

**$V_{CEO} = -150\text{ V}$ ,  $I_C = -10\text{ A}$**   
**Silicon PNP Epitaxial Planar Transistor**  
**2SA1186**

**Description**

The 2SA1186 is a PNP transistor of  $-150\text{ V}$ ,  $-10\text{ A}$ . The product has constant  $h_{FE}$  characteristics in a wide current range, providing high-quality audio sounds.

**Features**

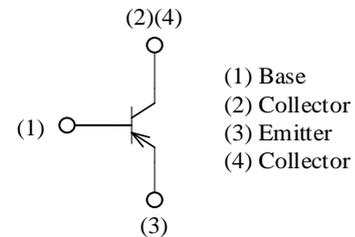
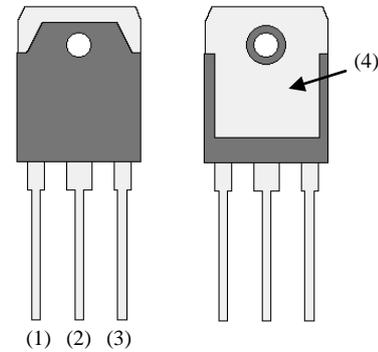
- Complementary to 2SC2837
  - LAPT (Linear Amplifier Power Transistor)
  - High Transition Frequency
  - Bare Lead Frame: Pb-free (RoHS Compliant)
- |                   |                 |
|-------------------|-----------------|
| • $V_{CEO}$ ----- | $-150\text{ V}$ |
| • $I_C$ -----     | $-10\text{ A}$  |
| • $f_T$ -----     | $60\text{ MHz}$ |
| • $P_C$ -----     | $100\text{ W}$  |

**Application**

- Audio Power Amplifier

**Package**

TO3P-3L



Not to scale

## 2SA1186

### Absolute Maximum Ratings

Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$ .

Parameter	Symbol	Conditions	Rating	Unit
Collector to Base Voltage	$V_{CBO}$		-150	V
Collector to Emitter Voltage	$V_{CEO}$		-150	V
Emitter to Base Voltage	$V_{EBO}$		-5	V
Collector Current	$I_C$		-10	A
Base Current	$I_B$		-2	A
Collector Power Dissipation	$P_C$	$T_C = 25\text{ }^\circ\text{C}$	100	W
Operating Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$		-55 to 150	$^\circ\text{C}$

### Thermal Characteristics

Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$ .

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Thermal Resistance (Junction to Case)	$R_{\theta JC}$		—	—	1.25	$^\circ\text{C}/\text{W}$
Thermal Resistance (Junction to Ambient)	$R_{\theta JA}$		—	—	35.7	$^\circ\text{C}/\text{W}$

### Electrical Characteristics

Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$ .

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -150\text{ V}, I_E = 0\text{ A}$	—	—	-100	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0\text{ A}$	—	—	-100	$\mu\text{A}$
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -25\text{ mA}$	-150	—	—	V
DC Current Gain	$h_{FE}$	$V_{CE} = -4\text{ V}, I_C = -3\text{ A}$	50	—	180	—
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -5\text{ A}, I_B = -0.5\text{ A}$	—	—	-2.0	V
Transition Frequency	$f_T$	$V_{CE} = -12\text{ V}, I_E = 1\text{ A}$	—	60	—	MHz
Collector Output Capacitance	$C_{OB}$	$V_{CB} = -80\text{ V}, I_E = 0\text{ A},$ $f = 1\text{ MHz}$	—	110	—	pF

### $h_{FE}$ Rank

For the marking area of the rank, see the Marking Diagram.

Rank	O	P	Y
$h_{FE}$	50 to 100	70 to 140	90 to 180

Rating and Characteristic Curves

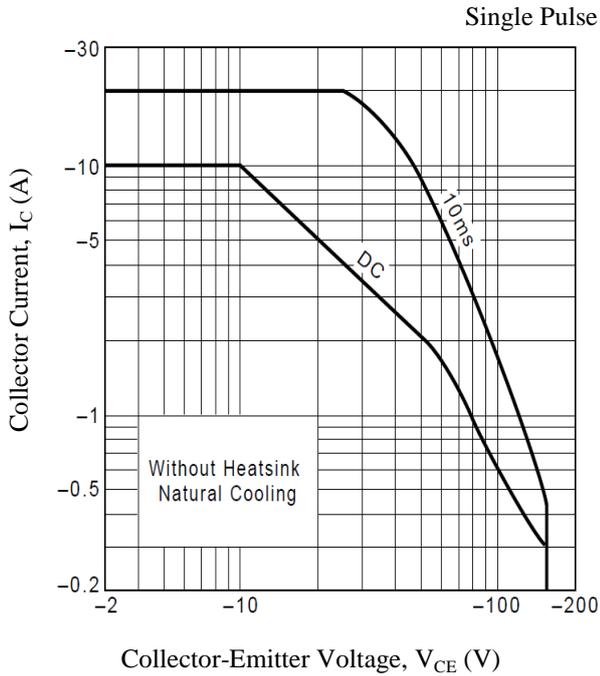


Figure 1. Safe Operating Area

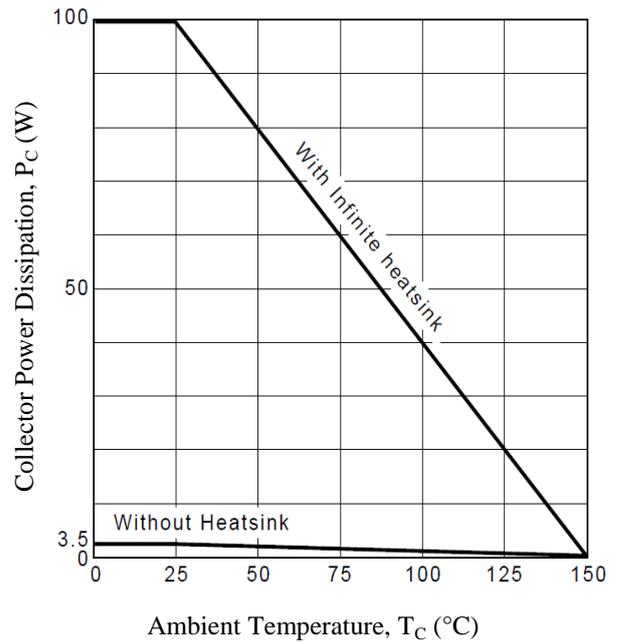


Figure 2. Power Dissipation vs. Ambient Temperature

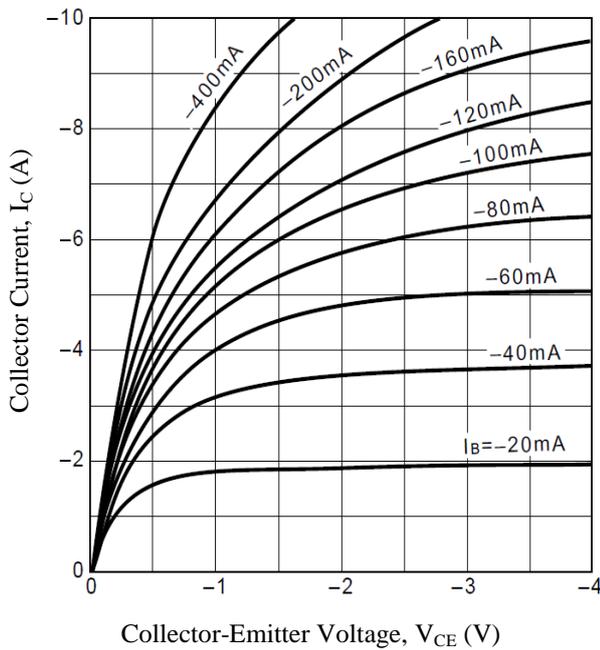


Figure 3. Collector Current vs. Collector-Emitter Voltage

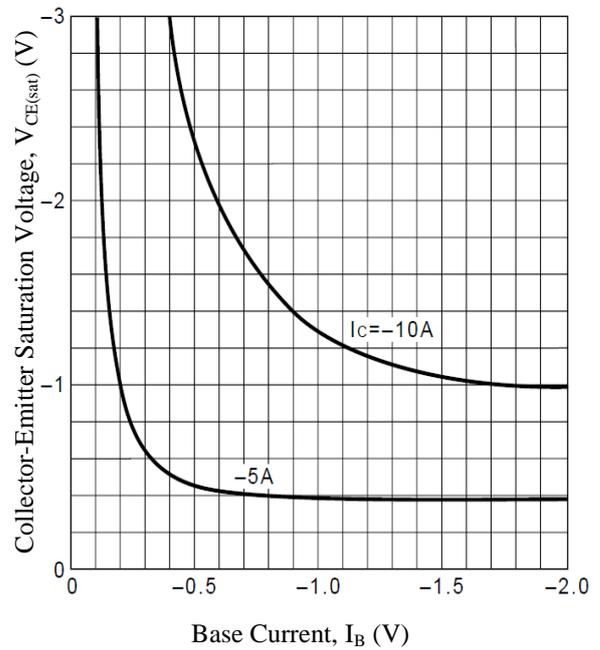


Figure 4. Collector-Emitter Saturation Voltage vs. Base Current