Pb Free Plating Product

NJW21193G

200 Watt Silicon Epitaxial Planar PNP Type Power Transistor

DESCRIPTION

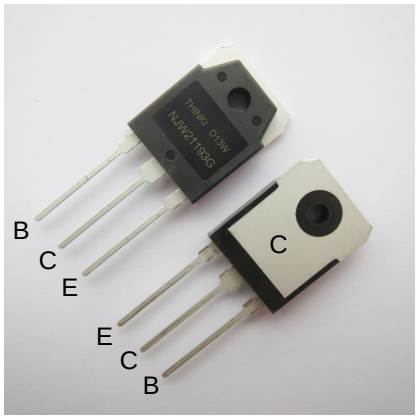
· With TO-3PB-SQ pkg

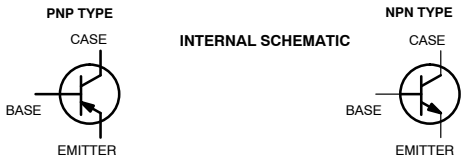
· Complement to type NJW21194G

APPLICATIONS

· Power amplifier applications

· Recommended for 150W high fidelity audio frequency amplifier output stage





PINNING

PIN	DESCRIPTION
E	Emitter
C	Collector;connected to mounting base
B	Base

Absolute Maximum Ratings(Tc=25℃):

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-400	V
Collector-emitter voltage	V_{CEO}	-250	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-16	A
Base current	I_B	-5	A
Collector power dissipation (Tc=25℃)	P_C	200	W
Junction temperature	T_j	150	℃
Storage temperature range	T_{STG}	-55~150	℃

Symbol	Paramter	Typ	Units
$R_{\theta JC}$	Junction-to-Case	0.63	℃/W

Electrical Characteristics (Tc=25℃):

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB}=-250V; I_E=0			-10.0	uA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V; I_C=0			-10.0	uA
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-50mA;I_B=0	-250			V
DC current gain	h_{FE}	V_{CE}=-5V; I_C=-8A;	20		80	
	$h_{FE(2)}$	V_{CE}=-5V; I_C=-16A;	8			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-8A; I_B=-0.8A			-1.4	V
	$V_{CE(sat)}$	I_C=-16A; I_B=-3.2A			-4	V
Base-emitter voltage	V_{BE}	V_{CE}=-5V;I_C=-8A			-2.2	V
Transition frequency	f_T	V_{CE}=-10V; I_C=-1A	4			MHz

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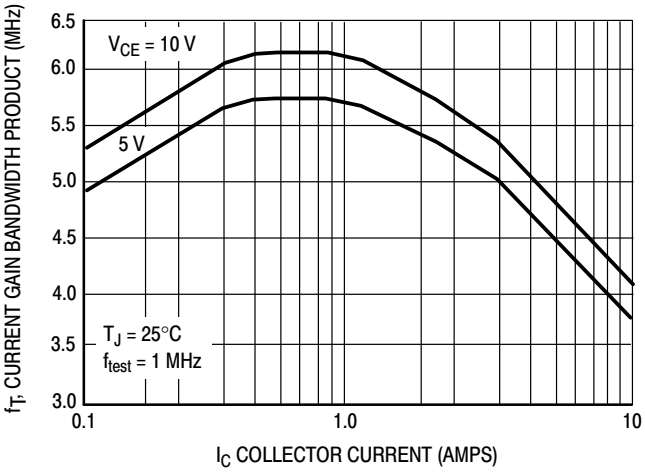

Figure 1. Typical Current Gain Bandwidth Product

NPN NJW21194G

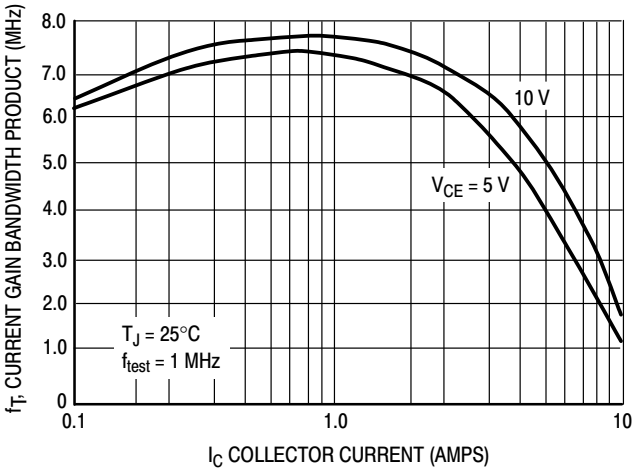

Figure 2. Typical Current Gain Bandwidth Product

TYPICAL CHARACTERISTICS

PNP NJW21193G

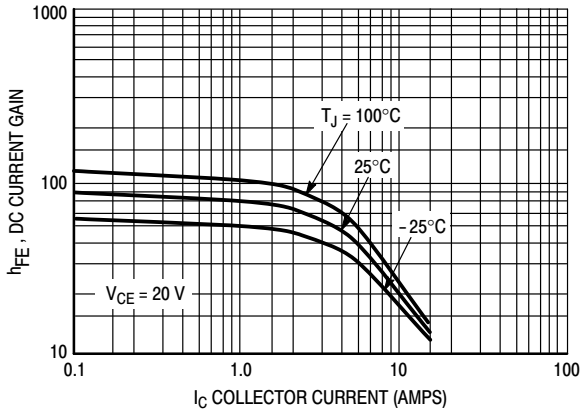

Figure 3. DC Current Gain, V_{CE} = 20 V

NPN NJW21194G

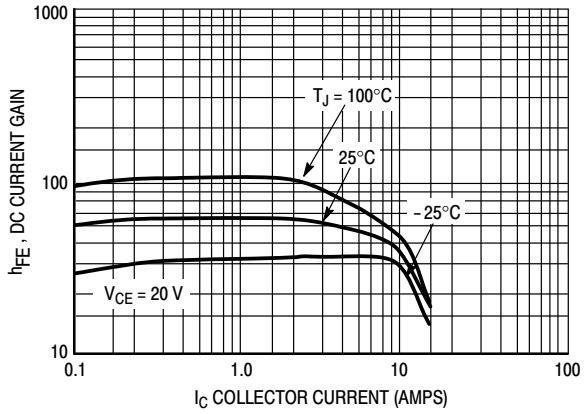

Figure 4. DC Current Gain, V_{CE} = 20 V

PNP NJW21193G

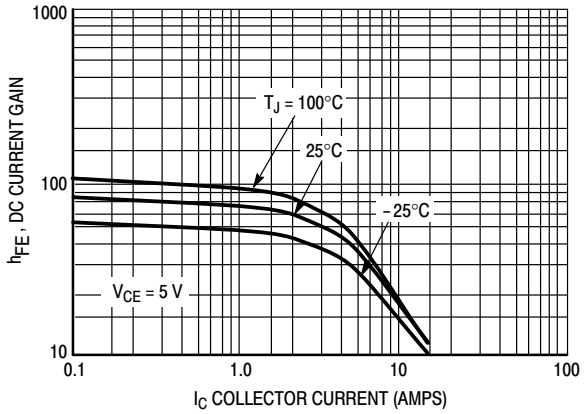

Figure 5. DC Current Gain, V_{CE} = 5 V

NPN NJW21194G

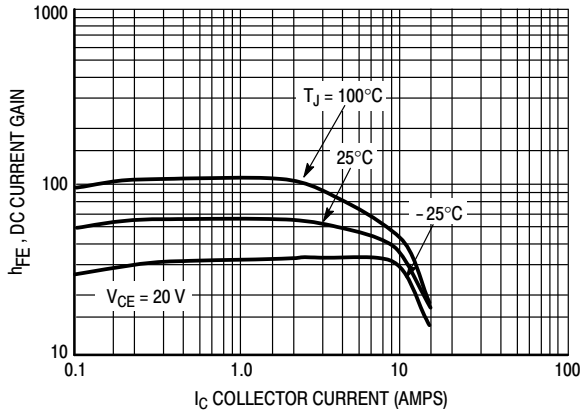

Figure 6. DC Current Gain, V_{CE} = 5 V

PNP NJW21193G

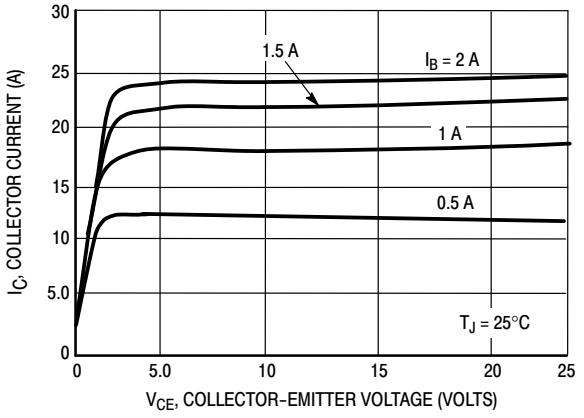

Figure 7. Typical Output Characteristics

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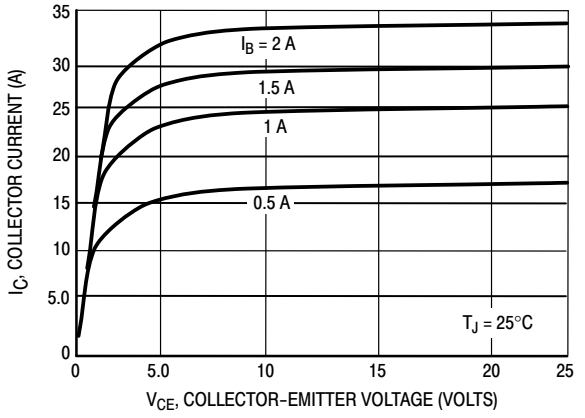

Figure 8. Typical Output Characteristics

TYPICAL CHARACTERISTICS

PNP NJW21193G

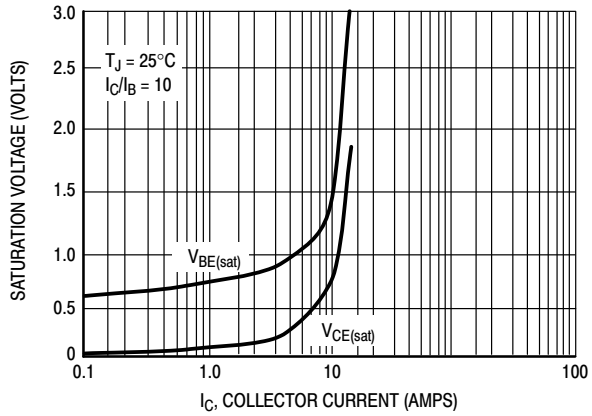

Figure 9. Typical Saturation Voltages

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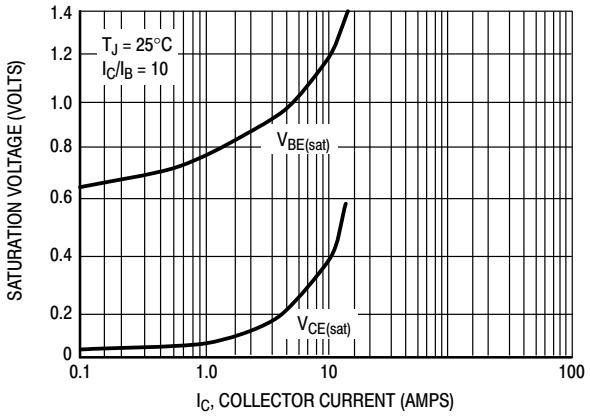

Figure 10. Typical Saturation Voltages

PNP NJW21193G

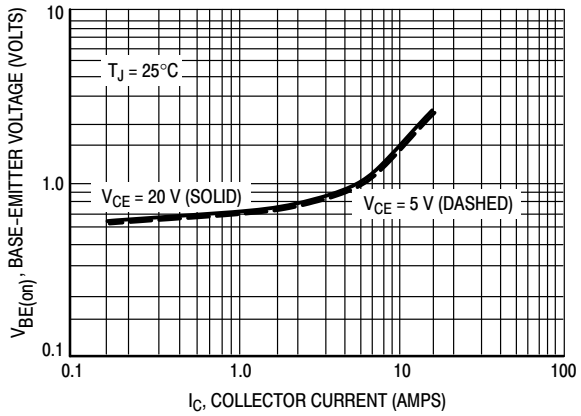

Figure 11. Typical Base−Emitter Voltage

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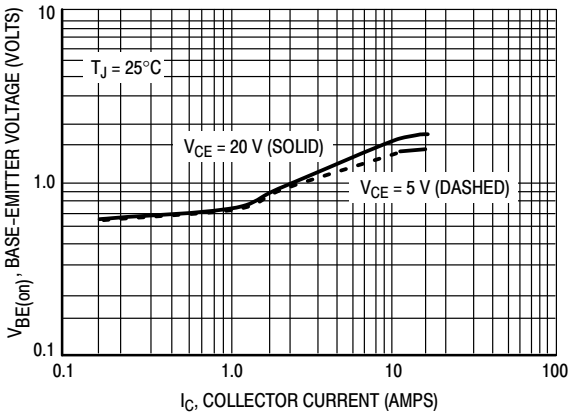

Figure 12. Typical Base−Emitter Voltage

PNP NJW21193G

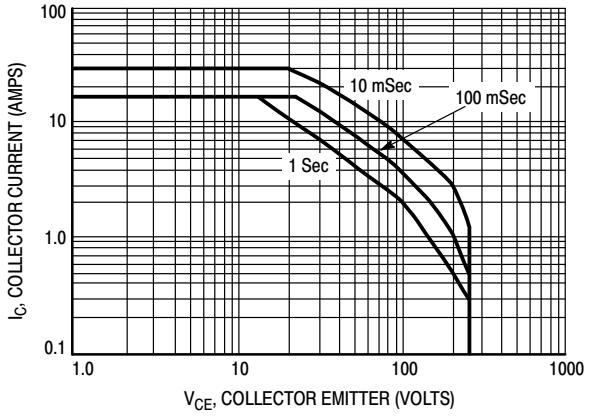

Figure 13. Active Region Safe Operating Area

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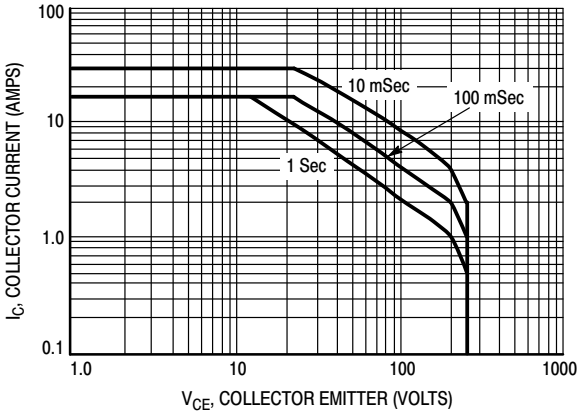


Figure 14. Active Region Safe Operating Area

There are two limitations on the power handling ability of a transistor; average junction temperature and secondary breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 13 is based on $T_{J(pk)} = 150°C$; T_C is variable depending on conditions. At high case temperatures, thermal limitations will reduce the power than can be handled to values less than the limitations imposed by second breakdown.

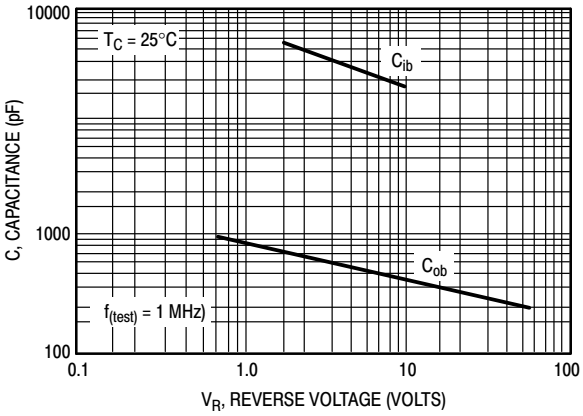


Figure 15. NJW21193G Typical Capacitance

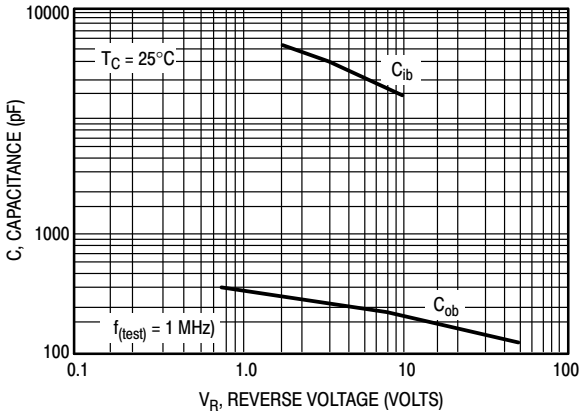


Figure 16. NJW21194G Typical Capacitance

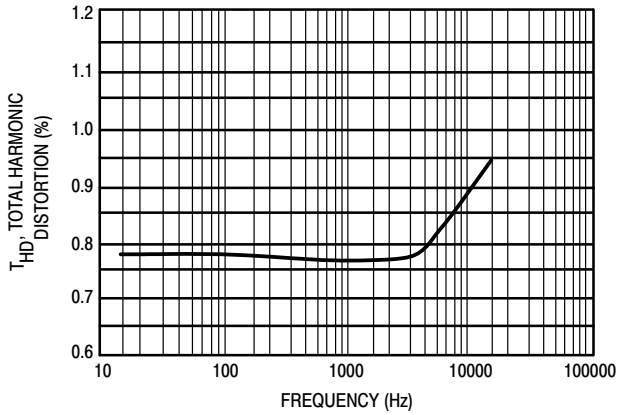


Figure 17. Typical Total Harmonic Distortion

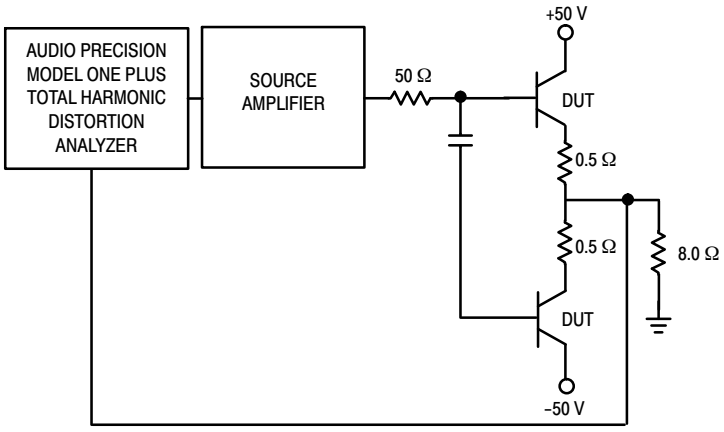
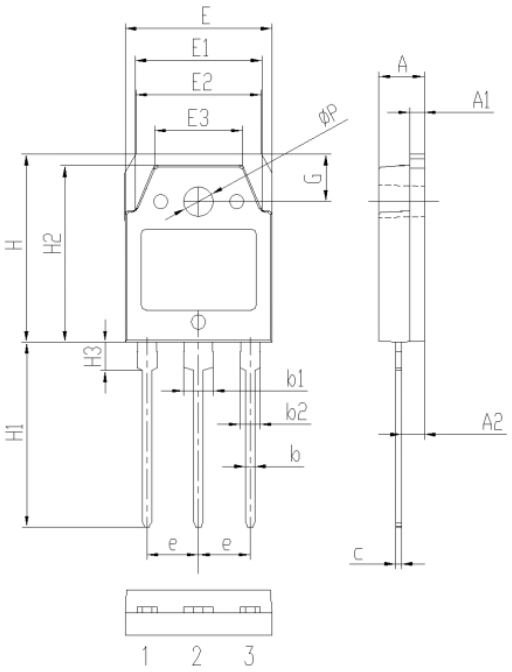


Figure 18. Total Harmonic Distortion Test Circuit

THINKI TO-3PB-SQ Package Outline



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.60	5.00
A1	1.30	1.70
A2	2.20	2.60
b	0.80	1.20
b1	2.90	3.30
b2	1.90	2.30
c	0.40	0.80
e	5.25	5.65
E	15.3	15.7
E1	13.2	13.6
E2	13.1	13.5
E3	9.10	9.50
H	19.7	20.1
H1	19.1	20.1
H2	18.3	18.7
H3	2.80	3.20
G	4.80	5.20
ΦP	3.00	3.40