

Audio Amplification Transistor

Features and Benefits

- Small package (TO-3P)
- High power handling capacity, 160 W
- Improved sound output by reduced on-chip impedance
- For professional audio (PA) applications, $V_{CE0} = 200$ V versions available
- Complementary to 2SA2151
- Recommended output driver: 2SC4832

Package: 3-Lead TO-3P



Not to scale

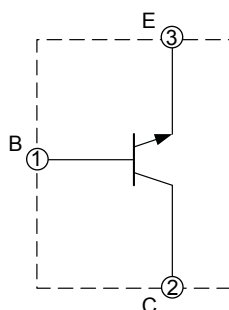
Description

By adapting the SanKen unique wafer-thinner technique, these NPN power transistors achieve power-up by decreasing thermal resistance, and provide higher voltage avalanche breakdown rating. The high power-handling capacity of the TO-3P package allows a smaller footprint on the circuit board design. This series of transistors is very well suited to not only multichannel applications for AV (audio-visual) amplifiers and receivers, but also parallel connection applications for PA (professional audio system) amplifiers.

Applications include the following:

- Single transistors for audio amplifiers
- Home audio amplifiers
- Professional audio amplifiers
- Automobile audio amplifiers
- Audio market
- Single transistors for general purpose

Equivalent Circuit



SELECTION GUIDE

Part Number	Type	h_{FE} Rating	Packing
2SC6011*	NPN	Range O: 50 to 100	30 pieces per tube
		Range P: 70 to 140	
		Range Y: 90 to 180	

*Specify h_{FE} range when ordering. If no h_{FE} range is specified, order will be fulfilled with either or both range O and range Y, depending upon availability.

ABSOLUTE MAXIMUM RATINGS at $T_A = 25^\circ\text{C}$

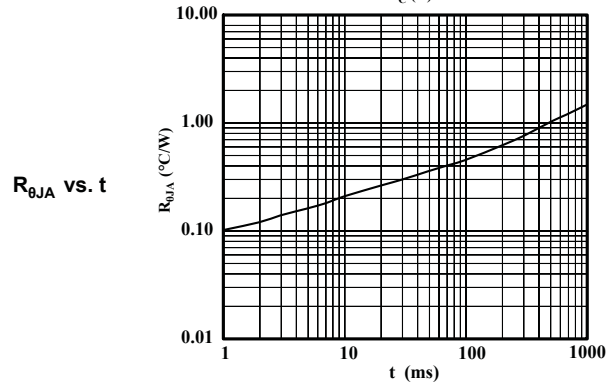
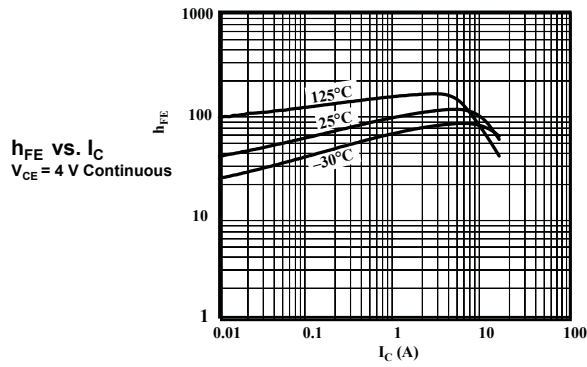
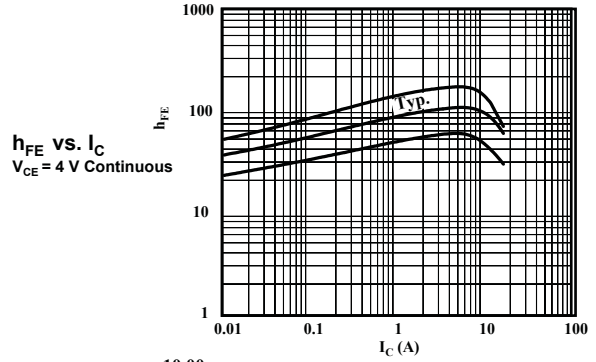
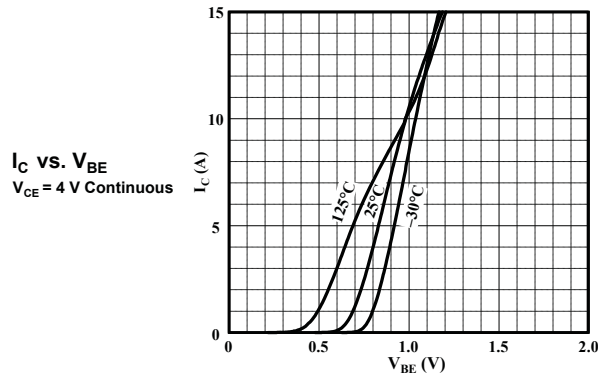
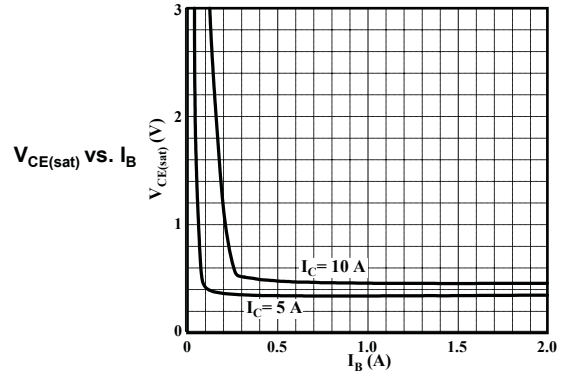
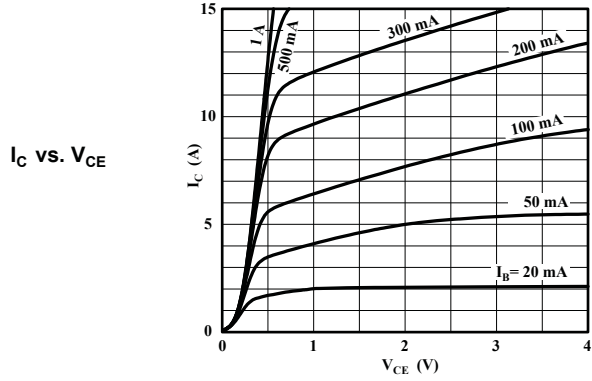
Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	200	V
Collector-Emitter Voltage	V_{CEO}	200	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	15	A
Base Current	I_B	4	A
Collector Power Dissipation	P_C	160	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS at $T_A = 25^\circ\text{C}$

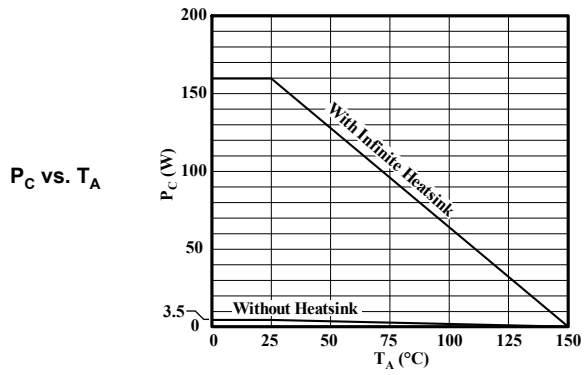
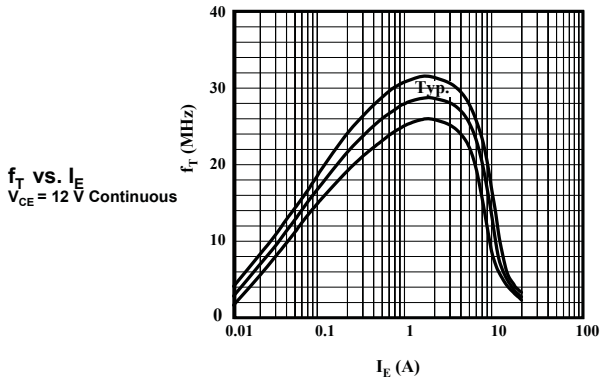
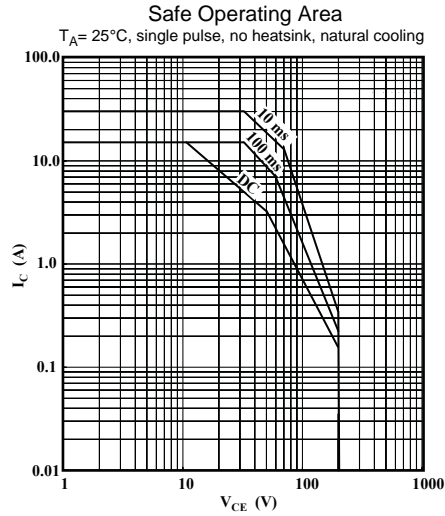
Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Cutoff Current	I_{CBO}	$V_{CB} = 200\text{ V}$	-	-	10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 6\text{ V}$	-	-	10	μA
Collector-Emitter Voltage	$V_{(BR)CEO}$	$I_C = 50\text{ mA}$	200	-	-	V
DC Current Transfer Ratio*	h_{FE}	$V_{CE} = 4\text{ V}, I_C = 3\text{ A}$	50	-	180	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{ A}, I_B = 0.5\text{ A}$	-	-	0.5	V
Cutoff Frequency	f_T	$V_{CE} = 12\text{ V}, I_E = -0.5\text{ A}$	-	20	-	MHz
Output Capacitance	C_{OB}	$V_{CB} = 10\text{ V}, I_E = 0\text{ A}, f = 1\text{ MHz}$	-	270	-	pF

* h_{FE} rating: 50 to 100 (O brand on package), 70 to 140 (P), 90 to 180 (Y).

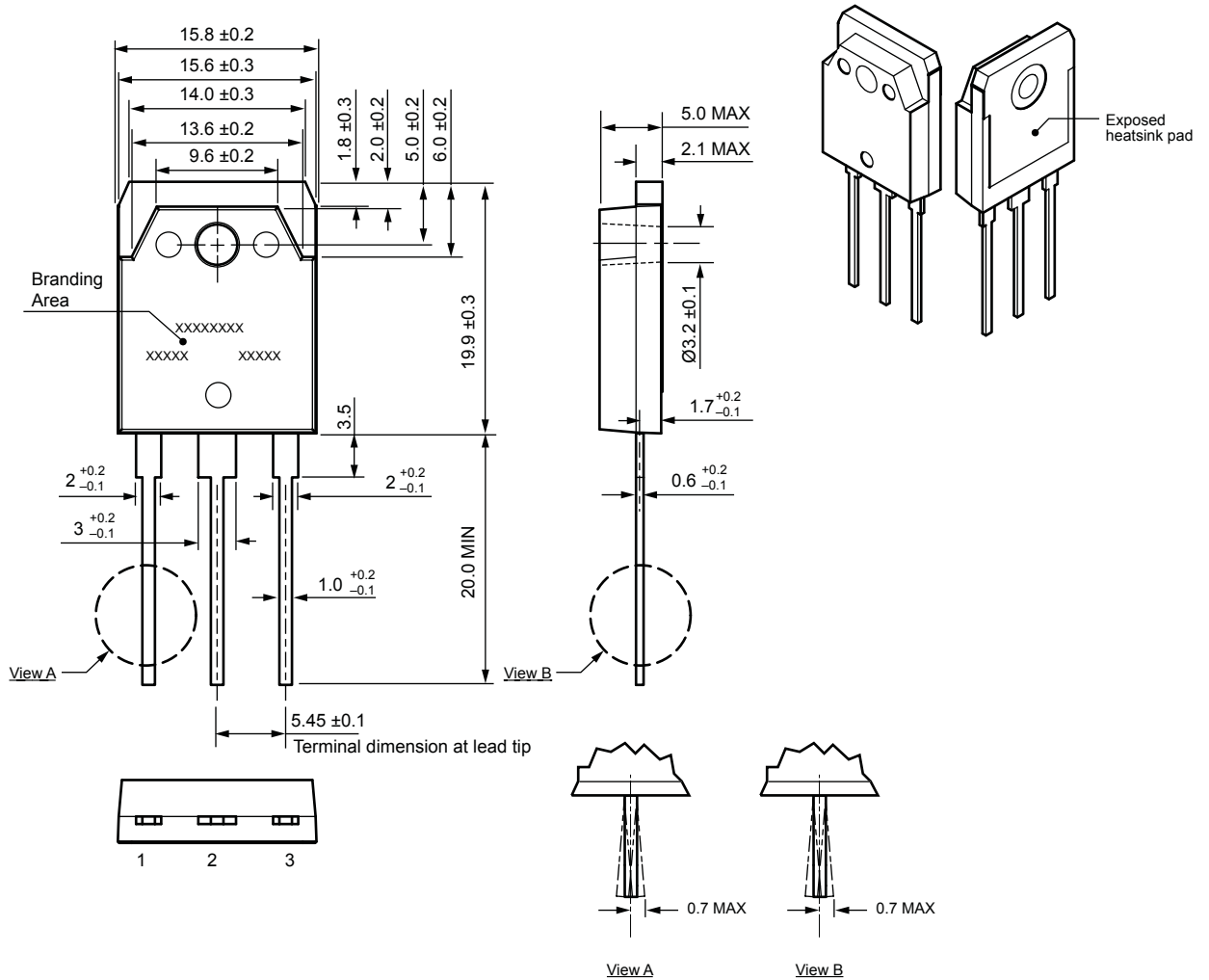
Performance Characteristics



Performance Characteristics, continued



Package Outline Drawing, TO-3P



Gate burr: 0.3 mm (max.), mold flash may appear at opposite side
 Terminal core material: Cu
 Terminal treatment: Ni plating and Pb-free solder dip
 Leadform: 100
 Package: TO-3P (M100)
 Approximate weight: 6 g

Dimensions in millimeters

Branding codes (exact appearance at manufacturer discretion):
 1st line, type: C6011
 2nd line left, lot: YM
 Where: Y is the last digit of the year of manufacture
 M is the month (1 to 9, O, N, D)
 2nd line right, subtype: H
 Where: H is the h_{FE} rating (O, P, or Y; for values see footnote, Electrical Characteristics table)



Leadframe plating Pb-free. Device composition includes high-temperature solder (Pb >85%), which is exempted from the RoHS directive.