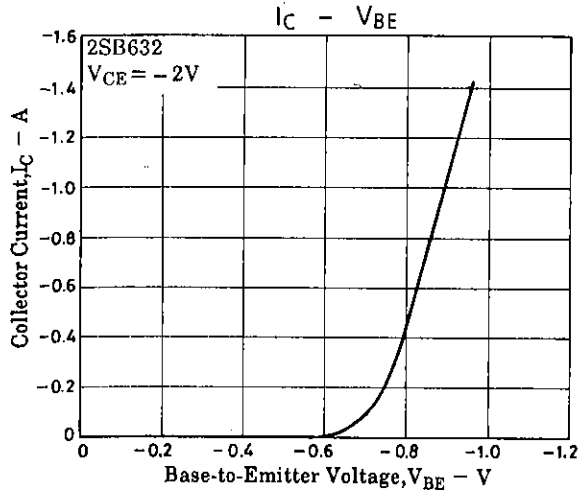
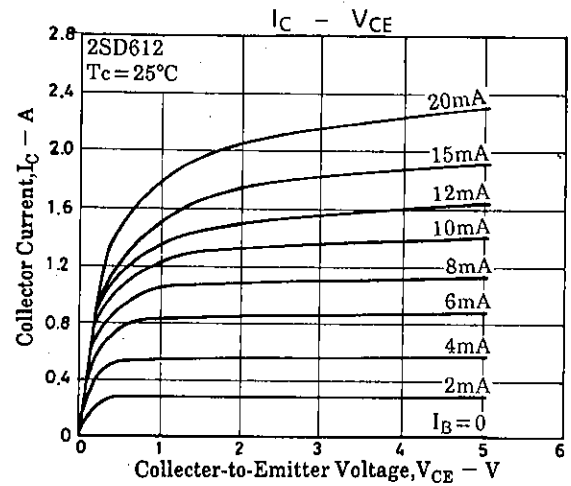
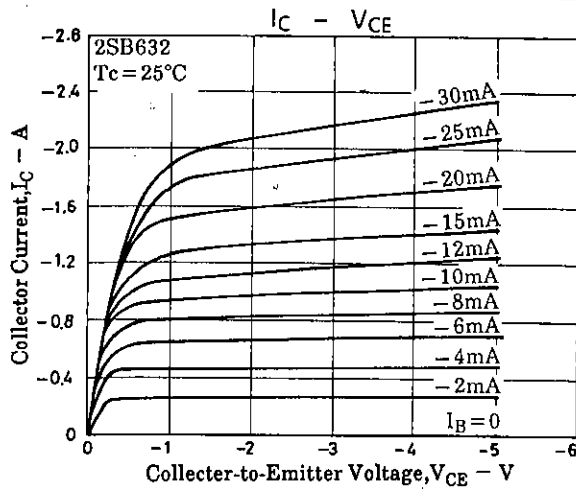
- 1: Emitter
- 2: Collector
- 3: Base

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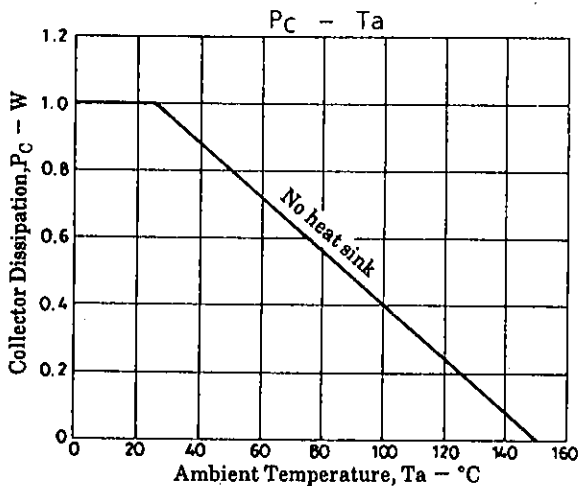
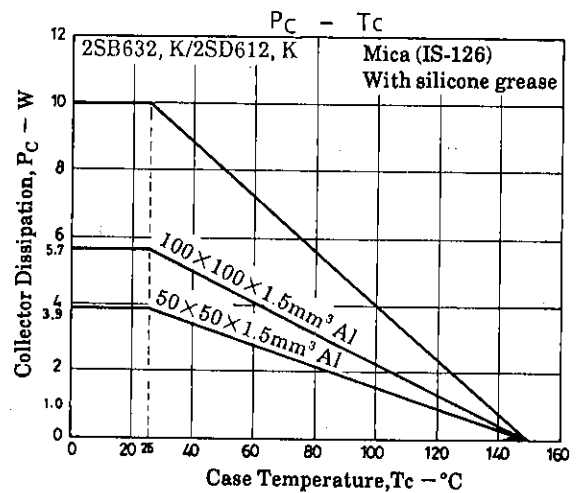
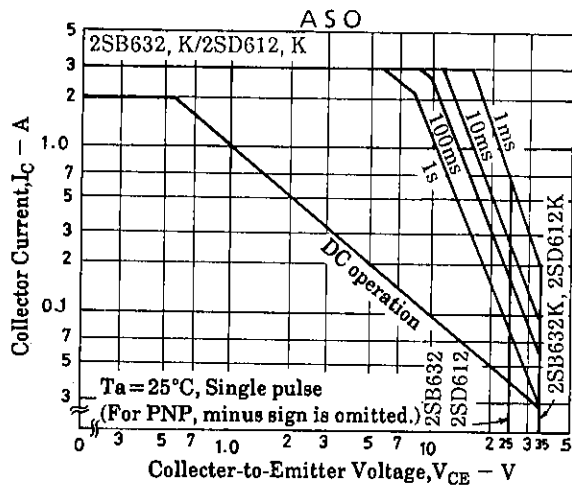
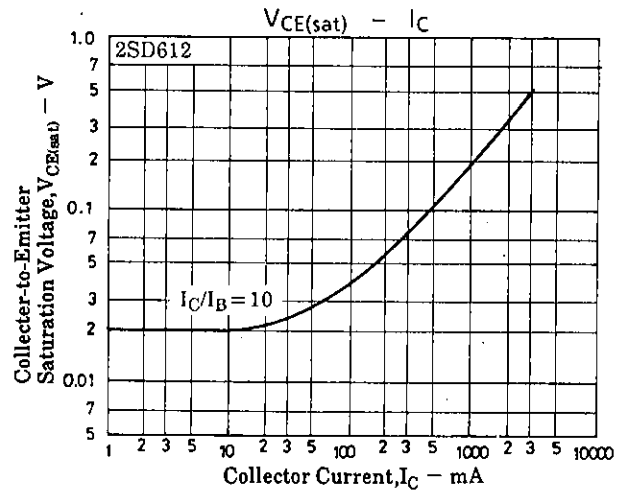
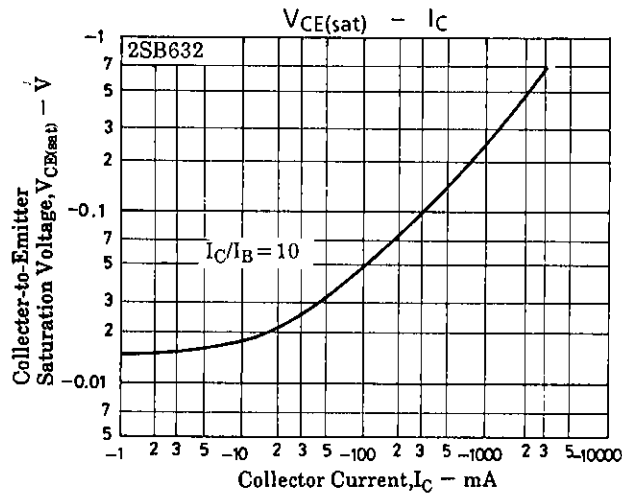
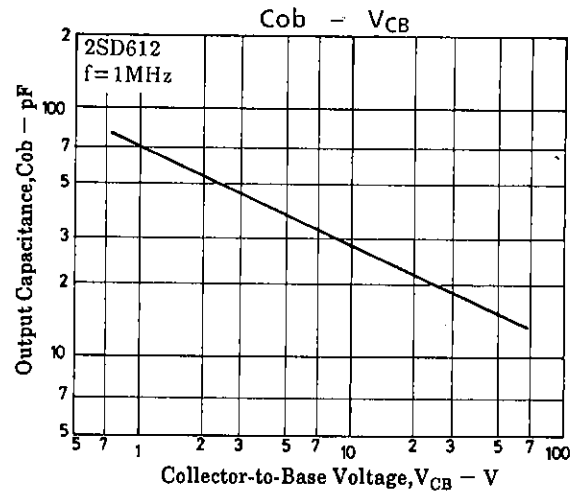
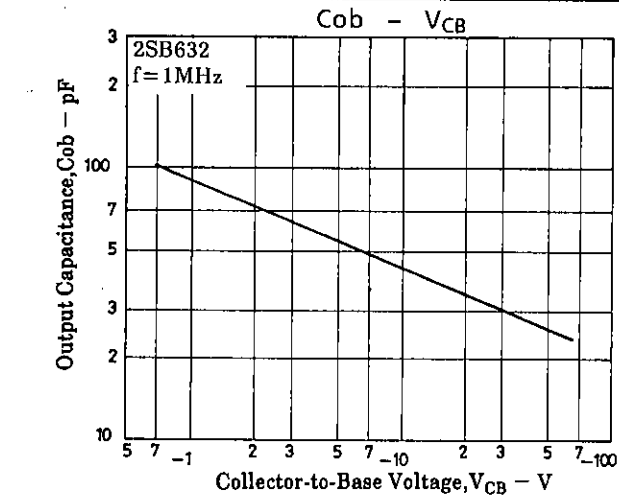
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2SB632, 632K/2SD612, 612K

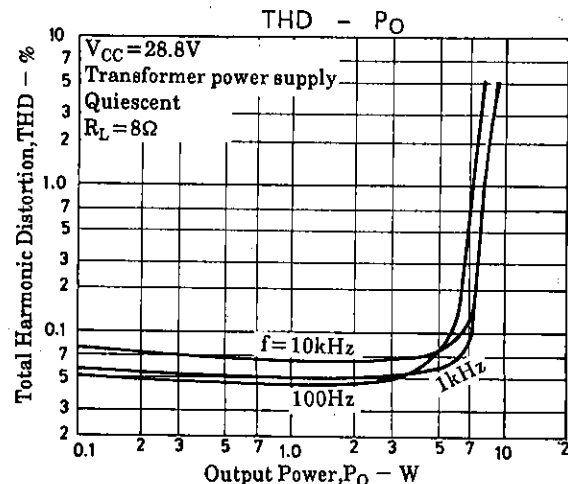
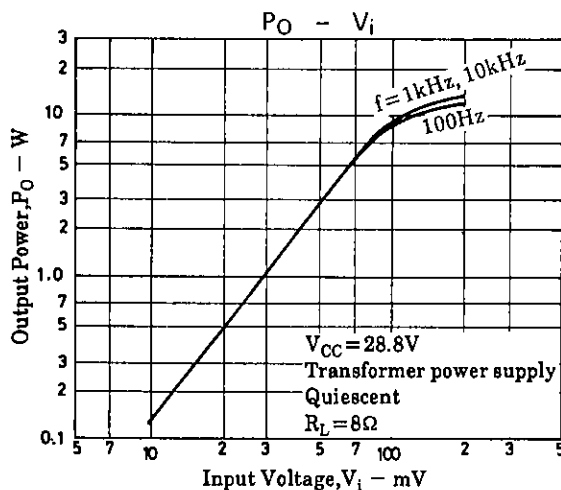
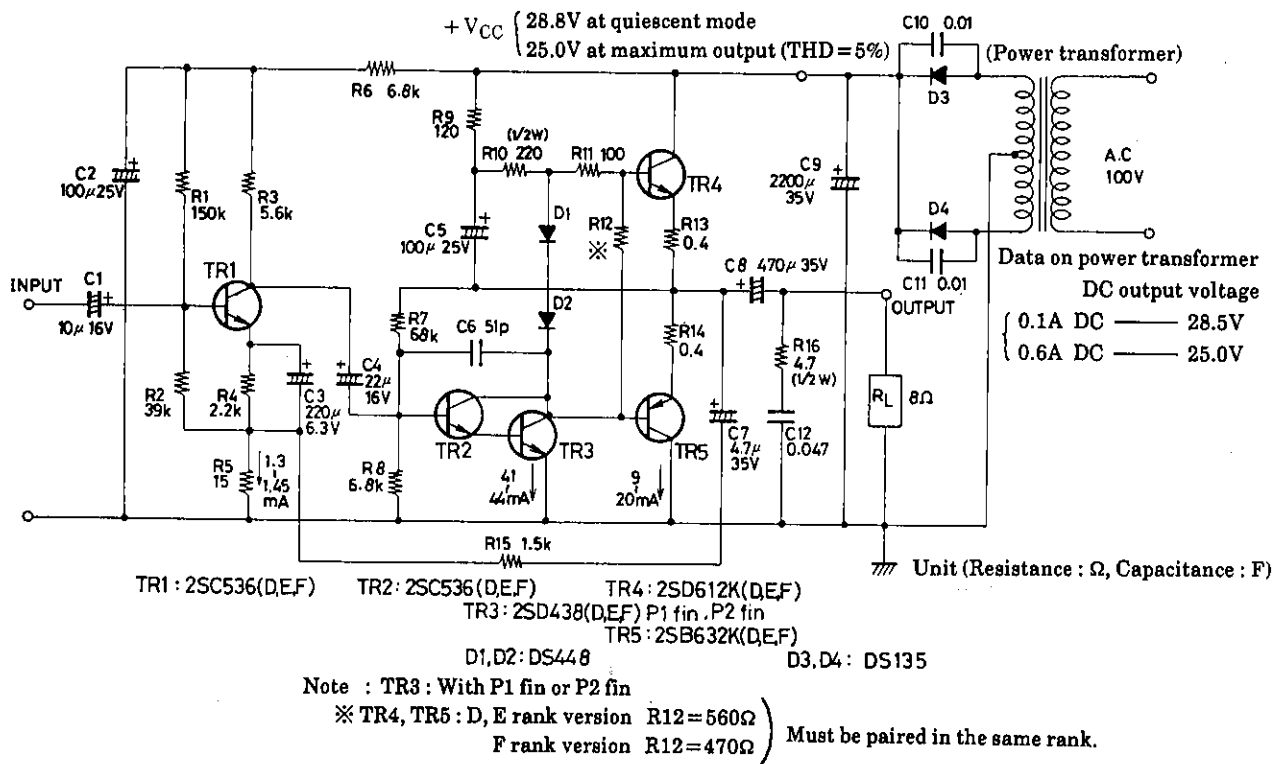


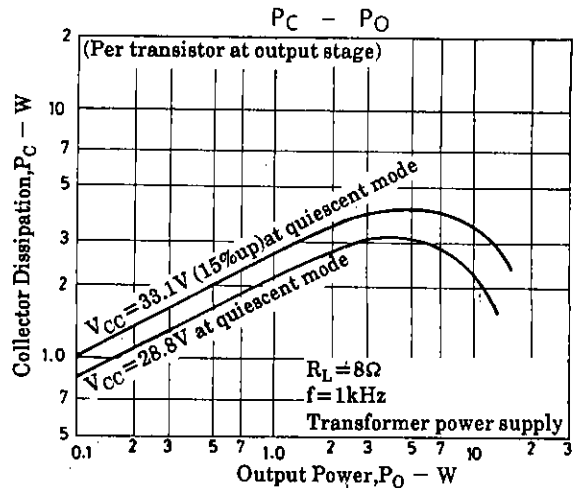
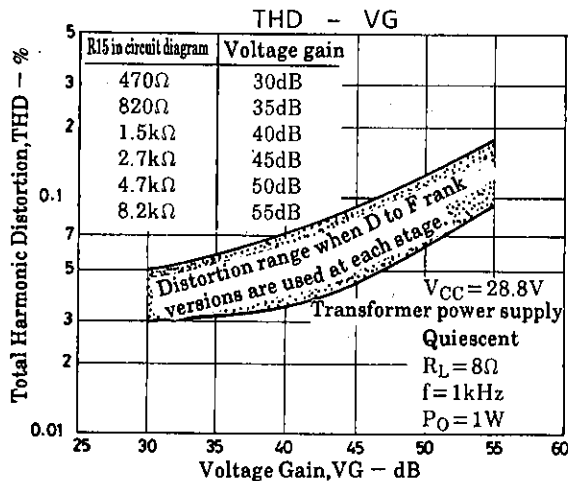
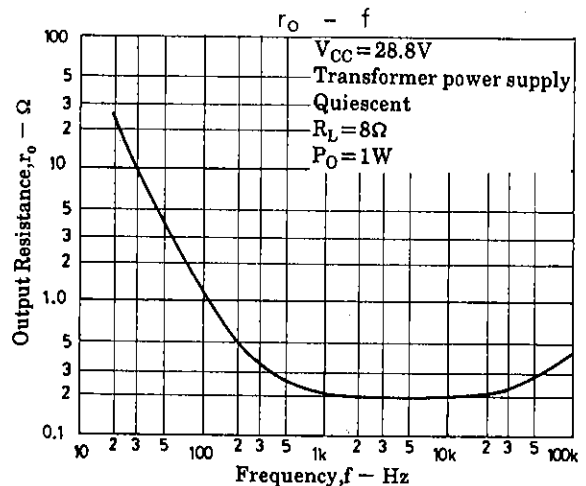
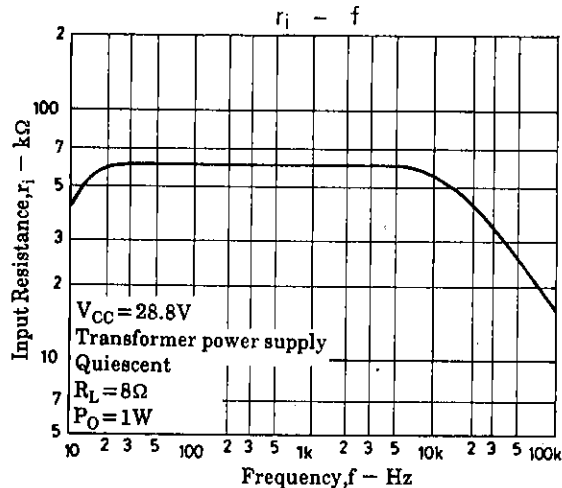
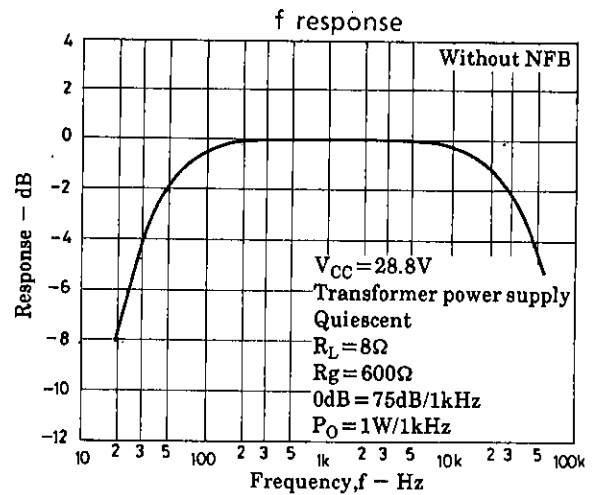
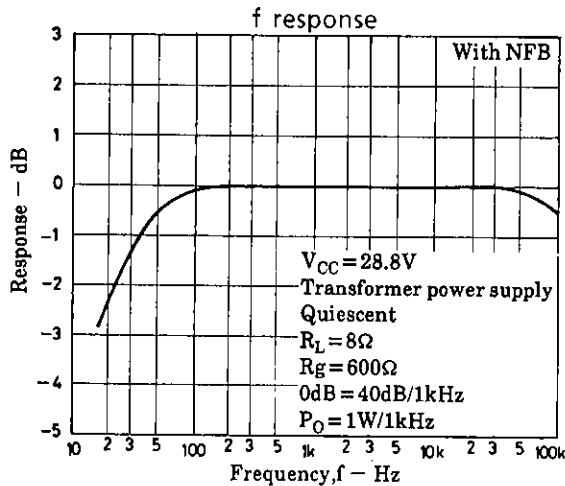
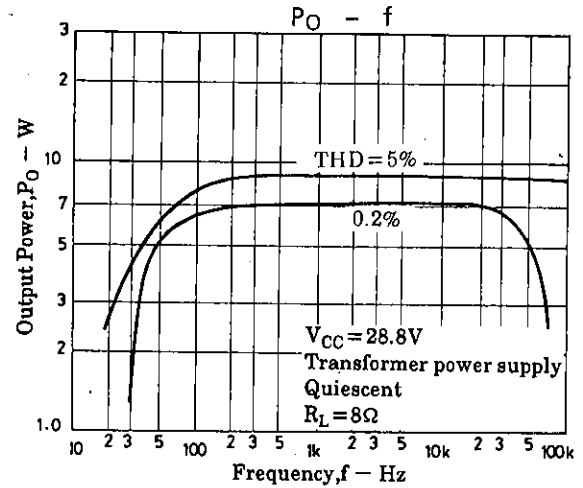
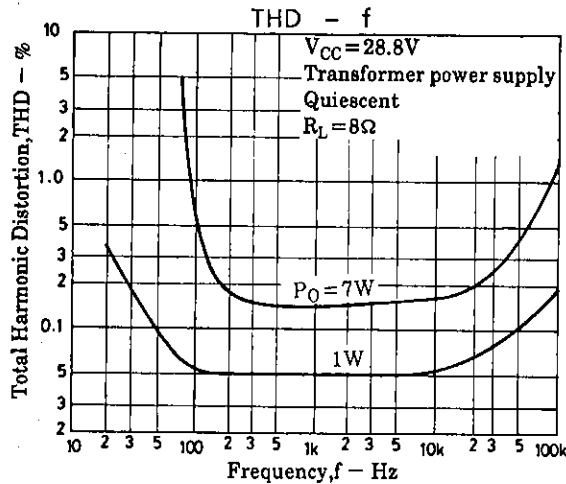
2SB632, 632K/2SD612, 612K

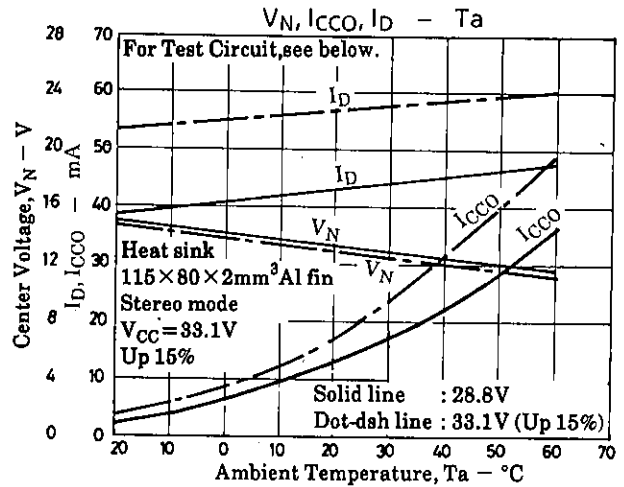
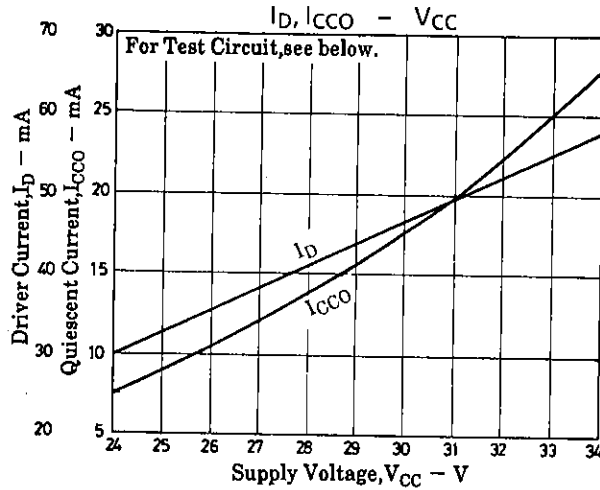


Sample Application Circuit 1 : 8W pure complementary amplifier using the 2SB632K/2SD612K
 [Specifications] Power supply : 100V AC supply transformer with no signal = 28.8V,
 Maximum output = (THD = 5%) = 25V, $f = 1\text{kHz}$, $R_L = 8\Omega$, $R_g = 600\Omega$

Quiescent Current (Collector Current)	I_{CC0}	Output stage	typ	uint
	I_D	Drive stage	14.0	mA
	I_C	First stage	42.0	mA
Voltage Gain	V_G	Without NFB	1.4	mA
	V_G	With NFB	75	dB
Output Power	P_O	THD = 5%	40	dB
	$P_O = 1\text{W}$		8.7	W
Total Harmonic Distortion	THD	$P_O = 1\text{W}$	0.05	%
Input Resistance	r_i	$P_O = 1\text{W}$	60	k Ω
Output Resistance	r_o	$P_O = 1\text{W}$	0.2	Ω



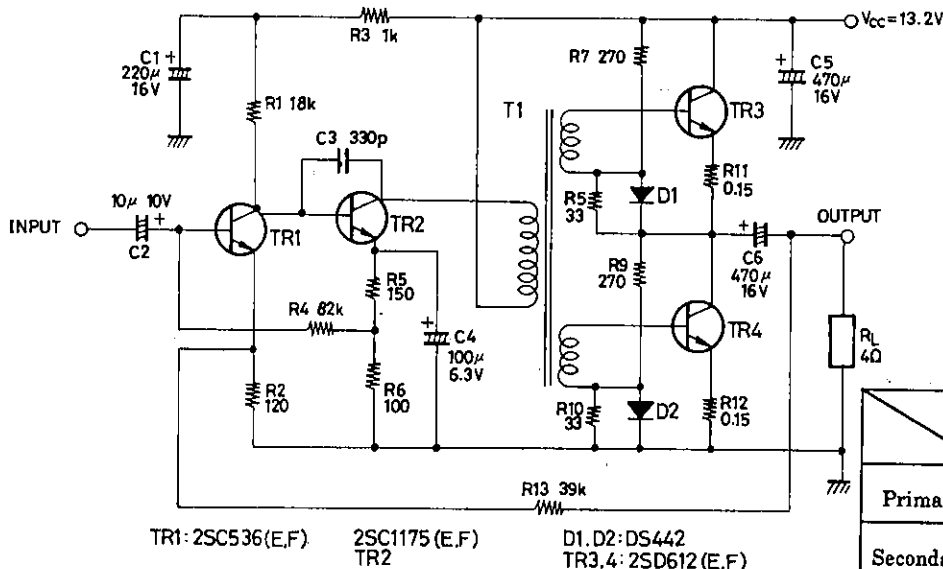
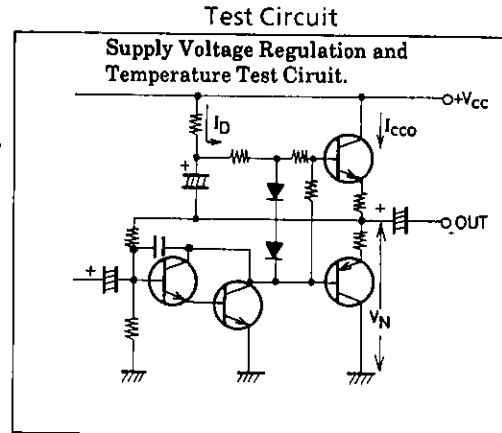




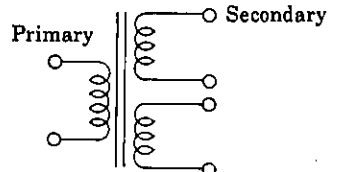
Sample Application Circuit 2 : 2SD612-Used 4W Input Transformer Coupling Amp for Car Use.

[Specifications] $V_{CC}=13.2V$, $R_L=4\Omega$, $R_g=600\Omega$, $f=1kHz$

Quiescent Current (Collector Current)	I_{CCO}	Output stage	12.0	mA
	I_D	Drive stage	9.0	mA
Voltage Gain	V_G	Without NFB	66	dB
	V_G	With NFB	49	dB
Output Power	P_O	THD = 10%	4.7	W
Total Harmonic Distortion	THD	$P_O=0.5W$	0.8	%
Input impedance	r_i	$P_O=0.5W$	60	k Ω

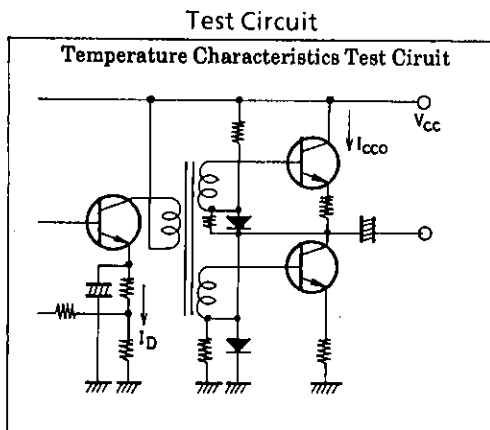
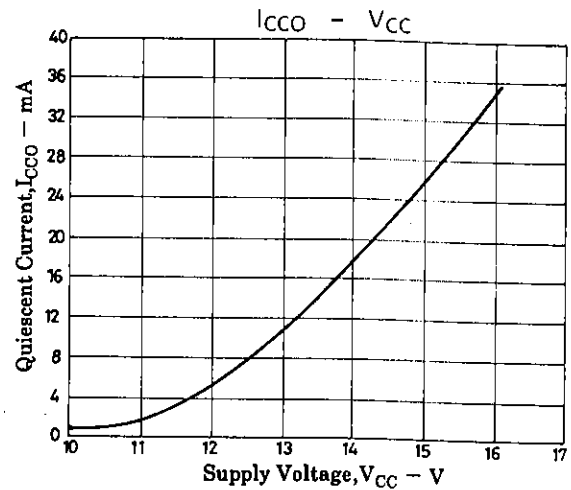
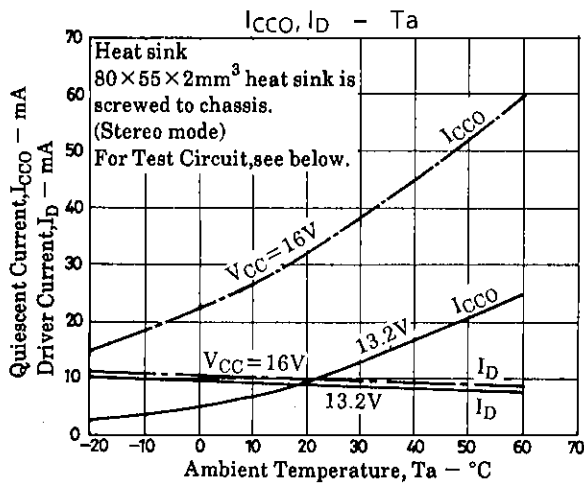
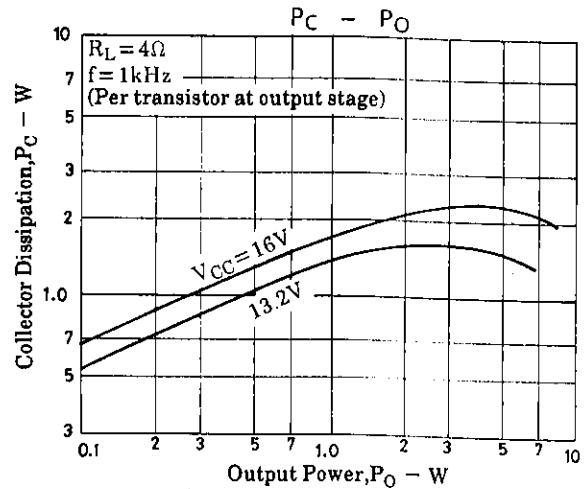
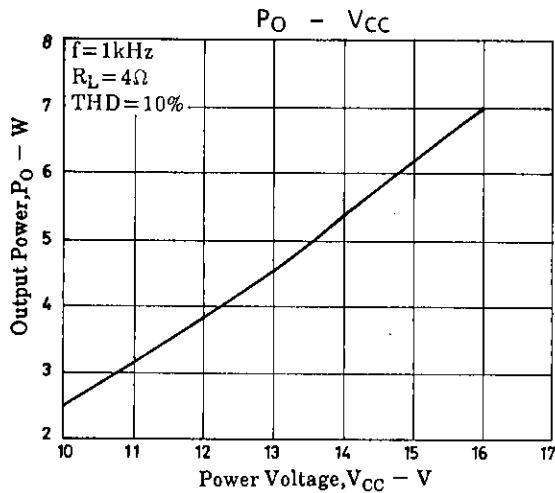
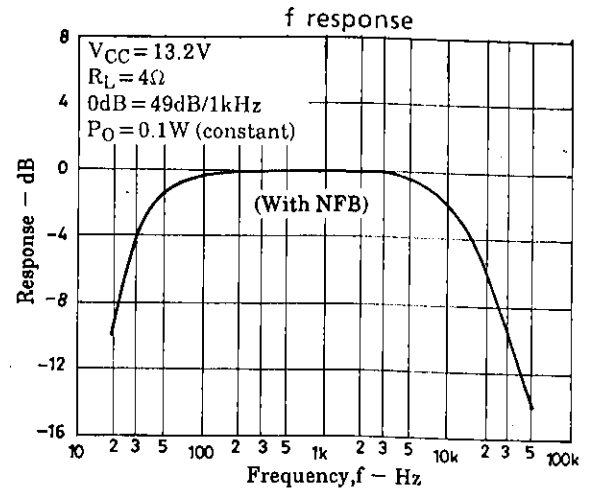
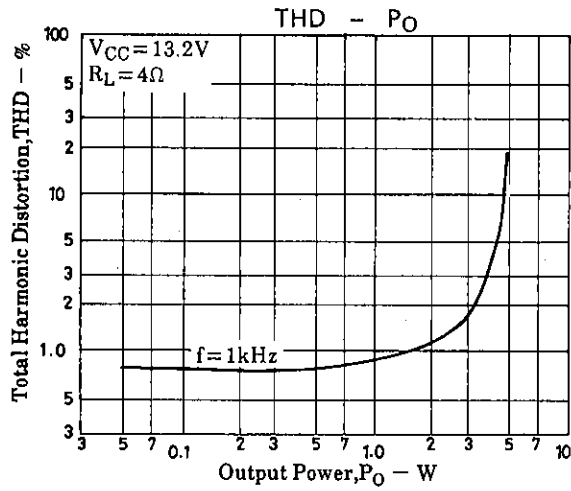


Data on transformer (T1)



	Impedance	DC resistance
Primary	3k Ω	180 Ω
Secondary	400 Ω	18 Ω

Unit (Resistance : Ω , Capacitance : F)



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