RENESAS

SILICON POWER TRANSISTOR
2SB962-Z

PNP SILICON EPITAXIAL TRANSISTOR

DESCRIPTION

The 2SB962-Z is designed for Audio Frequency Amplifier and Switching, especially in Hybrid Integrated Circuits.

FEATURES

- Low $V_{CE(sat)}$: $V_{CE(sat)}$ = –0.3 V TYP.

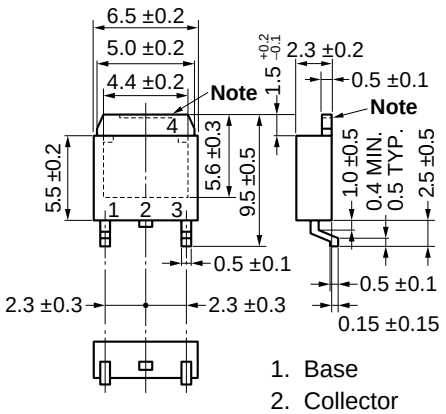
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Collector to Base voltage	V_{CBO}	–40	V
Collector to Emitter voltage	V_{CEO}	–30	V
Emitter to Base voltage	V_{EBO}	–5	V
Collector Current (DC)	$I_{C(DC)}$	–3	A
Collector Current (pulse) Note 1	$I_{C(pulse)}$	–6	A
Total Power Dissipation (T_A = 25°C) Note 2	P_T	2.0	W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C

Notes 1. PW ≤ 10 ms, Duty Cycle ≤ 50%

2. When mounted on ceramic substrate of 7.5 cm^2 × 0.7 mm

<R> **PACKAGE DRAWING (Unit: mm)**



TO-252 (MP-3Z)

1. Base
2. Collector
3. Emitter
4. Collector Fin

Note The depth of notch at the top of the fin is from 0 to 0.2 mm.

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The mark <R> shows major revised points.

The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			–10	μA	V_{CB} = –30 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			–1.0	μA	V_{EB} = –3.0 V, I_C = 0
DC Current Gain	h_{FE1}*	30	150			V_{CE} = –2.0 V, I_C = –20 mA
DC Current Gain	h_{FE2}*	60	160	400		V_{CE} = –2.0 V, I_C = –1.0 A
Collector Saturation Voltage	$V_{CE(sat)}$*		–0.3	–0.5	V	I_C = –2.0 A, I_B = –0.2 A
Base Saturation Voltage	$V_{BE(sat)}$*		–1.0	–2.0	V	I_C = –2.0 A, I_B = –0.2 A
Gain Bandwidth Product	f_T		80		MHz	V_{CE} = –5.0 V, I_E = 100 mA
Output Capacitance	C_{ob}		55		pF	V_{CB} = –10 V, I_E = 0, f = 1.0 MHz

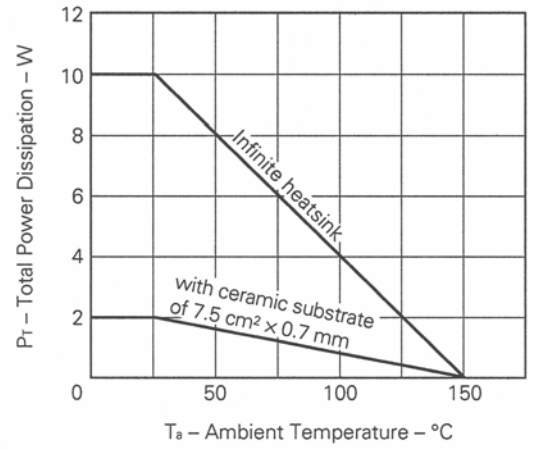
* Pulsed: PW ≦ 350 μs, Duty Cycle ≦ 2 %

h_{FE} Classification

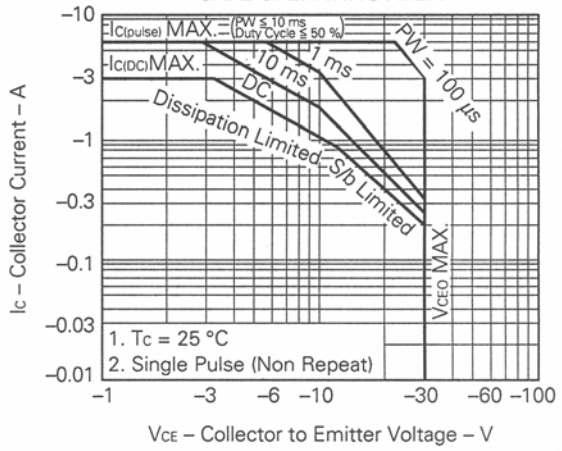
MARKING	R	Q	P	E
h_{FE2}	60 to 120	100 to 200	160 to 320	200 to 400

TYPICAL CHARACTERISTICS (T_a = 25 °C)

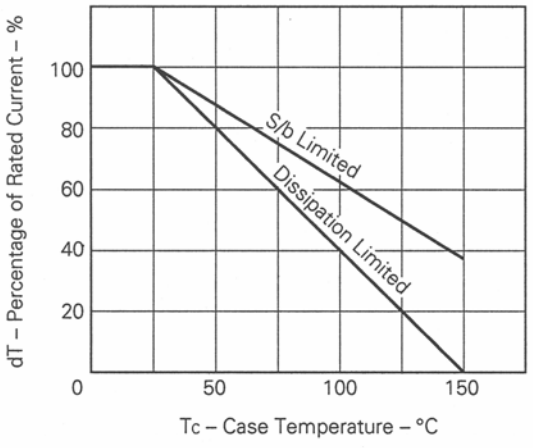
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



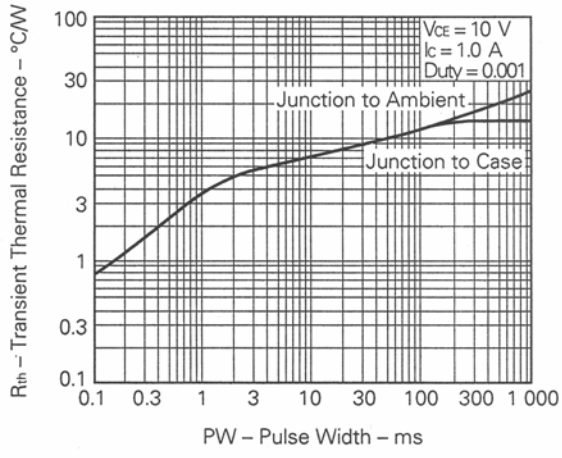
SAFE OPERATING AREA



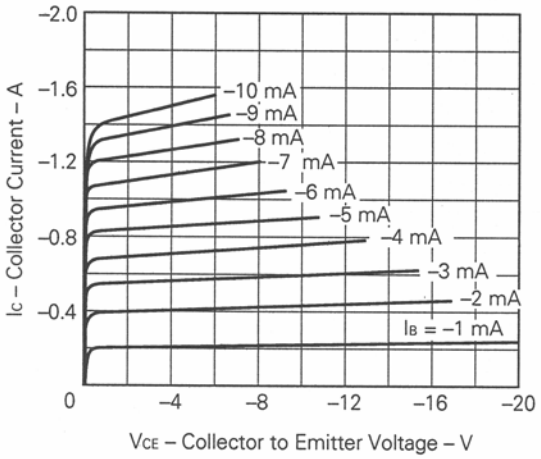
DERATING CURVE OF SAFE OPERATING AREA



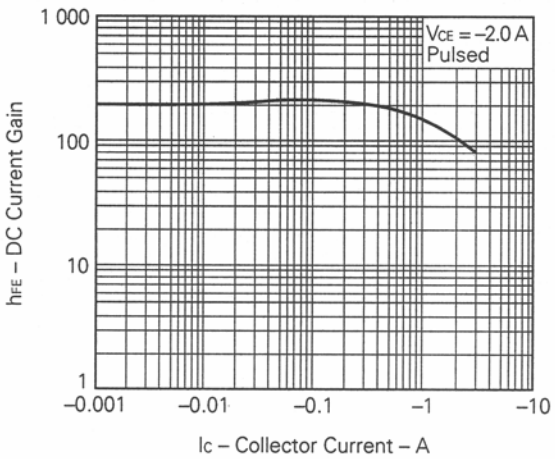
TRANSIENT THERMAL RESISTANCE



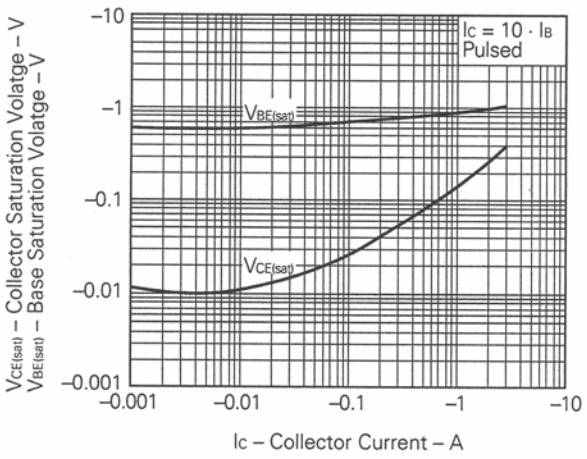
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



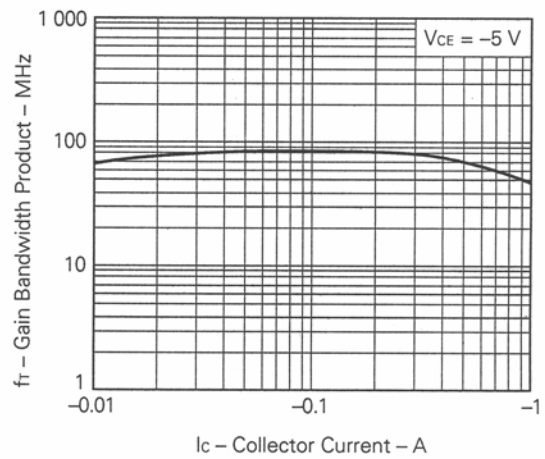
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



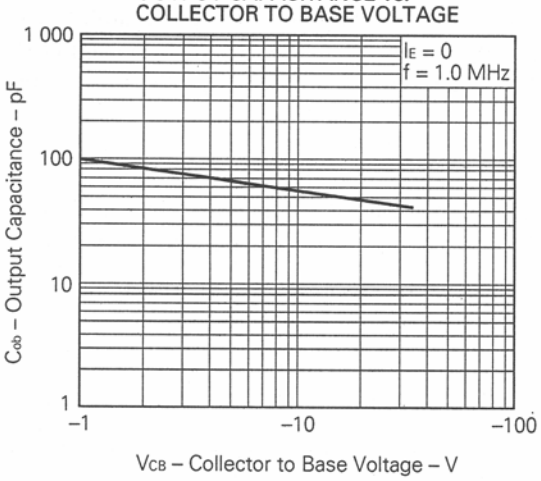
BASE AND COLLECTOR SATURATION
VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs.
COLLECTOR CURRENT



OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE



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