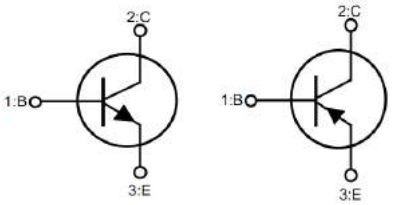
■ Product characteristics

V_{CBO}	400V
V_{CEO}	250V
I_C	16A

Symbol



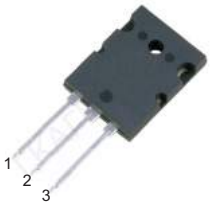
MOT21194 (NPN)　　MOT21193 (PNP)

■ Applications

High-Fidelity Audio Output Amplifier
General Purpose Power Amplifier

■ Features

Total Harmonic Distortion Characterized
High DC Current Gain
Excellent Gain Linearity
High SOA
These Devices are Pb−Free and are RoHS Compliant*



TO-3PL

■ Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	400	V
Collector-Emitter Voltage	V_{CEO}	250	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector-Emitter Voltage-1.5V	V_{CEX}	400	V
Collector Current-Continous	I_C	16	A
Collector Current-Peak	I_{CM}	30	A
Base Current	I_B	5	A
Collector Power Dissipation	P_D	200	W
Junction Temperature	T_J	+150	℃
Storage Temperature Range	T_{STG}	-65 ~ +150	℃

■ Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	0.7	°C/W

■ Electrical Characteristics (T_C=25℃ unless otherwise specified)

Characteristics		Symbol	Min	Typ	Max	Unit
Off Characteristics						
Collector–Emitter Sustaining Voltage (I_C = 100 mA, I_B = 0)		$V_{CEO(sus)}$	250	–	–	V
Collector Cutoff Current (V_{CE} = 200 V, I_B = 0)		I_{CEO}	–	–	100	μA
Emitter Cutoff Current (V_{CE} = 5 V, I_C = 0)		I_{EBO}	–	–	100	μA
Collector Cutoff Current (V_{CE} = 250 V, $V_{BE(off)}$ = 1.5 V)		I_{CEX}	–	–	100	μA
Second Breakdown						
Second Breakdown Collector Current with Base Forward Biased	(V_{CE} = 50 V, t = 1 s (non–repetitive)	$I_{S/b}$	4.0	–	–	A
	(V_{CE} = 80 V, t = 1 s (non –repetitive)		2.25	–	–	A
On Characteristics						
DC Current Gain	(I_C = 8 A, V_{CE} = 5 V)	h_{FE}	25	–	75	
	(I_C = 16 A, I_B = 5 A)		8	–	–	
Base–Emitter On Voltage (I_C = 8 A, V_{CE} = 5 V)		$V_{BE(on)}$	–	–	2.2	V
Collector–Emitter Saturation Voltage	(I_C = 8 A, I_B = 0.8 A)	$V_{CE(sat)}$	–	–	1.4	V
	(I_C = 16 A, I_B = 3.2 A)		–	–	4	V
Dynamic Characteristics						
Total Harmonic Distortion at the Output	V_{RMS} = 28.3 V, f = 1 kHz, P P_{LOAD} = 100 W_{RMS} (h_{FE} unmatched)	T_{HD}	–	0.8	–	%
	(Matched pair h_{FE} = 50 @ 5 A/5 V) h_{FE} matched		–	0.08	–	%
Current Gain Bandwidth Product (I_C = 1 A, V_{CE} = 10 V, f_{test} = 1 MHz)		f_T	4	–	–	MHz
Output Capacitance (V_{CB} = 10 V, I_E = 0, f_{test} = 1 MHz)		C_{ob}	–	–	500	pF

■ Typical Performance Characteristics

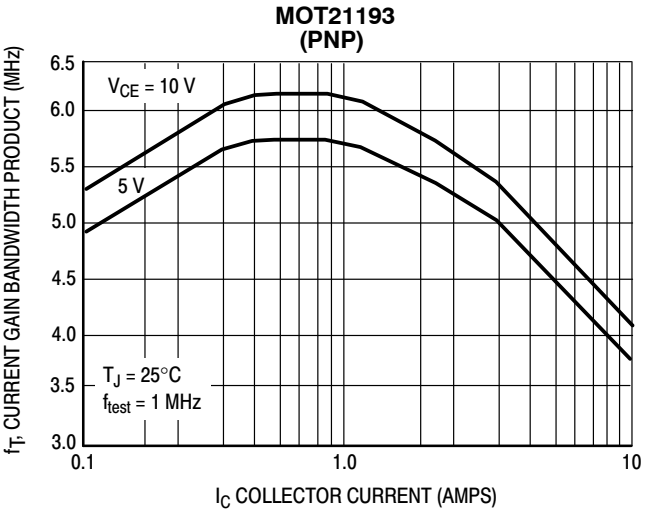


Figure 1. Typical Current Gain Bandwidth Product

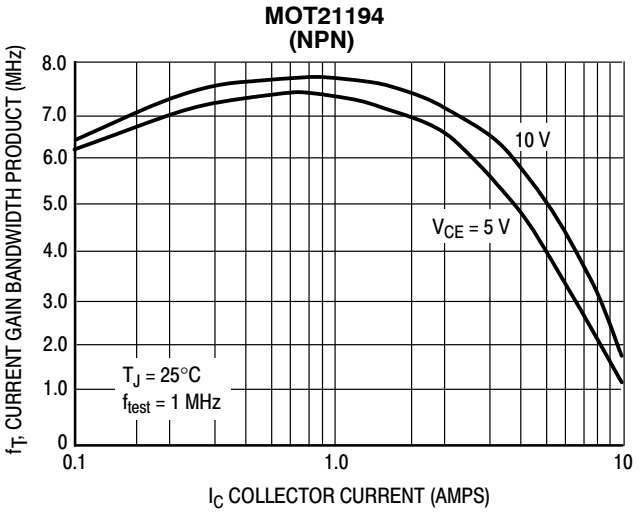


Figure 2. Typical Current Gain Bandwidth Product

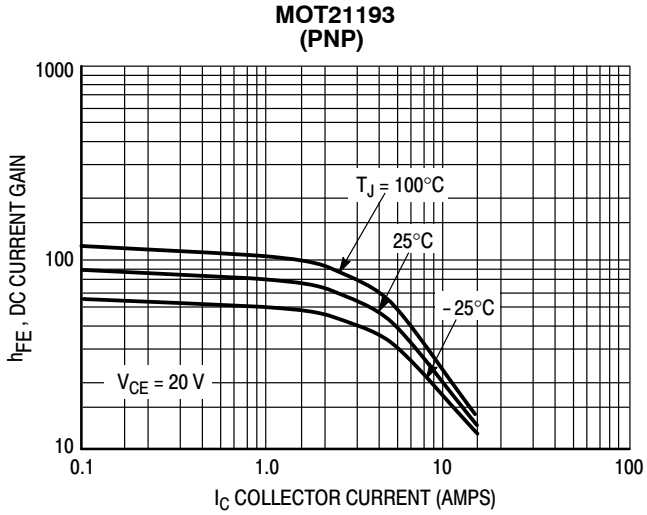


Figure 3. DC Current Gain, V_{CE} = 20 V

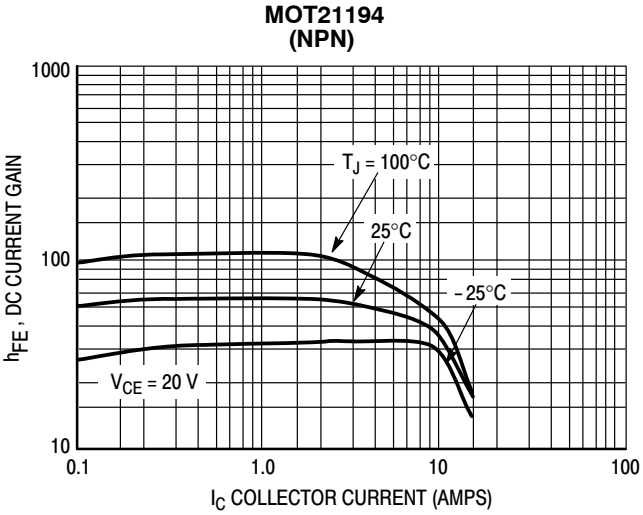


Figure 4. DC Current Gain, V_{CE} = 20 V

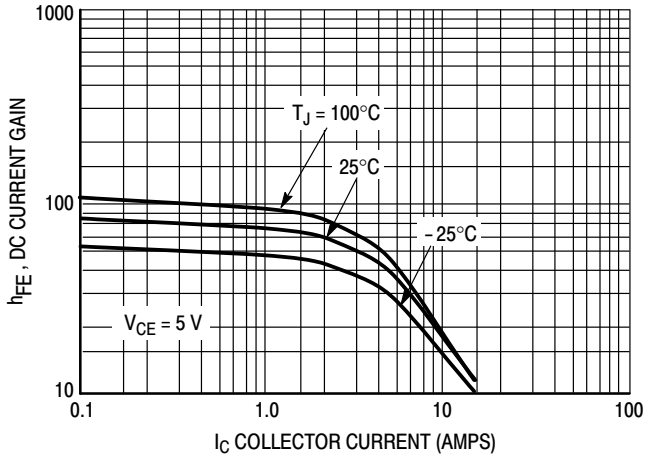


Figure 5. DC Current Gain, V_{CE} = 5 V

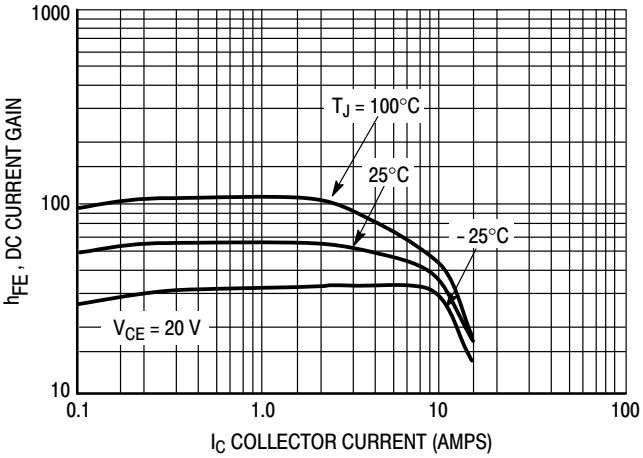


Figure 6. DC Current Gain, V_{CE} = 5 V

■ Typical Performance Characteristics(Cont.)

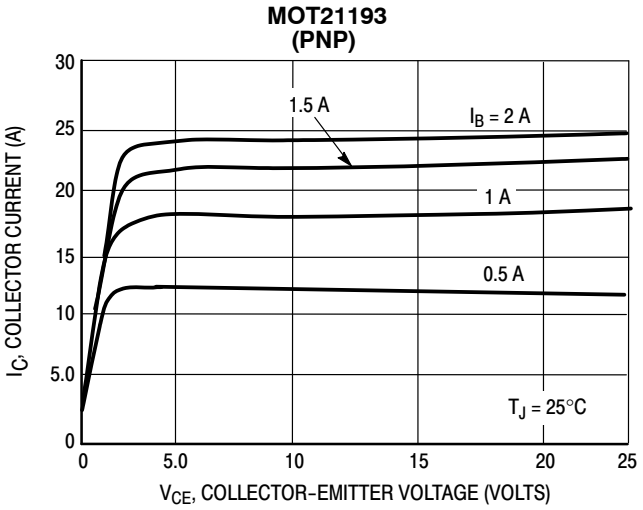


Figure 7. Typical Output Characteristics

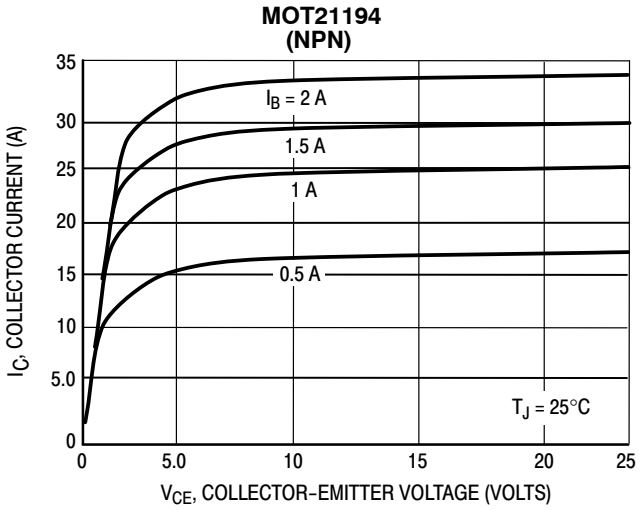


Figure 8. Typical Output Characteristics

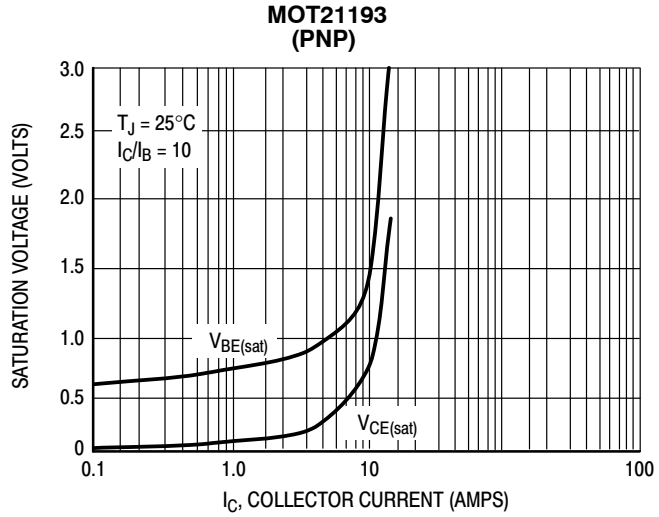


Figure 9. Typical Saturation Voltages

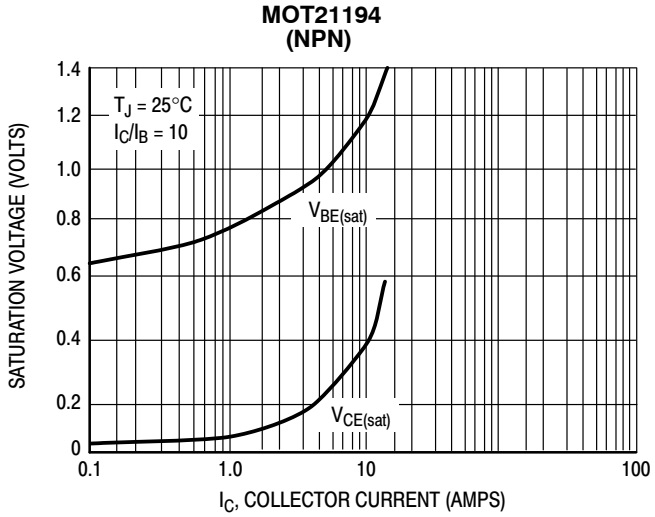


Figure 10. Typical Saturation Voltages

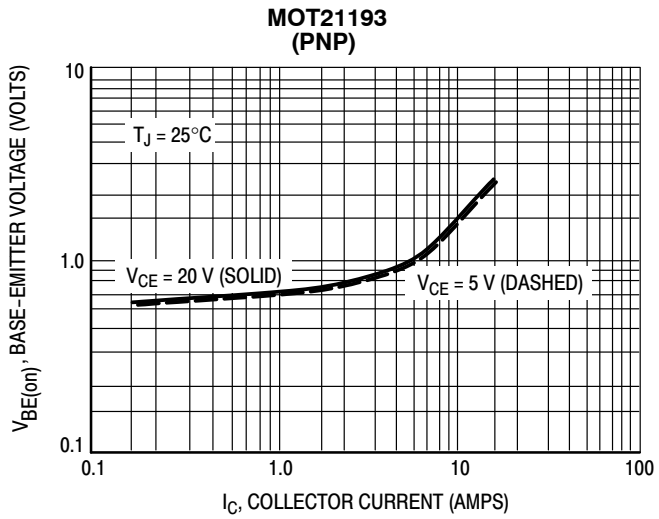


Figure 11. Typical Base−Emitter Voltage

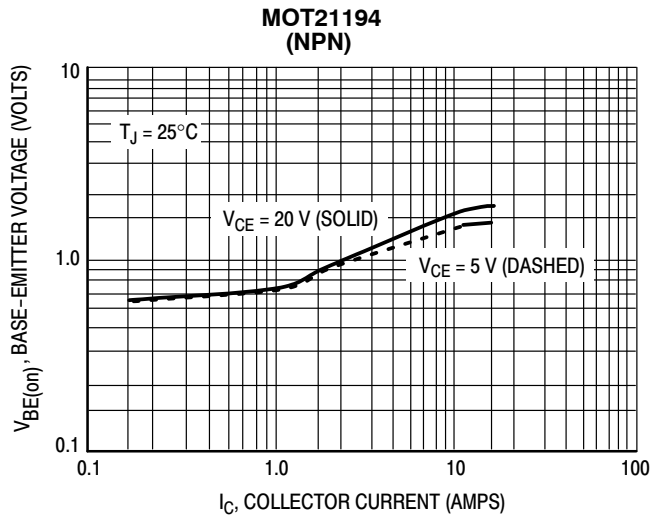


Figure 12. Typical Base−Emitter Voltage

■ Typical Performance Characteristics(Cont.)

MOT21193 (PNP)

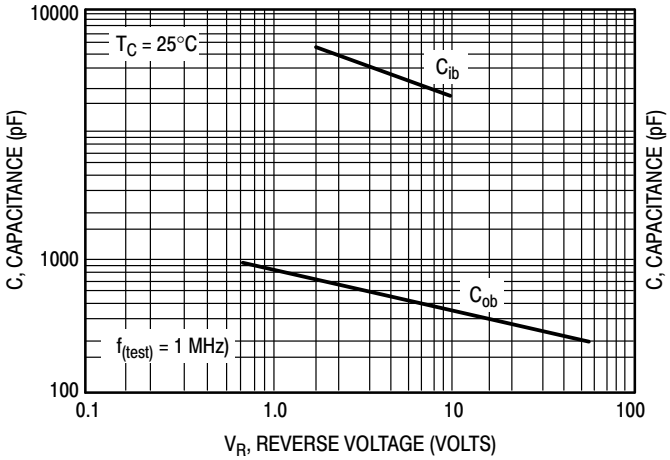


Figure 13. Typical Capacitance

MOT21194 (NPN)

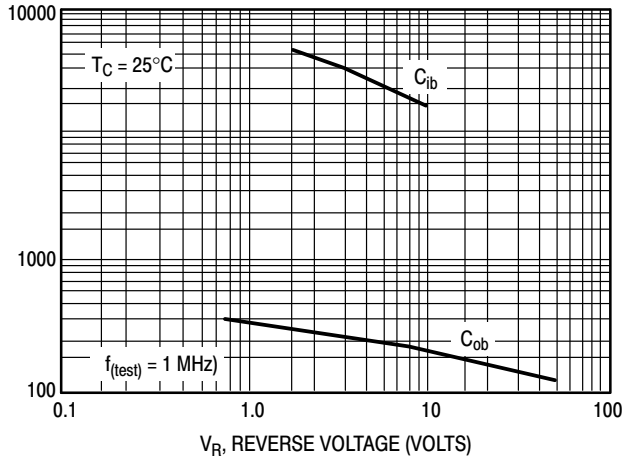


Figure 14. Typical Capacitance

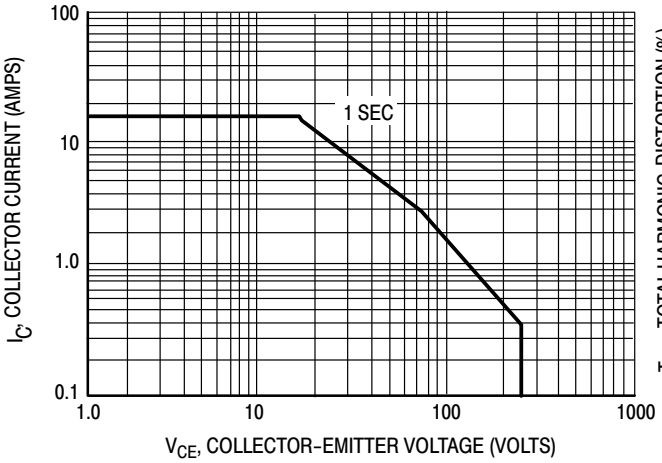


Figure 15. Active Region Safe Operating Area

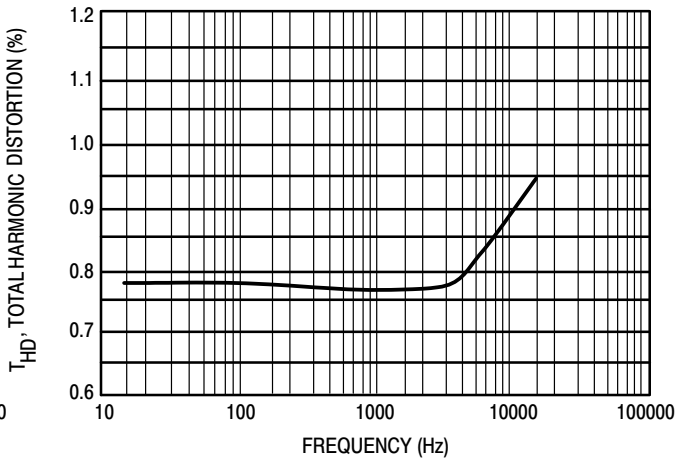


Figure 16. Typical Total Harmonic Distortion

■ TO-3PL Package mechanical data

