



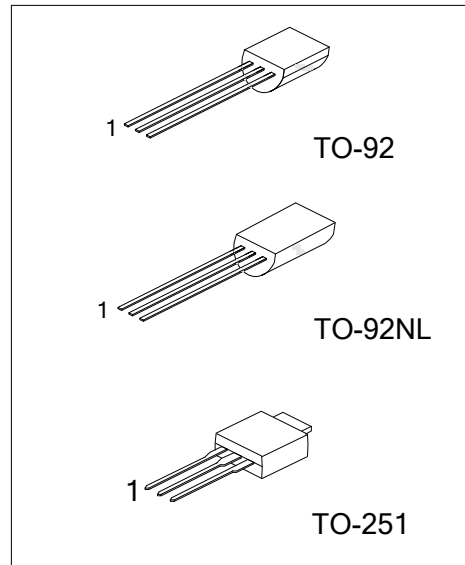
**2SD1857**

**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-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-R	2SD1857G-x-T92-R	TO-92	E	C	B	Tape Reel
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
2SD1857L-x-TM3-T	2SD1857G-x-TM3-T	TO-251	E	C	B	Tube

Note: Pin Assignment: E: EMITTER C: COLLECTOR B: BASE

<p>2SD1857L-x-T92-B</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Lead Free</p>	<p>(1) B: Tape Box, K: Bulk, T: Tape Reel (2) T92: TO-92, T9N: TO-92NL, TM3: TO-251 (3) x: refer to Classification of <math>h_{FE}</math> (4) G: Halogen Free, L: Lead Free</p>
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■ 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	TO-92NL	0.5	W
	TO-92	1	
	TO-251	2	
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	$^{\circ}\text{C}$

Note: 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.

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

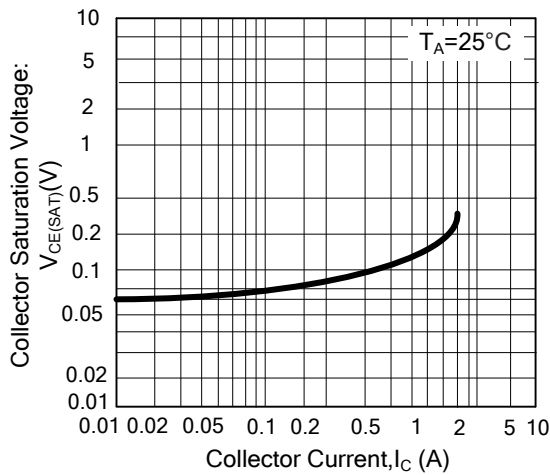
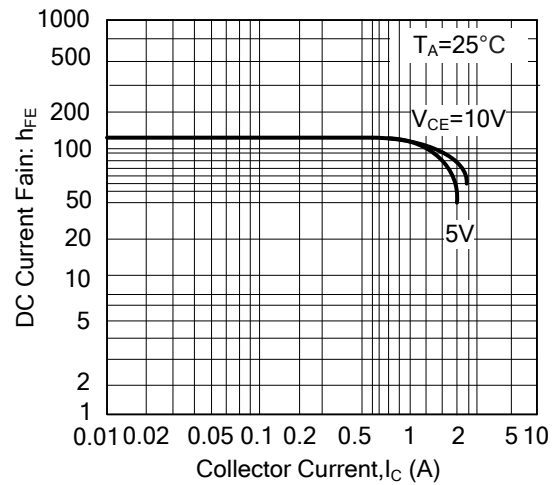
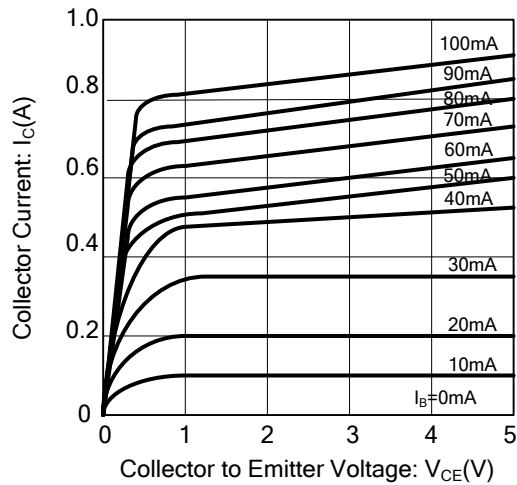
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CB0}$	$I_C=50\mu\text{A}$	120			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=1\text{mA}$	120			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=50\mu\text{A}$	5			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=100\text{V}$			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



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