



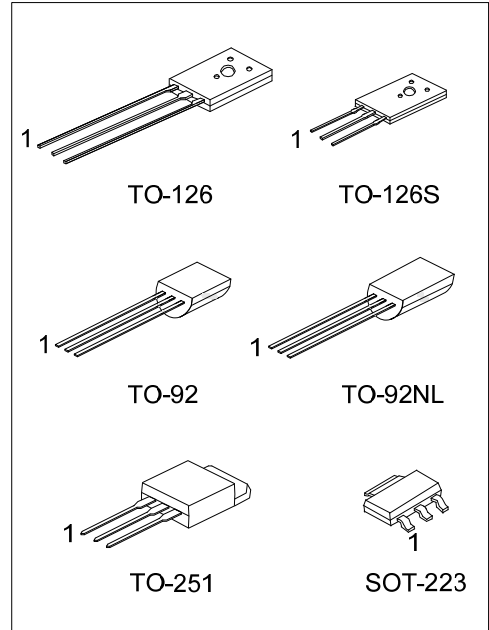
## 2SD1857

## NPN EPITAXIAL SILICON TRANSISTOR

### POWER TRANSISTOR

#### FEATURES

- \* High breakdown voltage. ( $BV_{CEO}=120V$ )
- \* Low collector output capacitance. (Typ.20pF at  $V_{CB}=10V$ )
- \* High transition frequency. ( $f_T=80MHz$ )



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1857L-x-AA3-R	2SD1857G-x-AA3-R	SOT-223	B	C	E	Tape Reel
2SD1857L-x-AA3-A-R	2SD1857G-x-AA3-A-R	SOT-223	E	C	B	Tape Reel
2SD1857L-x-T60-K	2SD1857G-x-T60-K	TO-126	E	C	B	Bulk
2SD1857L-x-T6S-K	2SD1857G-x-T6S-K	TO-126S	E	C	B	Bulk
2SD1857L-x-TM3-T	2SD1857G-x-TM3-T	TO-251	E	C	B	Tube
2SD1857L-x-T92-B	2SD1857G-x-T92-B	TO-92	E	C	B	Tape Box
2SD1857L-x-T92-K	2SD1857G-x-T92-K	TO-92	E	C	B	Bulk
2SD1857L-x-T92-C-B	2SD1857G-x-T92-C-B	TO-92	E	B	C	Tape Box
2SD1857L-x-T92-C-K	2SD1857G-x-T92-C-K	TO-92	E	B	C	Bulk
2SD1857L-x-T9N-B	2SD1857G-x-T9N-B	TO-92NL	E	C	B	Tape Box
2SD1857L-x-T9N-K	2SD1857G-x-T9N-K	TO-92NL	E	C	B	Bulk

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

<p>2SD1857G-x-AA3-x-R</p> <p>(1)Packing Type (2)Pin Assignment (3)Package Type (4)Rank (5)Green Package</p>	<p>(1) R: Tape Reel, K: Bulk, T: Tube, B: Tape Box (2) Refer to Pin Assignment (3) AA3: SOT-223, T60: TO-126, T6S: TO-126S, TM3: TO-251, T92:TO-92, T9N: TO-92NL (4) x: refer to Classification of <math>h_{FE}</math> (5) G: Halogen Free and Lead Free, L: Lead Free</p>
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# 2SD1857

## NPN EPITAXIAL SILICON TRANSISTOR

### MARKING

PACKAGE	MARKING
SOT-223	<p>1</p>
TO-251	<p>1</p>
TO-126 / TO-126C	<p>1</p>
TO-92	<p>1</p>
TO-92NL	<p>1</p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CB0}$	120	V
Collector-Emitter Voltage		$V_{CEO}$	120	V
Emitter-Base Voltage		$V_{EBO}$	5	V
Collector Power Dissipation	SOT-223	$P_C$	1 (Note 2)	W
	TO-126/TO-126S		1.4	W
	TO-92		0.625	W
	TO-92 NL		0.9	W
	TO-251		2	W
Collector Current		$I_C$	2	A
Collector Current		$I_{CP}$	3	A
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-40 ~ +150	$^{\circ}\text{C}$

Notes: 1. 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.  
 2. When mounted on a 40×40×0.7mm ceramic board.

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

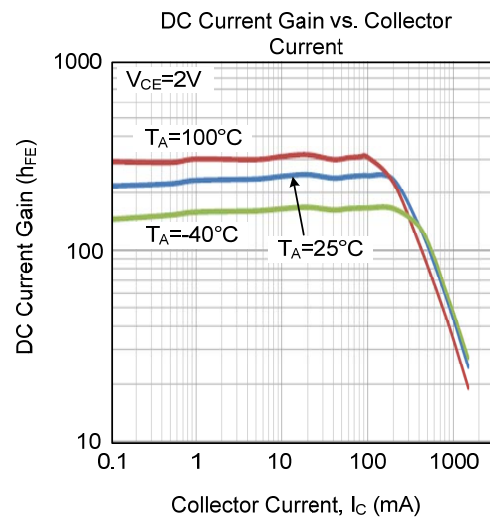
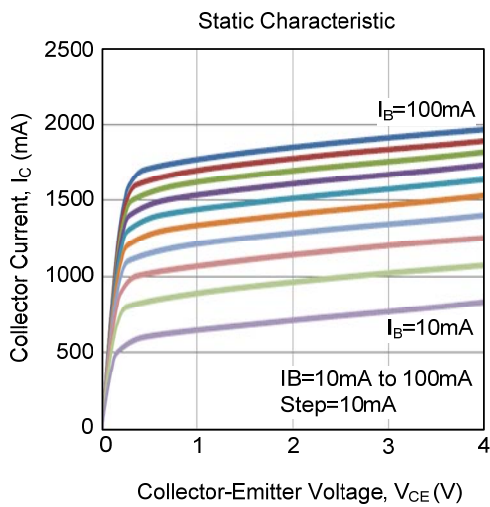
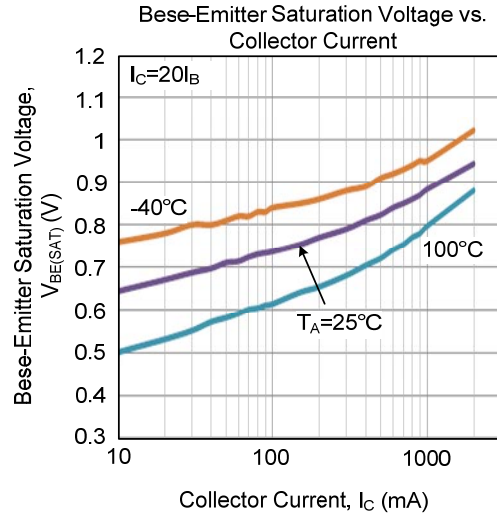
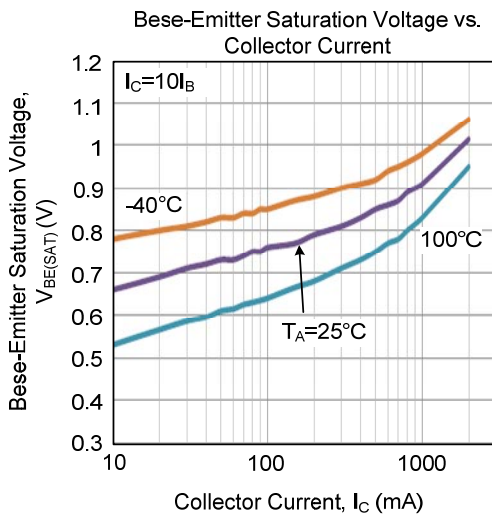
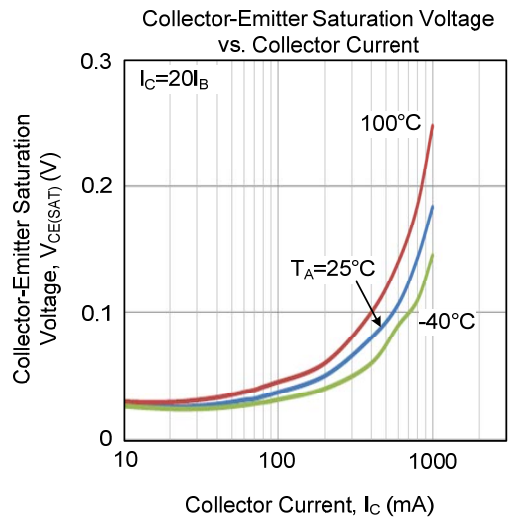
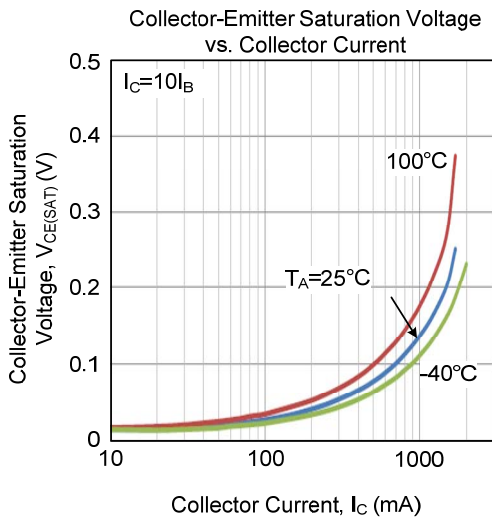
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CB0}$	$I_C=50\mu\text{A}$	120			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=1\text{mA}$	120			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=50\mu\text{A}$	5			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=100\text{V}$			1	$\mu\text{A}$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=4\text{V}$			1	$\mu\text{A}$
DC Current Transfer Ratio	$h_{FE}$	$V_{CE}=5\text{V}, I_C=0.1\text{A}$	82		390	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=I_B=1\text{A}/0.1\text{A}$ (Note)			0.4	V
Transition Frequency	$f_T$	$V_{CE}=5\text{V}, I_E=-0.1\text{A}, f=30\text{MHz}$ .		80		MHz
Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}, I_E=0\text{A}, f=1\text{MHz}$ (Note)		20		pF

Note: Measured using pulse current.

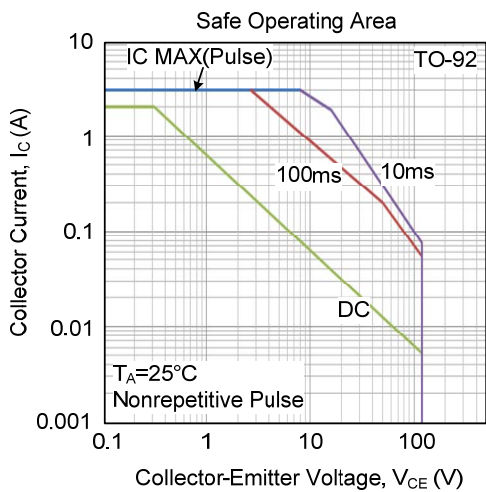
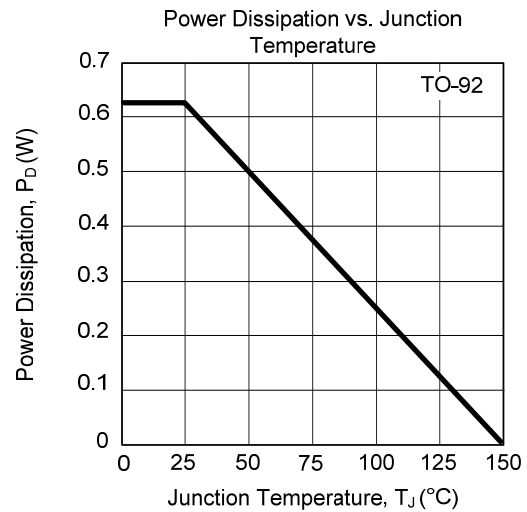
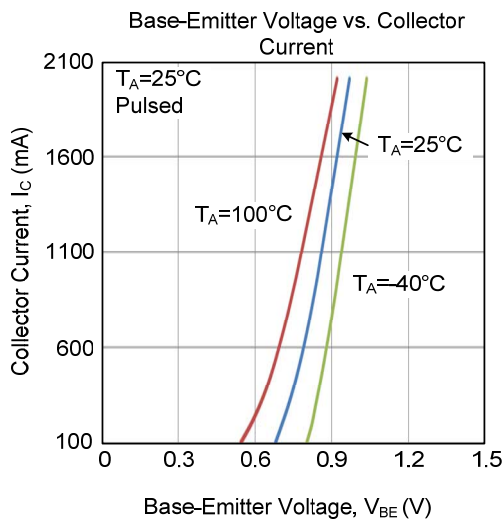
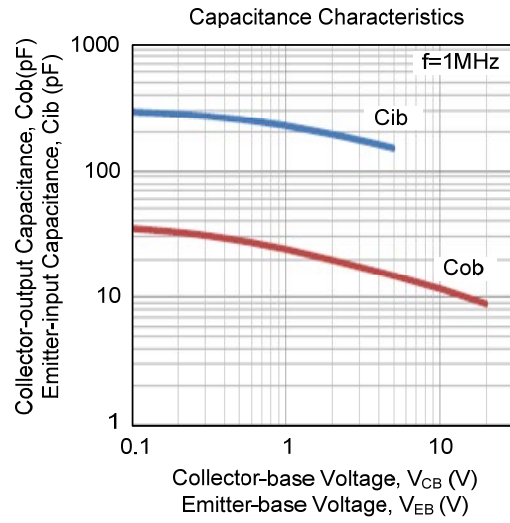
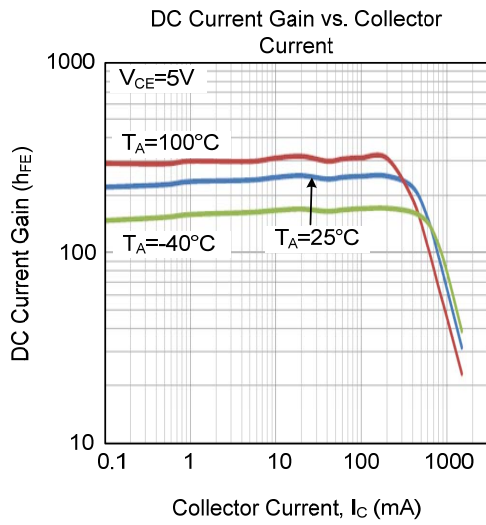
■ CLASSIFICATION OF  $h_{FE}$

RANK	P	Q	R
RANGE	82-180	120-270	180-390

■ TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS (Cont.)



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