



SILICON TRANSISTORS

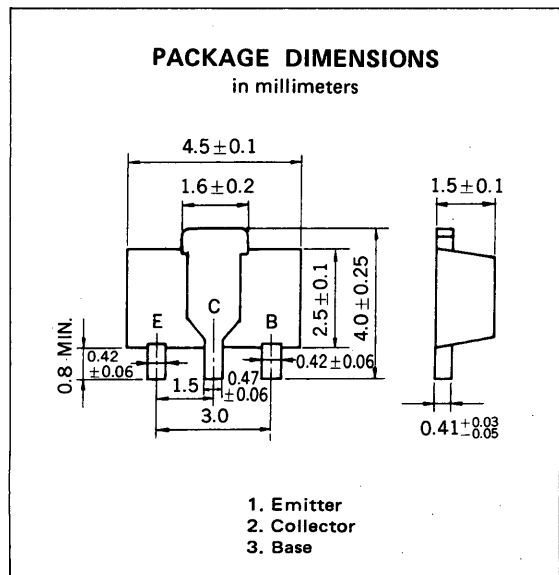
2SB1115, 2SB1115A

PNP SILICON EPITAXIAL TRANSISTOR

POWER MINI MOLD

DESCRIPTION

2SB1115, 2SB1115A are designed for audio frequency power amplifier and switching application, especially in Hybrid Integrated Circuits.



FEATURES

- World Standard Miniature Package
- Low $V_{CE(sat)}$ · $V_{CE(sat)} = -0.2$ V at 1 A
- Complement to 2SD1615, 2SD1615A

ABSOLUTE MAXIMUM RATINGS

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

	2SB1115	2SB1115A	
Collector to Base Voltage	V_{CBO}	-60	-80 V
Collector to Emitter Voltage	V_{CEO}	-50	-60 V
Emitter to Base Voltage	V_{EBO}	-6	V
Collector Current (DC)	I_C	-1	A
Collector Current (Pulse)*	I_C	-2	A
Maximum Power Dissipation			
Total Power Dissipation at 25 °C Ambient Temperature**	P_T	2.0	W
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

*PW ≤ 10 ms, Duty Cycle ≤ 50 %

**When mounted on ceramic substrate of 16 cm² x 0.7 mm

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

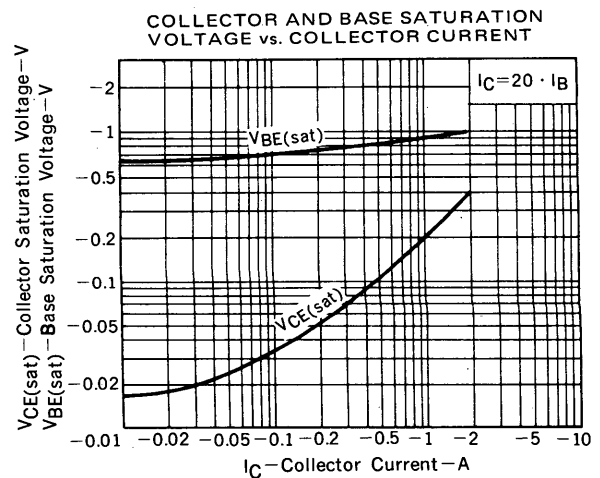
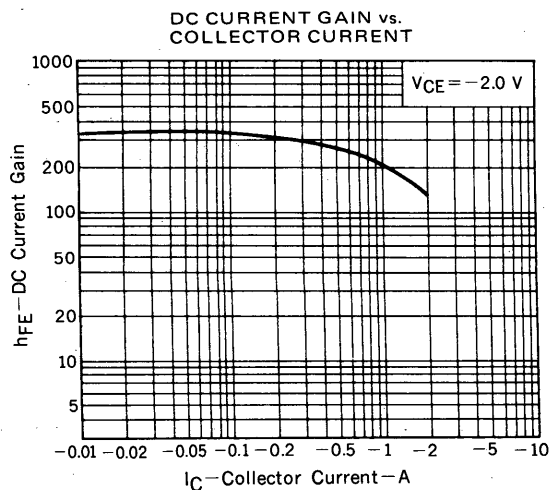
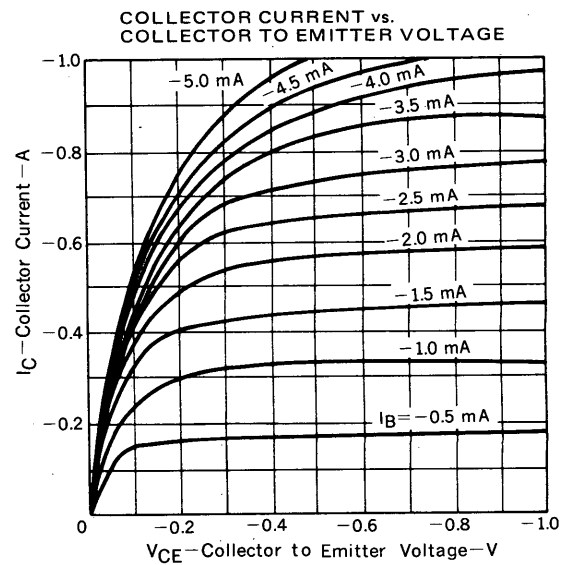
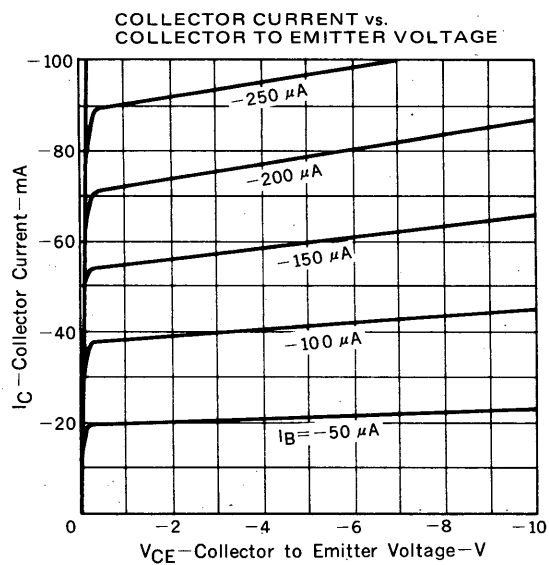
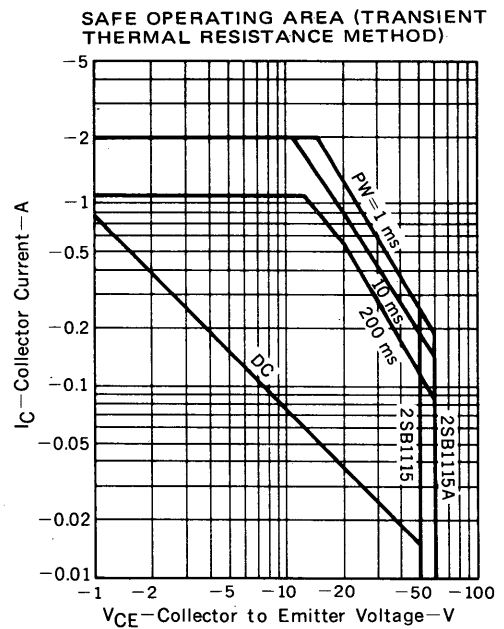
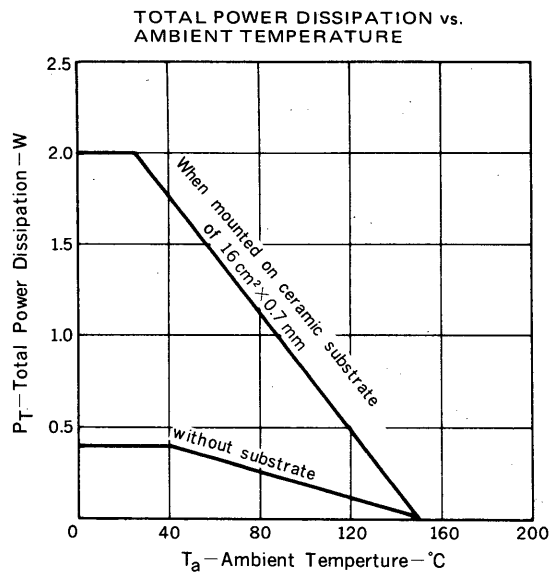
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
Collector Cutoff Current	I_{CBO}			-100	nA	2SB1115	$V_{CB} = -60\text{ V}$, $I_E = 0$
				-100	nA	2SB1115A	$V_{CB} = -80\text{ V}$, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			-100	nA	$V_{EB} = -6.0\text{ V}$, $I_C = 0$	
DC Current Gain	h_{FE1} ***	135	340	600		2SB1115	$V_{CE} = -2.0\text{ V}$, $I_C = -100\text{ mA}$
		135	340	400		2SB1115A	
DC Current Gain	h_{FE2} ***	100	200			$V_{CE} = -2.0\text{ V}$, $I_C = -1.0\text{ A}$	
Collector Saturation Voltage	$V_{CE(sat)}$ ***		-0.2	-0.3	V	$I_C = -1.0\text{ A}$, $I_B = -50\text{ mA}$	
Base Saturation Voltage	$V_{BE(sat)}$ ***		-0.9	-1.2	V	$I_C = -1.0\text{ A}$, $I_B = -50\text{ mA}$	
Base to Emitter Voltage	V_{BE} ***	-600		-700	mV	$V_{CE} = -2.0\text{ V}$, $I_C = -50\text{ mA}$	
Gain Bandwidth Product	f_T	80	120		MHz	$V_{CE} = -2.0\text{ V}$, $I_E = -100\text{ mA}$	
Output Capacitance	C_{ob}		25		pF	$V_{CB} = -10\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$	

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

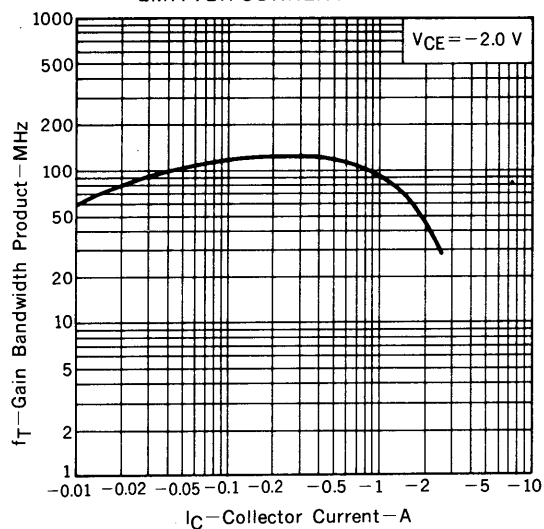
h_{FE} Classification

MARKING	2SB1115	YM	YL	YK
	2SB1115A	YQ	YP	
h_{FE}		135 to 270	200 to 400	300 to 600

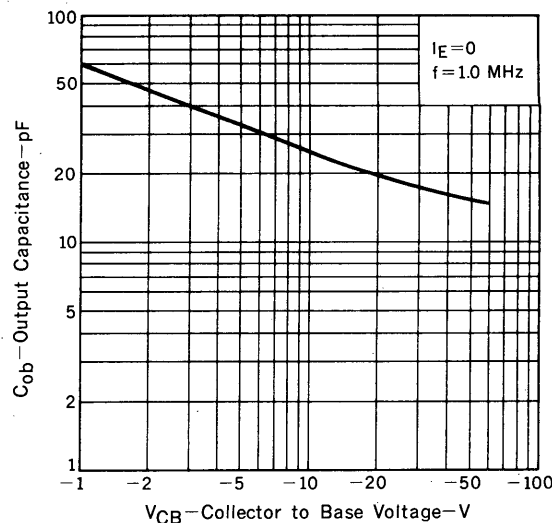
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



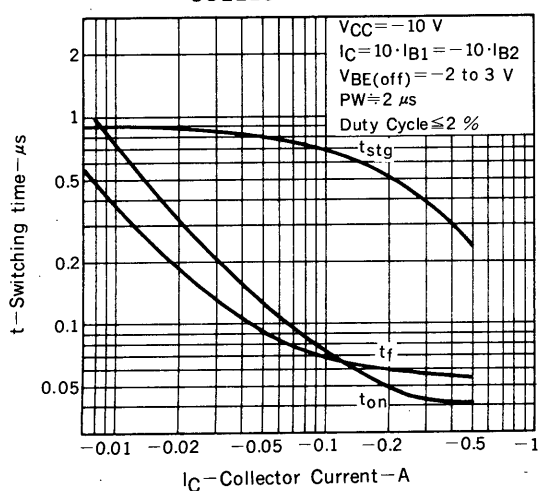
GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE



SWITCHING TIME vs.
COLLECTOR CURRENT



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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