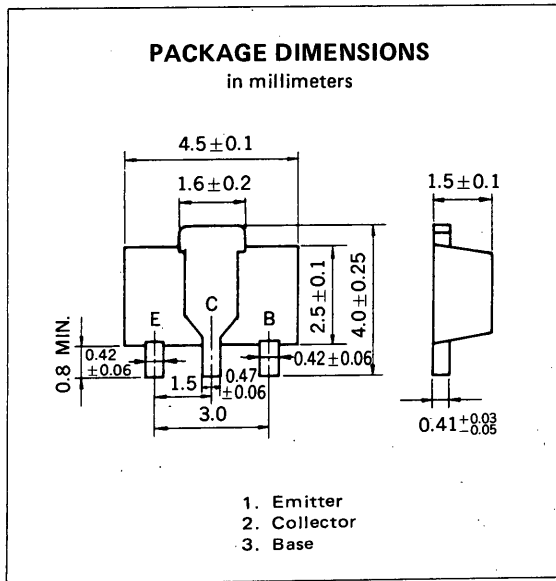


**PNP SILICON EPITAXIAL TRANSISTOR**  
**POWER MINI MOLD**

**DESCRIPTION**

2SB1114 is designed for audio frequency power amplifier and switching application, especially in Hybrid Integrated Circuits.



**FEATURES**

- World Standard Miniature Package
- High DC Current Gain  $h_{FE} = 135$  to  $600$
- Low  $V_{CE(sat)}$  ·  $V_{CE(sat)} = -0.3$  V at  $1.5$  A
- Complement to 2SD1614

**ABSOLUTE MAXIMUM RATINGS**

Maximum Voltages and Currents ( $T_a = 25^\circ\text{C}$ )

Collector to Base Voltage	$V_{CBO}$	-20	V
Collector to Emitter Voltage	$V_{CEO}$	-20	V
Emitter to Base Voltage	$V_{EBO}$	-6	V
Collector Current (DC)	$I_C$	-2	A
Collector Current (Pulse)*	$I_C$	-3	A

Maximum Power Dissipation

Total Power Dissipation at $25^\circ\text{C}$ Ambient Temperature**	$P_T$	2.0	W
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Maximum Temperatures

Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*PW  $\leq 10$  ms, Duty Cycle  $\leq 50\%$

\*\*When mounted on ceramic substrate of  $16\text{ cm}^2 \times 0.7\text{ mm}$

**ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )**

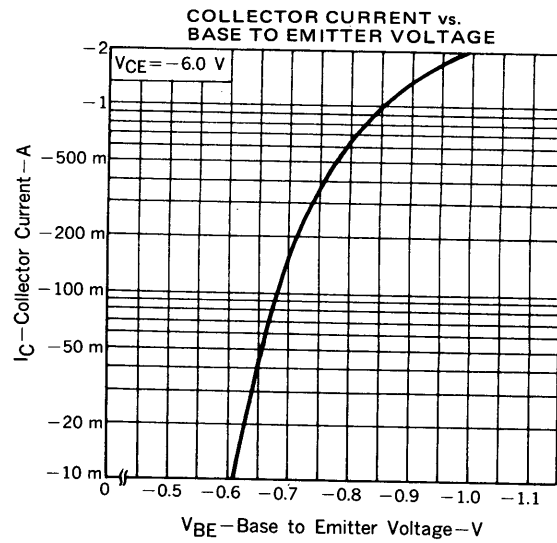
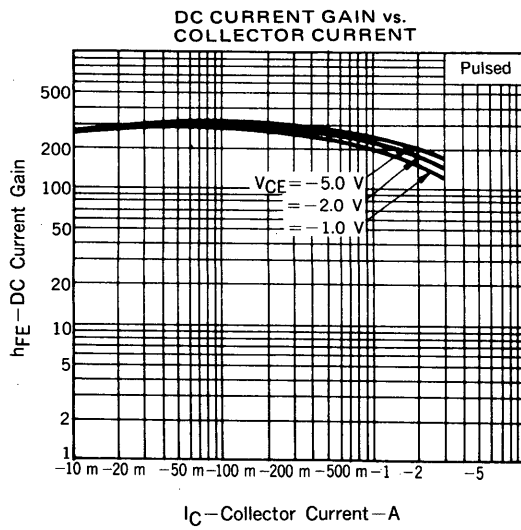
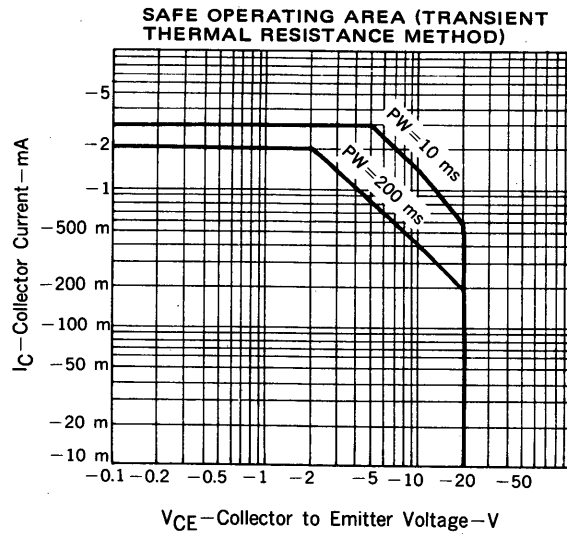
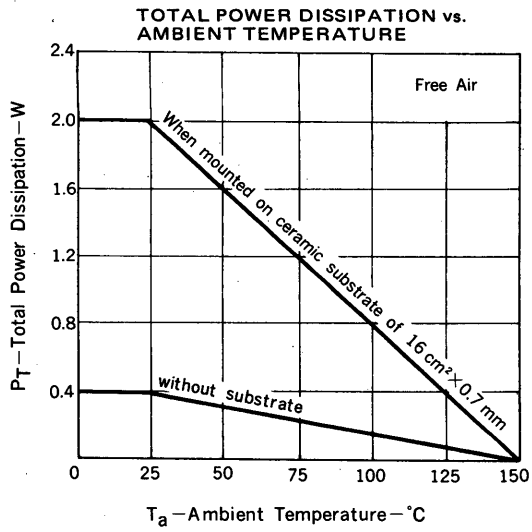
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			-100	nA	$V_{CB} = 16\text{ V}, I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			-100	nA	$V_{EB} = -6.0\text{ V}, I_C = 0$
DC Current Gain	$h_{FE1}$ ***	135	350	600		$V_{CE} = -2.0\text{ V}, I_C = -100\text{ mA}$
DC Current Gain	$h_{FE2}$ ***	40				$V_{CE} = -2.0\text{ V}, I_C = -2.0\text{ A}$
Collector Saturation Voltage	$V_{CE(sat)}$ ***		-0.3	-0.5	V	$I_C = -1.5\text{ A}, I_B = -50\text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}$ ***		-1.05	-1.2	V	$I_C = -1.5\text{ A}, I_B = -50\text{ mA}$
Base to Emitter Voltage	$V_{BE}$ ***	-0.65	-0.68	-0.75	V	$V_{CE} = -6.0\text{ V}, I_C = -100\text{ mA}$
Gain Bandwidth Product	$f_T$		180		MHz	$V_{CE} = -10\text{ V}, I_E = 50\text{ mA}$
Output Capacitance	$C_{ob}$		60		pF	$V_{CB} = -10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$

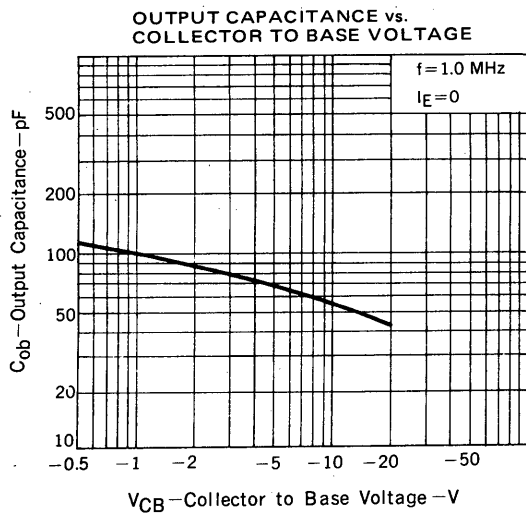
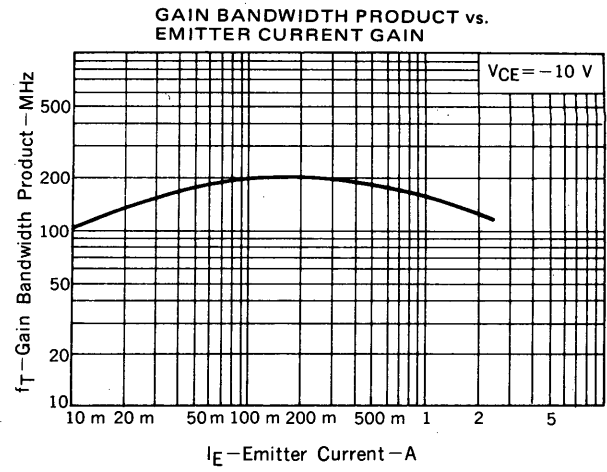
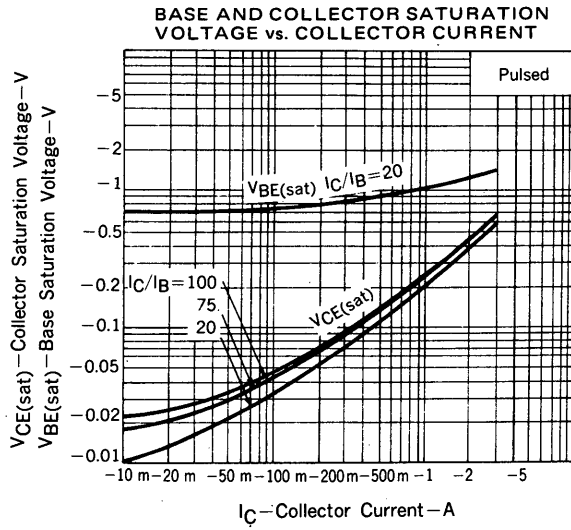
\*\*\*Pulsed: PW  $\leq 350\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$

**$h_{FE}$  Classification**

MARKING	ZM	ZL	ZK
$h_{FE}$	135 to 270	200 to 400	300 to 600

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )





**REFERENCE**

Document Name	Document No.
NEC semiconductor device reliability/quality control system.	TEI-1202
Quality grade on NEC semiconductor devices.	IEI-1209
Semiconductor device mounting technology manual.	IEI-1207
Semiconductor device package manual.	IEI-1213
Guide to quality assurance for semiconductor devices.	MEI-1202
Semiconductor selection guide.	MF-1134

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