NEC

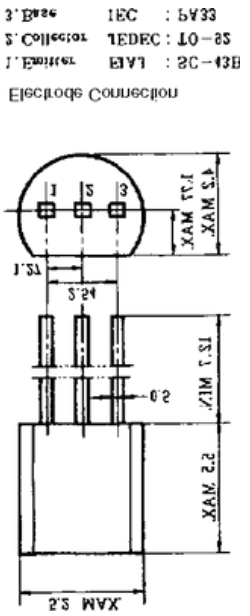
SILICON TRANSISTORS
2SA1376, 1376A

PNP SILICON EPITAXIAL TRANSISTOR FOR HIGH VOLTAGE AMPLIFIERS

FEATURES

- High voltage
  VCEO: −180 V / −200 V
  (2SA1376/2SA1376A)
- Excellent hFE linearity
- High total power dissipation in small dimension:
  PT: 0.75 W
- Complementary transistor with 2SC3478 and 2SC3478A

PACKAGE DRAWING (UNIT: mm)



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

2SA1376/2SA1376A

Parameter	Symbol	Ratings	Unit
Collector to base voltage	VCBO	−200	V
Collector to emitter voltage	VCEO	−180/−200	V
Emitter to base voltage	VEBO	−5	V
Collector current (DC)	IC(DC)	−100	mA
Collector current (pulse)	IC(pulse)*	−200	mA
Total power dissipation	PT	0.75	W
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55 to +150	℃

*PW ≤ 10 ms, duty cycle ≤ 50%

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

2SA1376/2SA1376A

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Uni
Collector cutoff current	ICBO	VCB = −200 V, IE = 0			−100	t
Emitter cutoff current	IEBO	VEB = −5 V, IC = 0			−100	nA
DC current gain	hFE1 **	VCE = −10 V, IC = −10 mA	135	300/200	600/400	nA
DC current gain	hFE2 **	VCE = −10 V, IC = −100 mA	81			−
DC base voltage	VBE **	VCE = −10 V, IC = −10 mA	−600	−650	−700	mV
Collector saturation voltage	VCE(sat) **	IC = −50 mA, IB = −5 mA		−0.2	−0.3	V
Base saturation voltage	VBE(sat) **	IC = −50 mA, IB = −5 mA		−0.8	−1.2	V
Output capacitance	Cob	VCB = −30 V, IE = 0, f = 1.0		3.5	4.0	pF
Gain bandwidth product	fT	MHz VCE = −10 V, IE = 10 mA	80	120		MHz
Turn-on time	ton	IC = −10 mA, IB1 = −IB2 = −1		0.16		μ s
Turn-off time	toff	mA, VCC = −10 V		1.5		μ s

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

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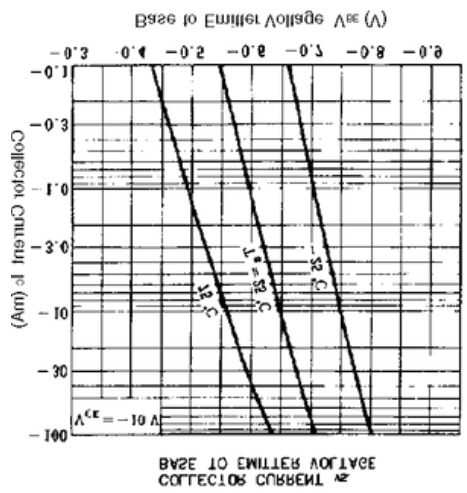
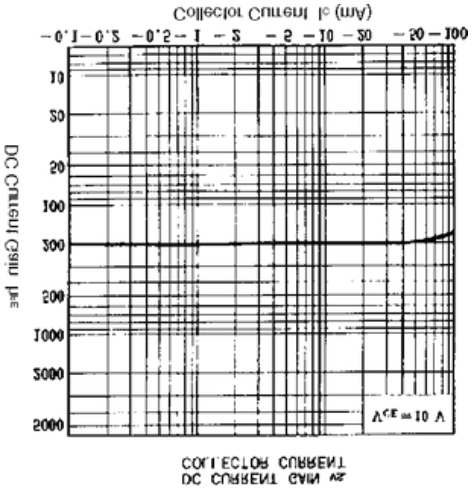
hFECLASSIFICATION

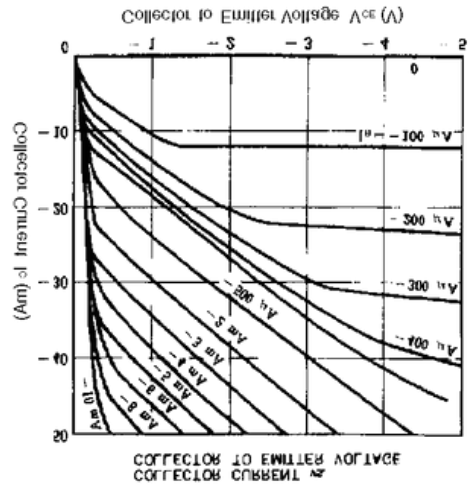
Marking	L	K	U
hFE1	135 to 270	200 to 400	300 to 600

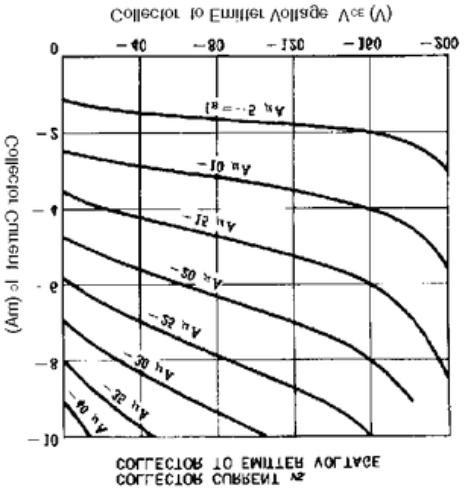
(The U rank is not available for the 2SA1376A.)

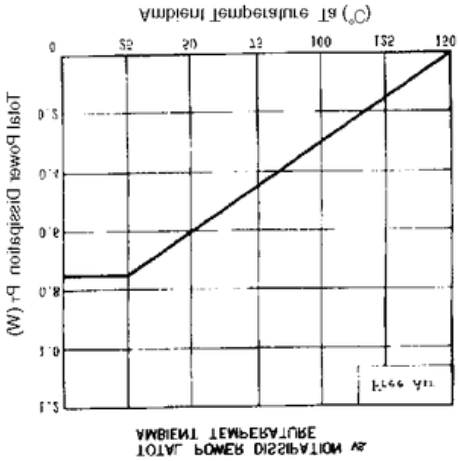
TYPICAL CHARACTERISTICS (Ta = 25°C)

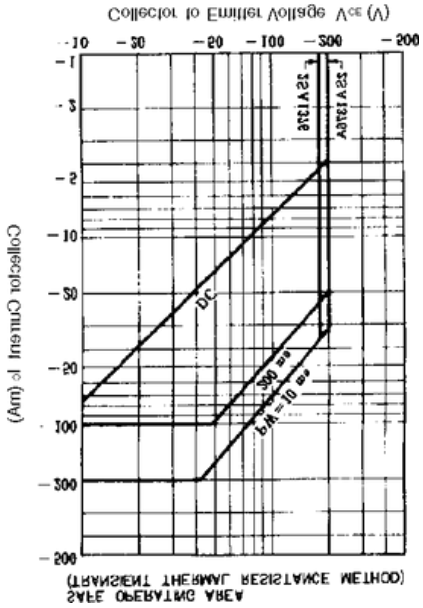


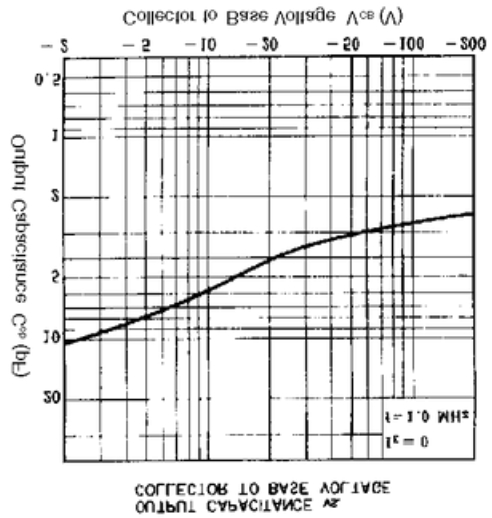


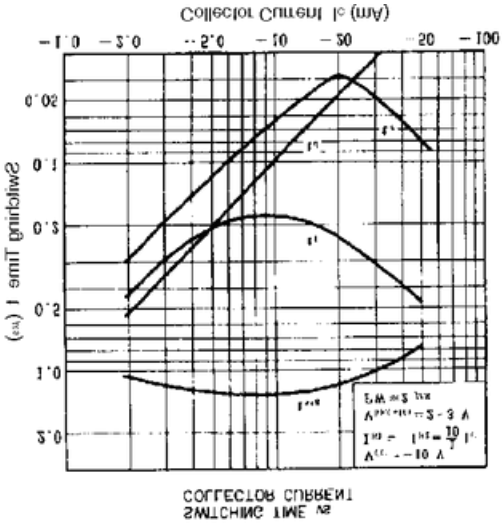


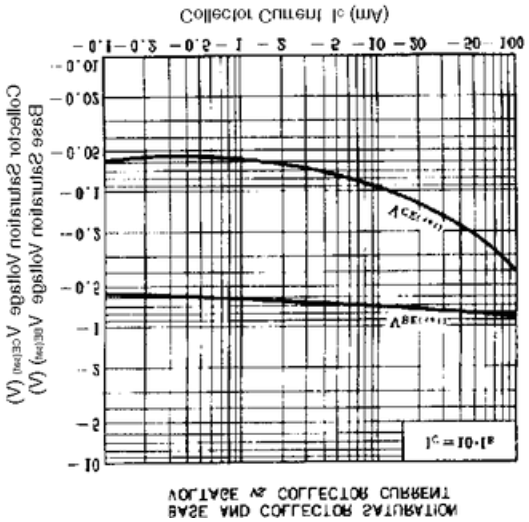


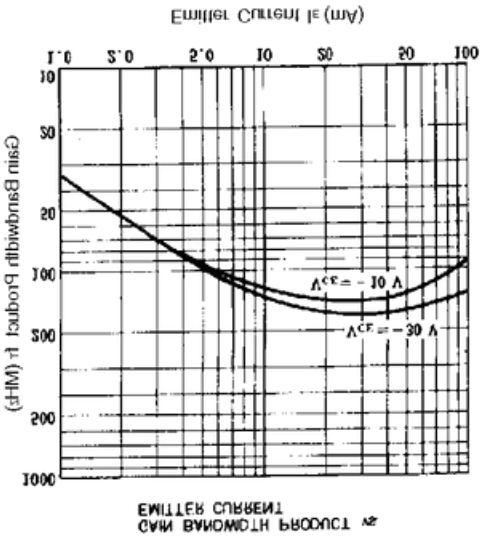





Collector to Base Voltage V_{CB} (V)
Output Capacitance C_{ob} (pF)
COLLECTOR TO BASE VOLTAGE
OUTPUT CAPACITANCE


Collector Current I_C (mA)
Switching Time t (ns)
COLLECTOR CURRENT
SWITCHING TIME


Collector Current I_C (mA)
Collector Saturation Voltage $V_{CE(sat)}$ (V)
Base Saturation Voltage $V_{BE(sat)}$ (V)
VOLTAGE VS COLLECTOR CURRENT
BASE AND COLLECTOR SATURATION


Emitter Current I_E (mA)
Gain Bandwidth Product f_T (MHz)
EMITTER CURRENT
GAIN BANDWIDTH PRODUCT

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