

**2SA1020****PNP SILICON TRANSISTOR****SILICON PNP EPITAXIAL TRANSISTOR****DESCRIPTION**

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

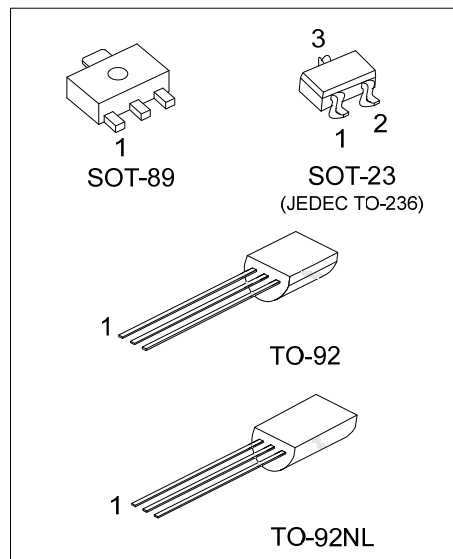
FEATURES

*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 UTC 2SC2655

**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SA1020L-x-AE3-R	2SA1020G-x-AE3-R	SOT-23	B	E	C	Tape Reel
2SA1020L-x-AB3-R	2SA1020G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SA1020L-x-T92-B	2SA1020G-x-T92-B	TO-92	E	B	C	Tape Box
2SA1020L-x-T92-K	2SA1020G-x-T92-K	TO-92	E	B	C	Bulk
2SA1020L-x-T9N-B	2SA1020G-x-T9N-B	TO-92NL	E	C	B	Tape Box
2SA1020L-x-T9N-K	2SA1020G-x-T9N-K	TO-92NL	E	C	B	Bulk

Note: Pin Assignment: B: Base E: Emitter C: Collector

2SA1020G-x-AE3-R (1) Packing Type (2) Package Type (3) Rank (4) Green Package	(1) B: Tape Box, K: Bulk, R: Tape Reel (2) AE3: SOT-23, AB3: SOT-89, T92: TO-92, T9N: TO-92NL (3) x: refer to Classification of h_{FE1} (4) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

SOT-89	SOT-23
1	
TO-92	TO-92NL
1	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

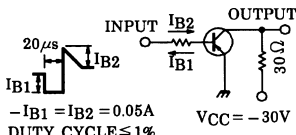
PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V _{CBO}	-50	V
Collector-Emitter Voltage		V _{CEO}	-50	V
Emitter-Base Voltage		V _{EBO}	-5	V
Collector Current		I _C	-2	A
Collector Power Dissipation	SOT-23	P _C	300	mW
	SOT-89		500	mW
	TO-92/TO-92NL		900	mW
Junction Temperature		T _J	+150	°C
Operating Temperature		T _{OPR}	-40 ~ +150	°C
Storage Temperature		T _{STG}	-55 ~ +150	°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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23	θ _{JA}	417	°C/W
	SOT-89		250	°C/W
	TO-92/TO-92NL		125	°C/W
Junction to Case	SOT-23	θ _{JC}	208.3	°C/W
	SOT-89		156.3	°C/W
	TO-92/TO-92NL		83.3	°C/W

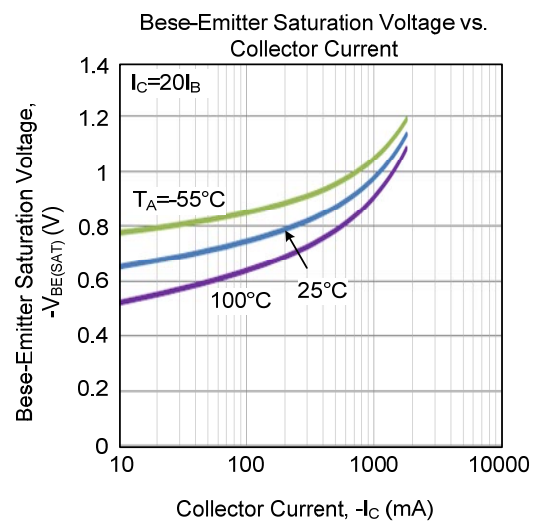
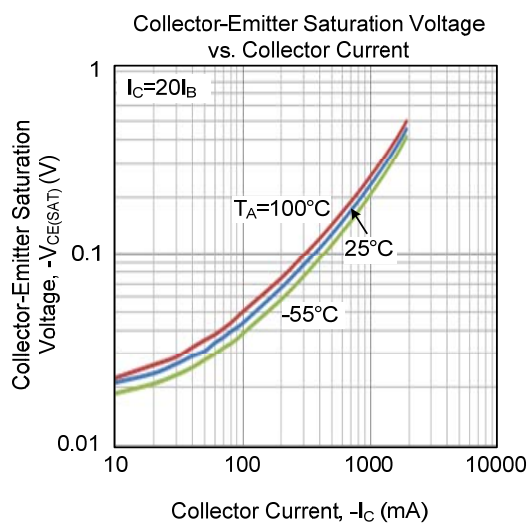
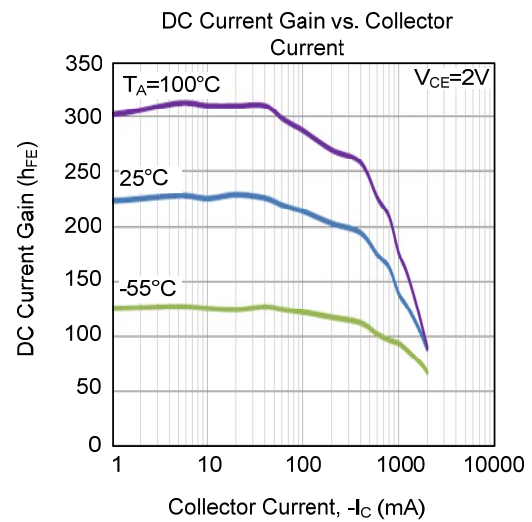
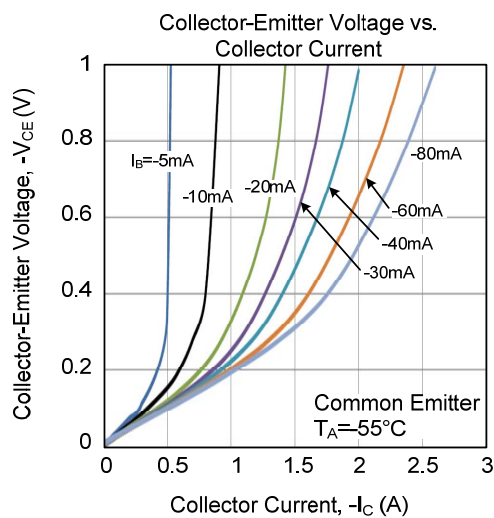
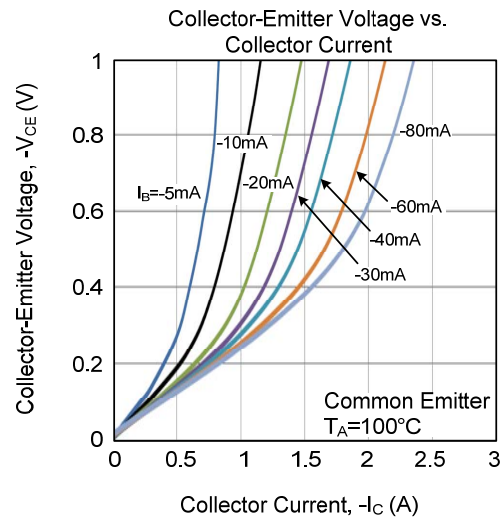
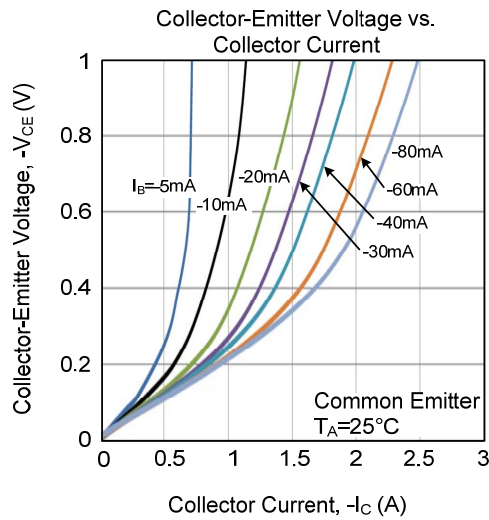
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

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	μA
Collector Cutoff Current		I _{CEO}	V _{CE} =-50V, I _B =0			-10	μA
Emitter Cut-off Current		I _{EBO}	V _{EB} =-5V, I _C =0			-1.0	μA
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		80		pF
Input Capacitance		C _{ibo}	V _{BE} =-0.5V, f=1MHz		310		pF
Switching Time	Turn-on Time	t _{ON}			0.1		μs
	Storage Time	t _{STG}			1.0		μs
	Fall Time	t _F			0.1		μs

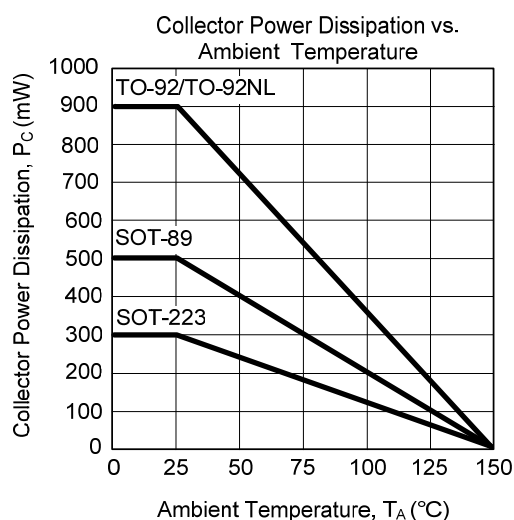
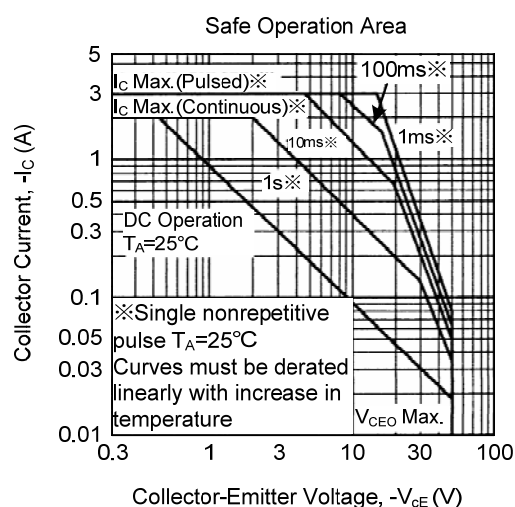
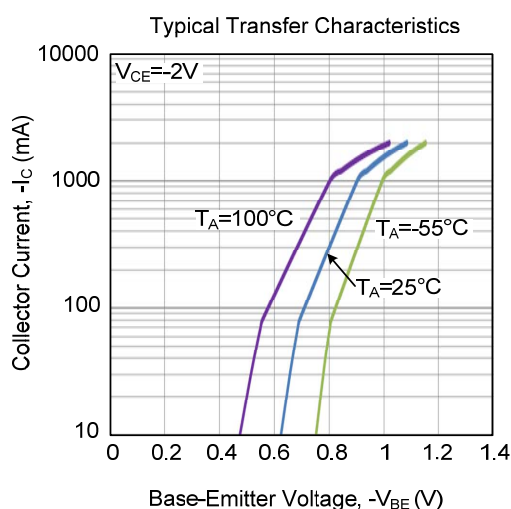
■ CLASSIFICATION OF h_{FE1}

RANK	O	Y
RANGE	70 - 140	120 - 240

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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