



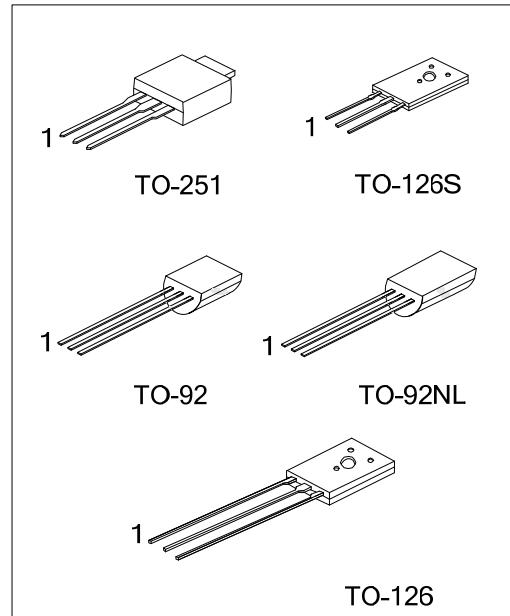
2SD1857

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. ($f_T=80MHz$)



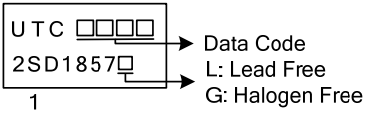
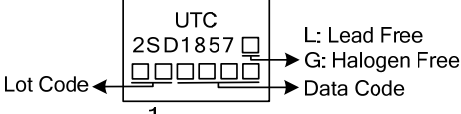
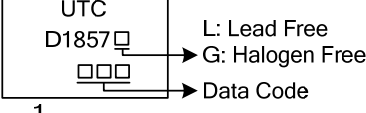
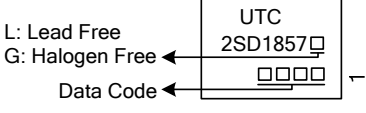
■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1857L-x-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-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>2SD1857L-x-T60-K</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Lead Free</p>	<p>(1) B: Tape Box, K: Bulk, T: Tube (2) T60: TO-126, T6S: TO-126S, TM3: TO-251 T92: TO-92, T9N: TO-92NL (3) x: refer to Classification of h_{FE} (4) L: Lead Free, G: Halogen Free</p>
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■ MARKING

TO-126 / TO-126C	TO-251
 <p>UTC □□□□ 2SD1857□ 1</p> <p>→ Data Code → L: Lead Free → G: Halogen Free</p>	 <p>UTC 2SD1857□ □□□□□ 1</p> <p>← Lot Code → L: Lead Free → G: Halogen Free → Data Code</p>
TO-92	TO-92NL
 <p>UTC D1857□ □□ 1</p> <p>→ L: Lead Free → G: Halogen Free → Data Code</p>	 <p>UTC 2SD1857□ □□□ 1</p> <p>← L: Lead Free ← G: Halogen Free ← Data Code</p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	120	V
Collector-Emitter Voltage		V_{CEO}	120	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Power Dissipation	TO-126/TO-126S	P_C	1.4	W
	TO-92		0.625	
	TO-92 NL		0.9	
	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: 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 ($T_A=25^{\circ}\text{C}$)

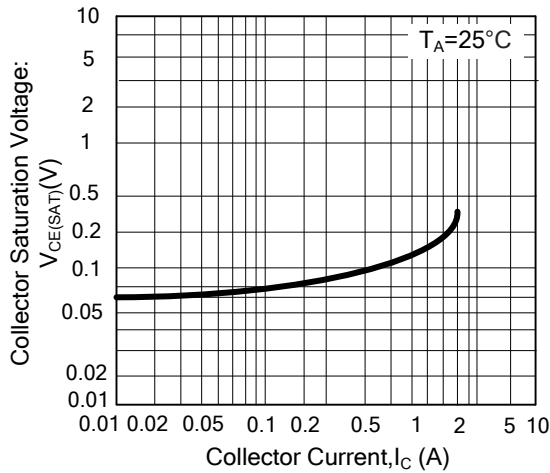
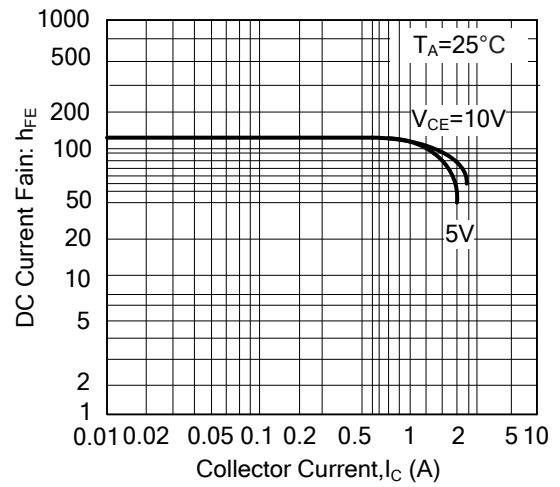
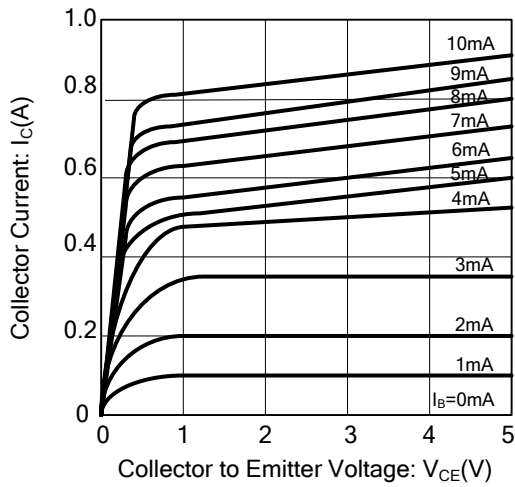
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C=50\mu\text{A}$	120			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=1\text{mA}$	120			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E=50\mu\text{A}$	5			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=100\text{V}$			1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=4\text{V}$			1	μA
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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