

# NEC

## PNP SILICON TRANSISTORS 2SA1376, 2SA1376A

**DESCRIPTION** The 2SA1376/2SA1376A is designed for general-purpose applications requiring high Breakdown Voltages.

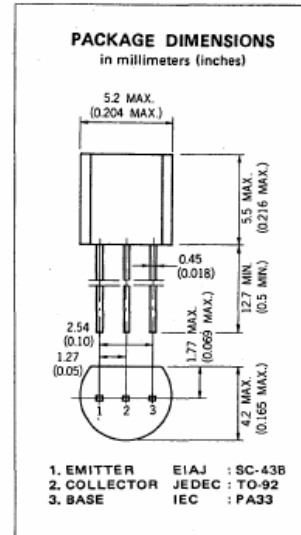
- FEATURES**
- High Breakdown Voltage.  
 $V_{CEO} = -180\text{ V}/-200\text{ V}$  (2SA1376/2SA1376A)
  - Good  $h_{FE}$  linearity.
  - A Complementary pair with 2SC347B/2SC3478A.

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures  
 Storage Temperature . . . . .  $-55$  to  $+150\text{ }^{\circ}\text{C}$   
 Junction Temperature . . . . .  $150\text{ }^{\circ}\text{C}$  Maximum  
 Maximum Power Dissipation ( $T_a = 25\text{ }^{\circ}\text{C}$ )  
 Total Power Dissipation . . . . .  $750\text{ mW}$   
 Maximum Voltages and Currents ( $T_a = 25\text{ }^{\circ}\text{C}$ )

<b>2SA1376/2SA1376A</b>	
$V_{CBO}$	Collector to Base Voltage . . . . . $-200\text{ V}$
$V_{CEO}$	Collector to Emitter Voltage . . . . . $-180/-200\text{ V}$
$V_{EBO}$	Emitter to Base Voltage . . . . . $-5.0\text{ V}$
$I_C$	Collector Current (DC) . . . . . $-100\text{ mA}$
$I_C$	Collector Current (pulse)*. . . . . $-200\text{ mA}$
$I_B$	Base Current (DC) . . . . . $-20\text{ mA}$

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



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

**2SA1376/2SA1376A**

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$h_{FE}$	DC Current Gain	135		400/600	-	$V_{CE} = -10\text{ V}$ , $I_C = -10\text{ mA}$
$t_{on}$	Turn-on Time		0.16		$\mu\text{s}$	$I_C = -10\text{ mA}$
$t_{off}$	Turn-off Time		1.5		$\mu\text{s}$	$I_{B1} = -I_{B2} = -1\text{ mA}$ , $V_{CC} = -10\text{ V}$
$f_T$	Gain Bandwidth Product	80	120		MHz	$V_{CE} = -10\text{ V}$ , $I_E = 10\text{ mA}$
$C_{ob}$	Output Capacitance		3.5	4.0	pF	$V_{CB} = -30\text{ V}$ , $I_F = 0$ , $f = 1.0\text{ MHz}$
$I_{CBO}$	Collector Cutoff Current			-100	nA	$V_{CB} = -200\text{ V}$ , $I_E = 0$
$I_{EBO}$	Emitter Cutoff Current			-100	nA	$V_{EB} = -4.0\text{ V}$ , $I_C = 0$
$V_{BE}$	Base to Emitter Voltage	-600	-650	-700	mV	$V_{CE} = -10\text{ V}$ , $I_C = -10\text{ mA}$
$V_{CE(sat)}$	Collector Saturation Voltage		-0.2	-0.3	V	$I_C = -50\text{ mA}$ , $I_B = -5.0\text{ mA}$
$V_{BE(sat)}$	Base Saturation Voltage		-0.8	-1.2	V	$I_C = -50\text{ mA}$ , $I_B = -5.0\text{ mA}$

**Classification of  $h_{FE}$**

Rank	L	K	U**
Range	135 - 270	200 - 400	300 - 600

Test Conditions:  $V_{CE} = -10\text{ V}$ ,  $I_C = -10\text{ mA}$

\*\* 2SA1376A has no U rank.

