

PNP SILICON EPITAXIAL TRANSISTOR  
FOR HIGH VOLTAGE AMPLIFIERS

FEATURES

- High voltage  
V<sub>CEO</sub>: -180 V / -200 V  
(2SA1376/2SA1376A)
- Excellent h<sub>FE</sub> linearity
- High total power dissipation in small dimension:  
P<sub>T</sub>: 0.75 W
- Complementary transistor with 2SC3478 and 2SC3478A

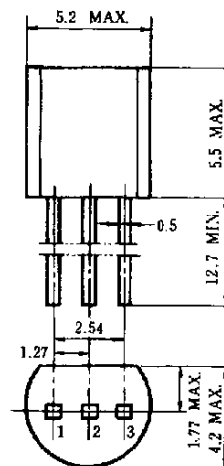
ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

2SA1376/2SA1376A

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CB0</sub>	-200	V
Collector to emitter voltage	V <sub>CEO</sub>	-180/-200	V
Emitter to base voltage	V <sub>EBO</sub>	-5	V
Collector current (DC)	I <sub>C(DC)</sub>	-100	mA
Collector current (pulse)	I <sub>C(pulse)*</sub>	-200	mA
Total power dissipation	P <sub>T</sub>	0.75	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

\* PW ≤ 10 ms, duty cycle ≤ 50%

PACKAGE DRAWING (UNIT: mm)



Electrode Connection

1. Emitter FJAJ : SC-43B
2. Collector JEDEC : TO-92
3. Base IEC : PA33

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

2SA1376/2SA1376A

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = -200 V, I <sub>E</sub> = 0			-100	nA
Emitter cutoff current	I <sub>EBO</sub>	V <sub>EB</sub> = -5 V, I <sub>C</sub> = 0			-100	nA
DC current gain	h <sub>FE1</sub> **	V <sub>CE</sub> = -10 V, I <sub>C</sub> = -10 mA	135	300/200	600/400	-
DC current gain	h <sub>FE2</sub> **	V <sub>CE</sub> = -10 V, I <sub>C</sub> = -100 mA	81			-
DC base voltage	V <sub>BE</sub> **	V <sub>CE</sub> = -10 V, I <sub>C</sub> = -10 mA	-600	-650	-700	mV
Collector saturation voltage	V <sub>CE(sat)</sub> **	I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5 mA		-0.2	-0.3	V
Base saturation voltage	V <sub>BE(sat)</sub> **	I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5 mA		-0.8	-1.2	V
Output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -30 V, I <sub>E</sub> = 0, f = 1.0 MHz		3.5	4.0	pF
Gain bandwidth product	f <sub>r</sub>	V <sub>CE</sub> = -10 V, I <sub>E</sub> = 10 mA	80	120		MHz
Turn-on time	t <sub>on</sub>	I <sub>C</sub> = -10 mA, I <sub>B1</sub> = -I <sub>B2</sub> = -1 mA,		0.16		μs
Turn-off time	t <sub>off</sub>	V <sub>CC</sub> = -10 V		1.5		μs

\*\* Pulse test PW ≤ 350 μs, duty cycle ≤ 2% per pulsed

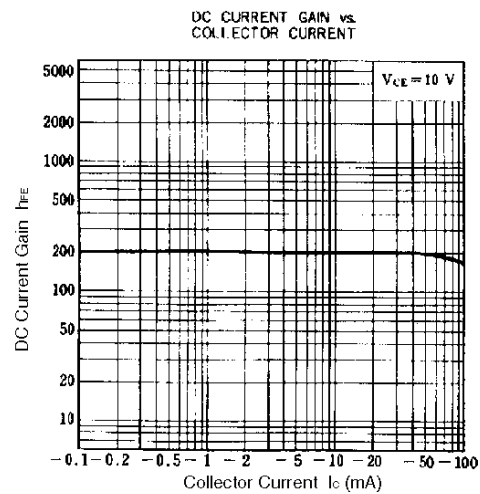
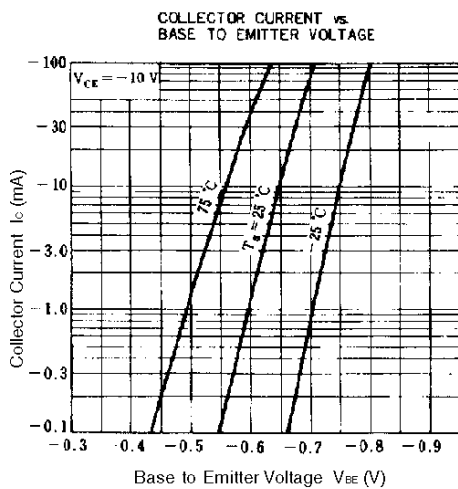
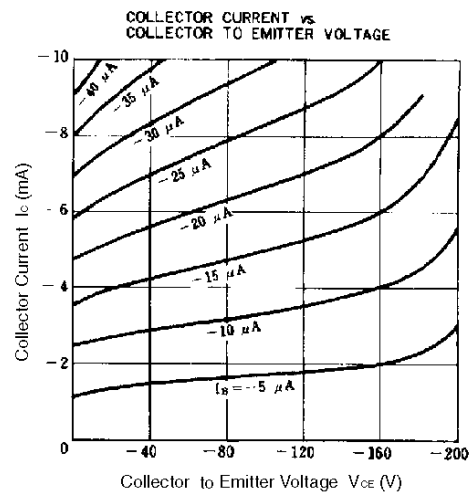
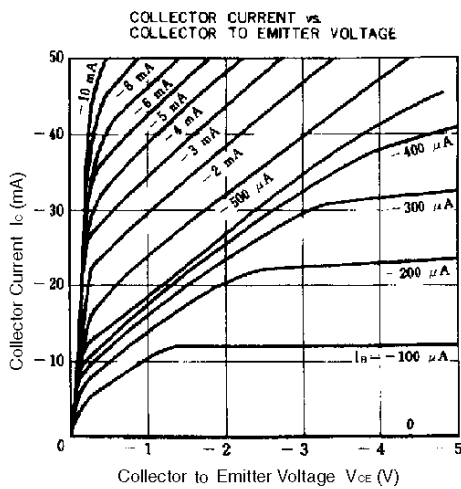
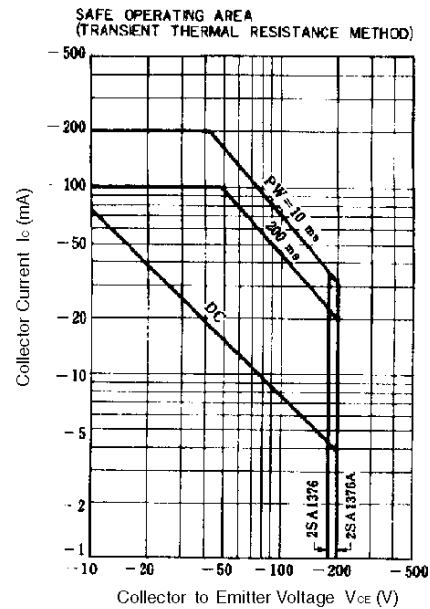
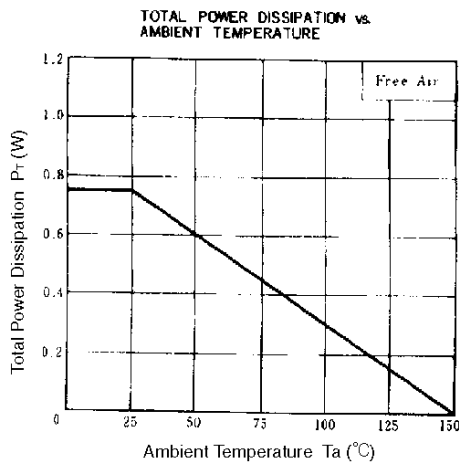
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**hFE CLASSIFICATION**

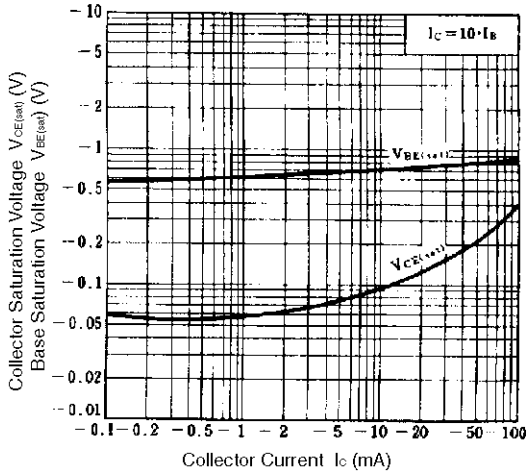
Marking	L	K	U
h <sub>FE1</sub>	135 to 270	200 to 400	300 to 600

(The U rank is not available for the 2SA1376A.)

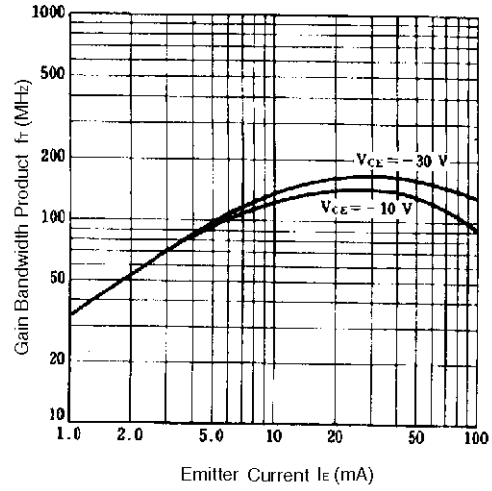
TYPICAL CHARACTERISTICS (Ta = 25°C)



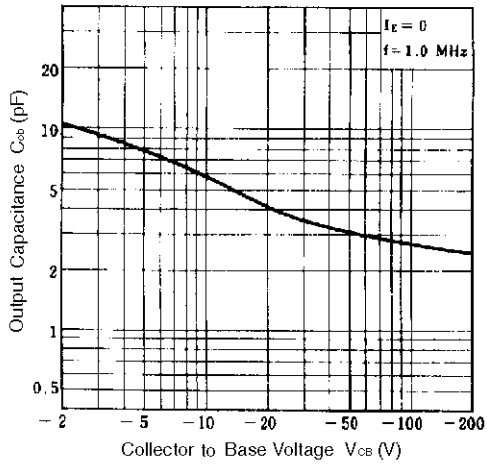
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



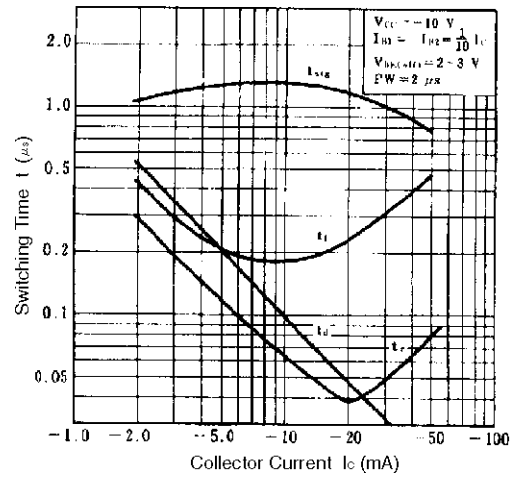
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



[MEMO]

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