



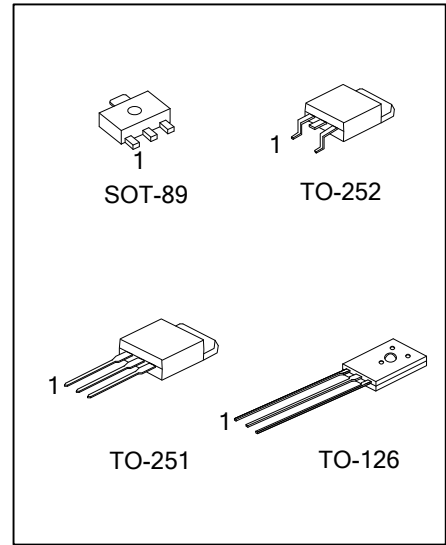
# 2SB824

## PNP SILICON TRANSISTOR

### PNP PLANAR SILICON TRANSISTOR

■ **FEATURES**

\* Low collector-to-emitter saturation voltage:  
 $V_{CE(SAT)} = -0.4V \text{ max} / I_C = -3A, I_B = -0.3A$



■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SB824L-x-AB3-R	2SB824G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SB824L-x-T60-K	2SB824G-x-T60-K	TO-126	B	C	E	Bulk
2SB824L-x-TM3-T	2SB824G-x-TM3-T	TO-251	B	C	E	Tube
2SB824L-x-TN3-R	2SB824G-x-TN3-R	TO-252	B	C	E	Tape Reel

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

<p>2SB824G-x-AB3-R</p> <p>(1) Packing Type          (2) Package Type          (3) Rank          (4) Green Package</p>	<p>(1) K: Bulk, R: Tape Reel, T: Tube          (2) T60: TO-126, AB3: SOT-89, TM3: TO-251, TN3: TO-252          (3) x: refer to Classification of <math>h_{FE1}</math>          (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ **MARKING**

PACKAGE	MARKING
SOT-89	<p>2SB824 □          L: Lead Free          G: Halogen Free</p>
TO-126	<p>UTC 2SB824 □          L: Lead Free          G: Halogen Free</p>
TO-251 / TO-252	<p>UTC          2SB824 □          Lot Code ← G: Halogen Free          Data Code</p>

■ ABSOLUTE MAXIMUM RATINGS (  $T_A=25^\circ\text{C}$ , unless otherwise specified )

PARAMETER		SYMBOL	RATINGS	UNIT
Collector to Base Voltage		$V_{CBO}$	-60	V
Collector to Emitter Voltage		$V_{CEO}$	-50	V
Emitter to Base Voltage		$V_{EBO}$	-6	V
Collector Current		$I_C$	-5	A
Collector Current (Pulse)		$I_{CP}$	-9	A
Collector Dissipation	SOT-89	$P_C$	0.5	W
	TO-126/TO-251		1	
	TO-252			
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-40 ~ +150	$^\circ\text{C}$

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.

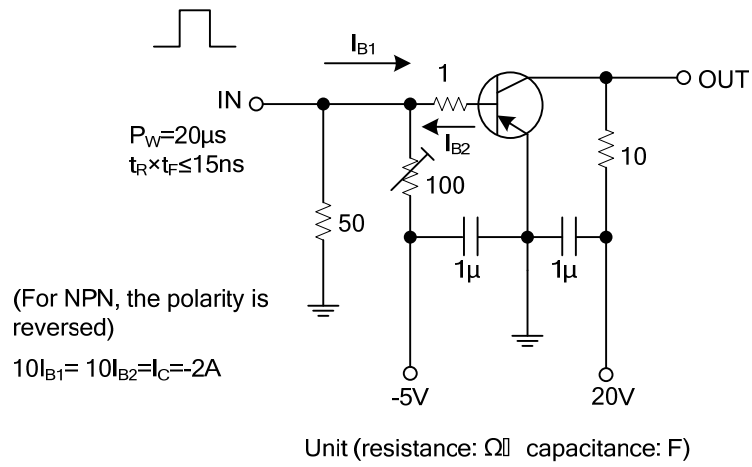
■ ELECTRICAL CHARACTERISTICS (  $T_A=25^\circ\text{C}$ , unless otherwise specified )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-to-Base Breakdown Voltage	$BV_{CBO}$	$I_C = -1\text{mA}, I_E = 0$	-60			V
Collector-to-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = -1\text{mA}, R_{BE} = \infty$	-50			V
Emitter-to-Base Breakdown Voltage	$BV_{EBO}$	$I_C = 0, I_E = -1\text{mA}$	-6			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = -40\text{V}, I_E = 0$			-0.1	mA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0$			-0.1	mA
DC Current Gain	$h_{FE1}$	$V_{CE} = -2\text{V}, I_C = -1\text{A}$	70		360	
	$h_{FE2}$	$V_{CE} = -2\text{V}, I_C = -3\text{A}$	30			
Gain Bandwidth Product	$f_T$	$V_{CE} = -5\text{V}, I_C = -1\text{A}$		30		MHZ
Output Capacitance	$C_{OB}$	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		100		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = -3\text{A}, I_B = -0.3\text{A}$			-0.4	V
Turn-ON Time	$t_{ON}$	See specified test circuit		0.1		$\mu\text{s}$
Storage Time	$t_{STG}$	See specified test circuit		1.4		$\mu\text{s}$
Fall Time	$t_F$	See specified test circuit		0.2		$\mu\text{s}$

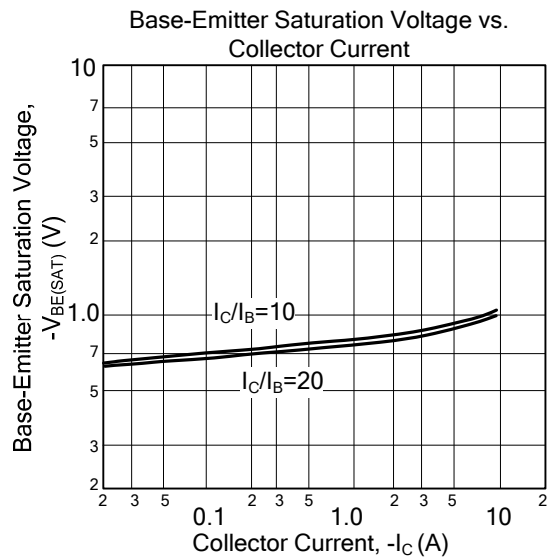
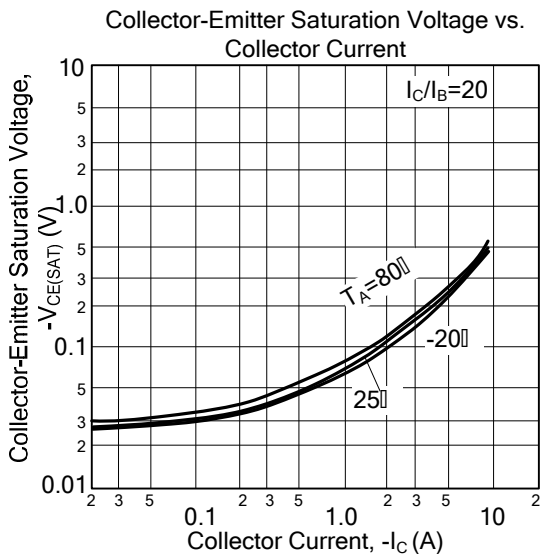
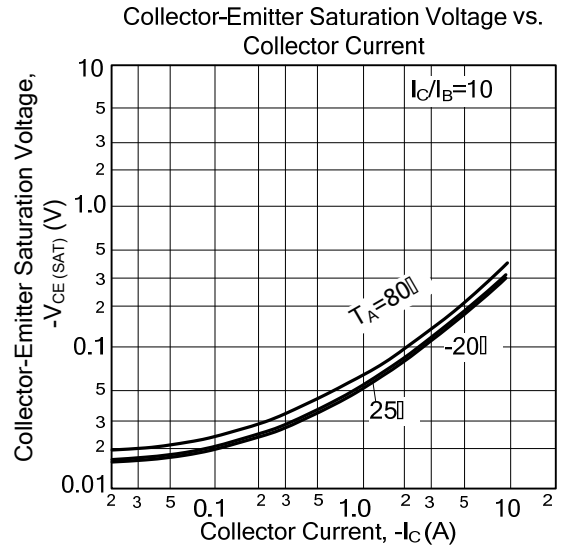
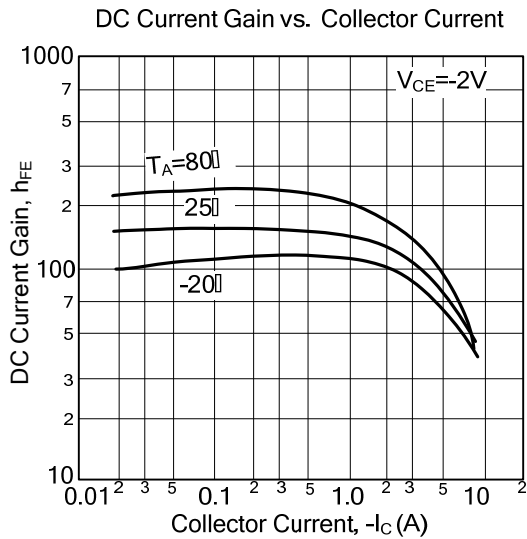
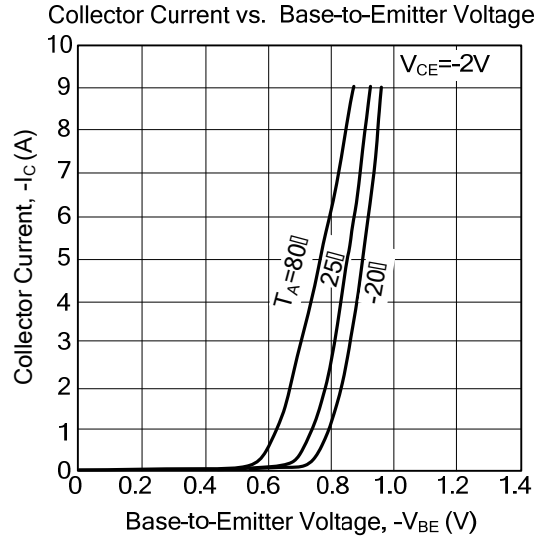
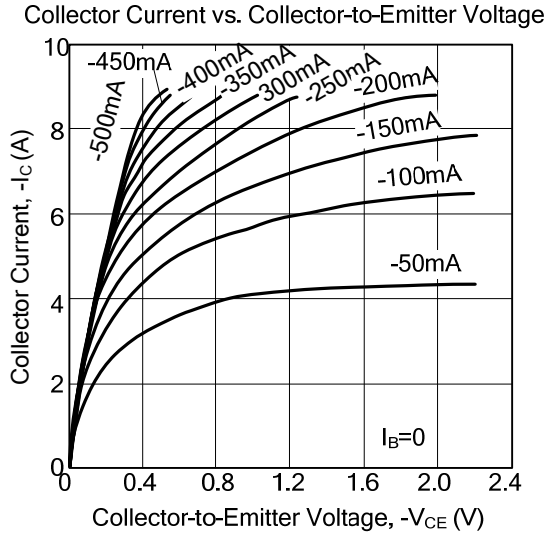
■ CLASSIFICATION of  $h_{FE1}$

RANK	Q	R	S
RANGE	70-140	100-200	180-360

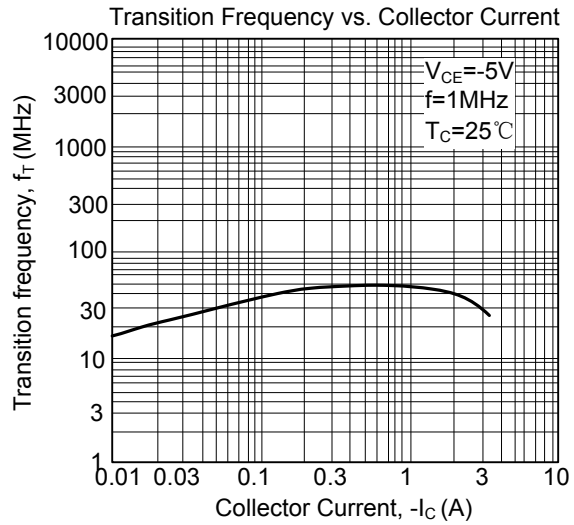
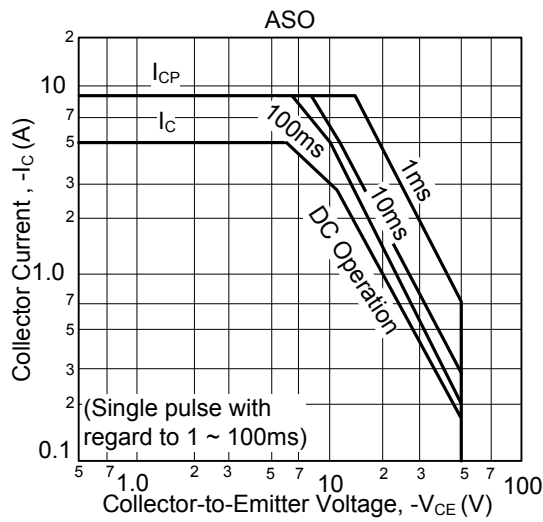
■ SWITCHING TIME TEST CIRCUIT



## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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