

## PNP SILICON TRANSISTOR

### SILICON PNP EPITAXIAL TRANSISTOR

#### DESCRIPTION

The **2SA1020** is designed for power amplifier and power switching applications.

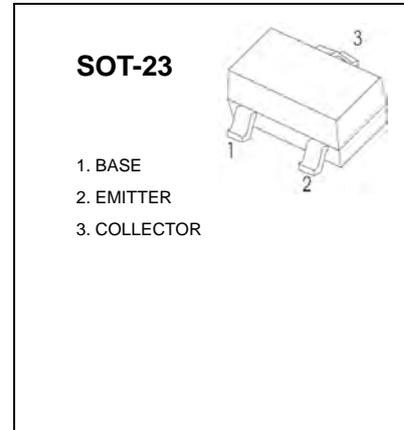
#### FEATURES

\*Low collector saturation voltage:

$$V_{CE(SAT)} = -0.5V_{(MAX)} \quad (I_C = -1A)$$

\*High speed switching time:  $t_{STG} = 1.0\mu s$  (TYP)

\*Complement to 2SC2655



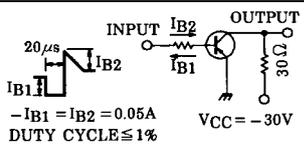
#### MARKING : 1020

#### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CBO}$	-50	V
Collector-Emitter Voltage		$V_{CEO}$	-50	V
Emitter-Base Voltage		$V_{EBO}$	-5	V
Collector Current		$I_C$	-2	A
Collector Power Dissipation	SOT-23	$P_C$	300	mW
	SOT-89		500	mW
	TO-92		900	mW
Junction Temperature		$T_J$	150	$^\circ C$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ C$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

#### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ C$ , unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Emitter Breakdown Voltage		$BV_{CEO}$	$I_C = -10mA, I_B = 0$	-50			V
Collector Cut-off Current		$I_{CBO}$	$V_{CB} = -50V, I_E = 0$			-1.0	$\mu A$
Emitter Cut-off Current		$I_{EBO}$	$V_{EB} = -5V, I_C = 0$			-1.0	$\mu A$
DC Current Gain		$h_{FE1}$	$V_{CE} = -2V, I_C = -0.5A$	70		240	
		$h_{FE2}$	$V_{CE} = -2V, I_C = -1.5A$	40			
Collector to Emitter Saturation Voltage		$V_{CE(SAT)}$	$I_C = -1A, I_B = -0.05A$			-0.5	V
Base to Emitter Saturation Voltage		$V_{BE(SAT)}$	$I_C = -1A, I_B = -0.05A$			-1.2	V
Transition Frequency		$f_T$	$V_{CE} = -2V, I_C = -0.5A$		100		MHz
Collector Output Capacitance		$C_{OB}$	$V_{CB} = -10V, I_E = 0, f = 1MHz$		40		pF
Switching Time	Turn-on Time	$t_{ON}$	 <p>20 <math>\mu s</math> INPUT <math>I_{B2}</math> <math>I_{B1}</math> OUTPUT <math>I_C</math> - <math>I_{B1} = I_{B2} = 0.05A</math> DUTY CYCLE <math>\leq 1\%</math> <math>V_{CC} = -30V</math></p>		0.1	$\mu s$	
	Storage Time	$t_{STG}$			1.0	$\mu s$	
	Fall Time	$t_F$			0.1	$\mu s$	

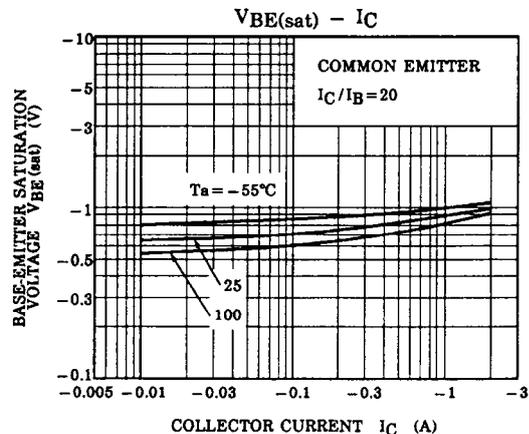
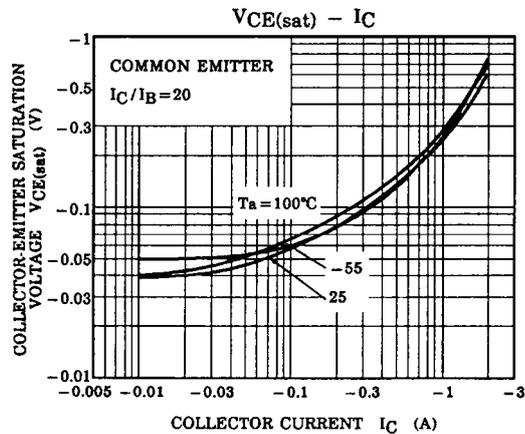
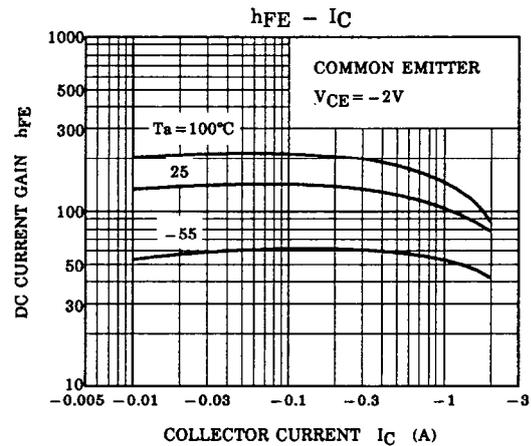
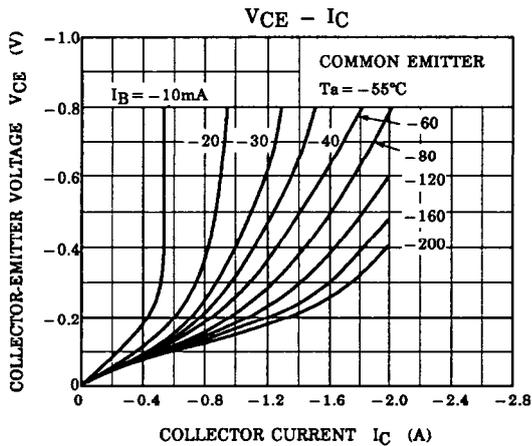
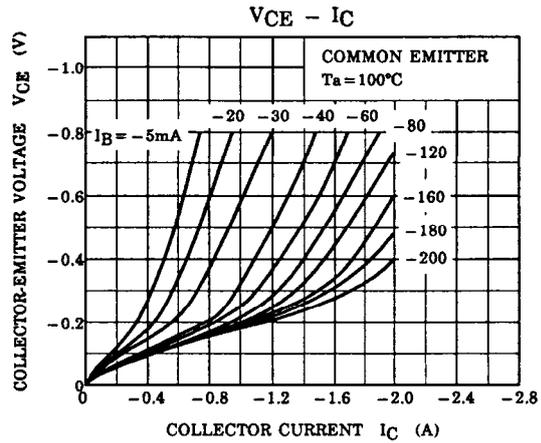
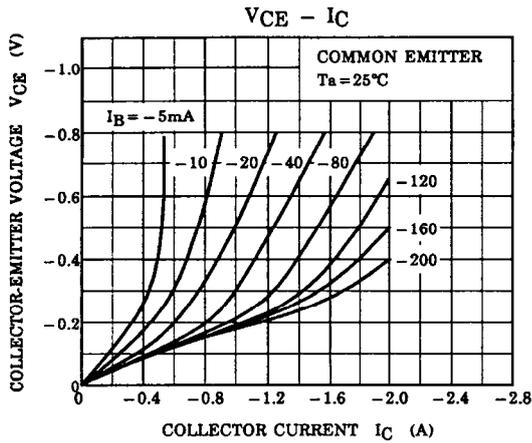
#### CLASSIFICATION OF $h_{FE1}$

RANK	O	Y
RANGE	70 - 140	120 - 240

## 2SA1020

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### ■ TYPICAL CHARACTERISTICS



## 2SA1020

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■ TYPICAL CHARACTERISTICS(Cont.)

