2SA2151

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_{CEO} = –200 V versions available
- Complementary to 2SC6011
- Recommended output driver: 2SA1668

Package: 3-Lead TO-3P

Not to scale

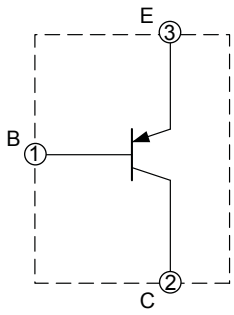
Description

By adapting the Sanken unique wafer-thinner technique, these PNP 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



SANKEN ELECTRIC CO., LTD.
http://www.sanken-ele.co.jp/en/

SELECTION GUIDE

Part Number	Type	h_{FE} Rating	Packing
2SA2151*	PNP	Range O: 50 to 100	30 pieces per tube
		Range P: 70 tp 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°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	°C
Storage Temperature	T_{stg}	–55 to150	°C

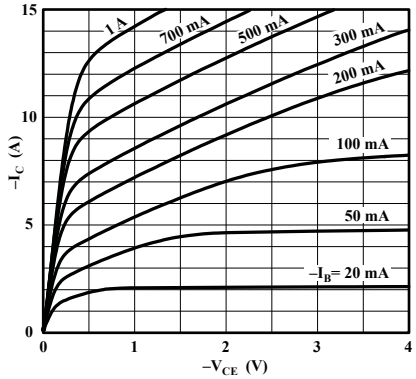
ELECTRICAL CHARACTERISTICS at T_A = 25°C

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Cutoff Current	I_{CBO}	V_{CB} = –200 V	–	–	–10	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = –6 V	–	–	–10	μA
Collector-Emitter Voltage	$V_{(BR)CEO}$	I_C = –50 mA	–200	–	–	V
DC Current Transfer Ratio*	h_{FE}	V_{CE} = –4 V, I_C = –3 A	50	–	180	–
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = –5 A, I_B = –0.5 A	–	–	–0.5	V
Cutoff Frequency	f_T	V_{CE} = –12 V, I_E = 0.5 A	–	20	–	MHz
Output Capacitance	C_{OB}	V_{CB} = –10 V, I_E = 0 A, f = 1 MHz	–	450	–	pF

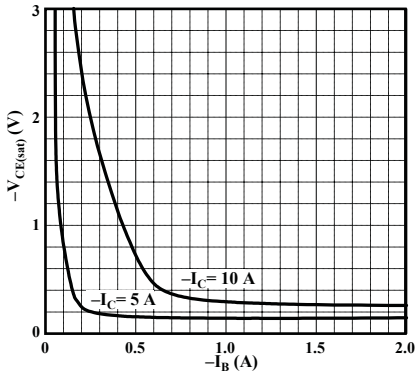
*h_{FE} rating: 50 to 100 (O brand on package), 70 to 140 (P), 90 to 180 (Y).

Performance Characteristics

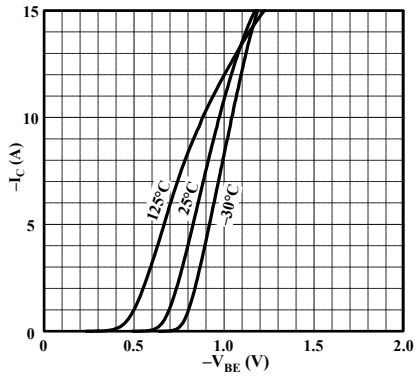
I_C vs. V_{CE}



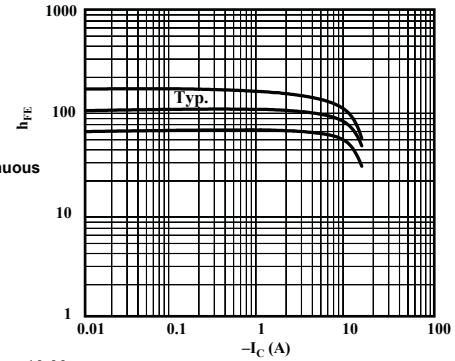
$V_{CE(sat)}$ vs. I_B



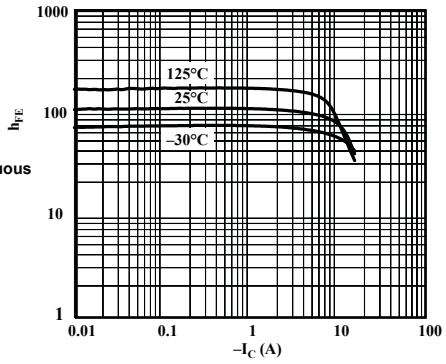
I_C vs. V_{BE}
$-V_{CE}$ = 4 V Continuous



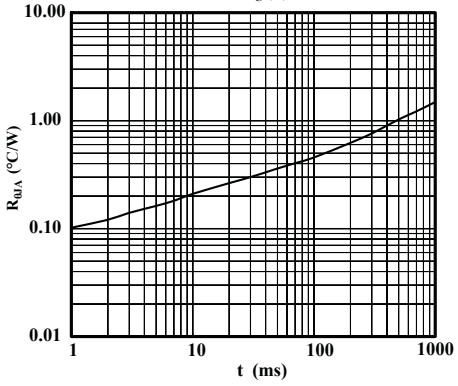
h_{FE} vs. I_C
$-V_{CE}$ = 4 V Continuous



h_{FE} vs. I_C
$-V_{CE}$ = 4 V Continuous



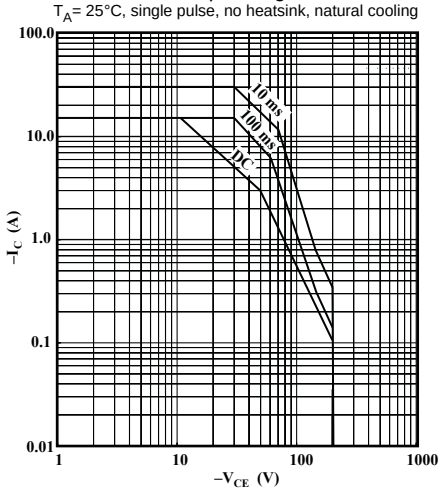
$R_{\theta JA}$ vs. t



Performance Characteristics, continued

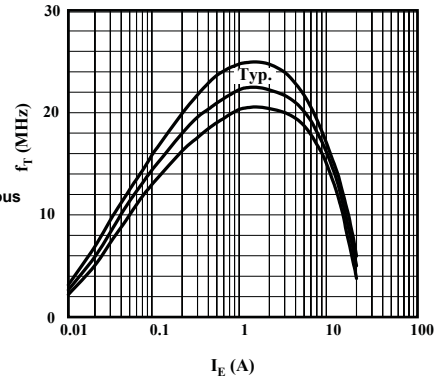
Safe Operating Area

T_A = 25°C, single pulse, no heatsink, natural cooling

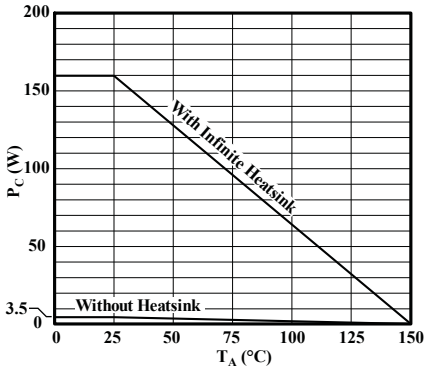


f_T vs. I_E

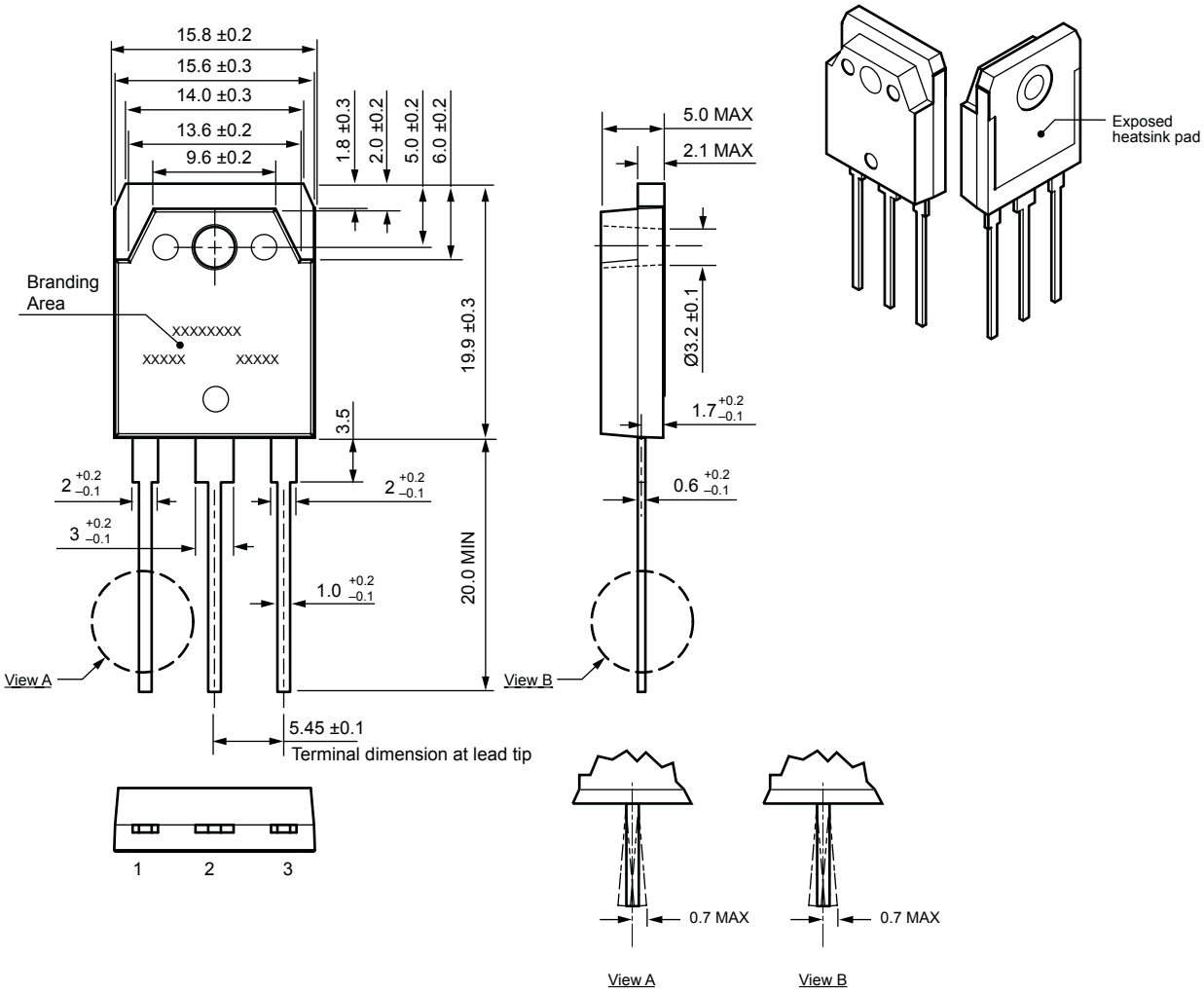
$-V_{CE}$ = 12 V Continuous



P_C vs. T_A



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: A2151
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.