



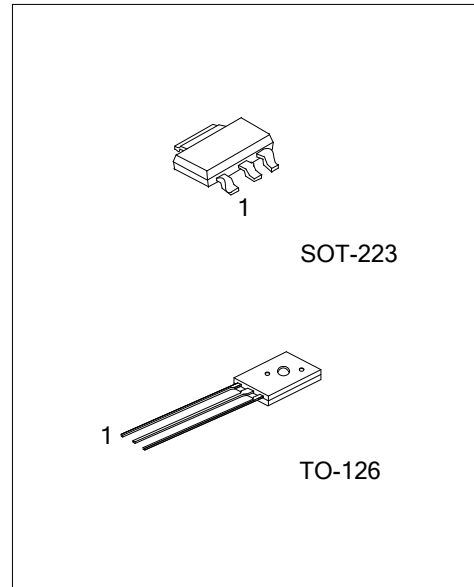
# BD137

## NPN SILICON TRANSISTOR

### NPN POWER TRANSISTORS

■ FEATURES

- \* High current (max.1.5A)
- \* Low voltage (max.60V)



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BD137L-x-AA3-R	BD137G-x-AA3-R	SOT-223	B	C	E	Tape Reel
BD137L-xx-T60-K	BD137G-xx-T60-K	TO-126	E	C	B	Bulk

<p>BD137G-xx-AA3-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Rank</li> <li>(4) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel, K: Bulk</li> <li>(2) AA3: SOT-223, T60: TO-126</li> <li>(3) refer to CLASSIFICATION OF <math>h_{FE}</math></li> <li>(4) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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■ MARKING

SOT-223	TO-126

### ■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CBO}$	60	V
Collector-Emitter Voltage		$V_{CEO}$	60	V
Emitter-Base Voltage		$V_{EBO}$	5	V
Collector Current (DC)		$I_C$	1.5	A
Peak Collector Current		$I_{CM}$	3.0	A
Peak Base Current		$I_{BM}$	0.5	A
Power Dissipation ( $T_A=25^\circ\text{C}$ )	SOT-223	$P_D$	1	W
	TO-126		1.25	W
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Operating Temperature		$T_{OPR}$	-55 ~ +150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +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.

### ■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	$\theta_{JA}$	125	$^\circ\text{C/W}$
	TO-126		100	$^\circ\text{C/W}$
Junction to Case	SOT-223	$\theta_{JC}$	16	$^\circ\text{C/W}$
	TO-126		10	$^\circ\text{C/W}$

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

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

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Voltage (Note)		$V_{CEO}$	$I_C=30\text{mA}, I_B=0$	60			V
Collector Cut-Off Current		$I_{CBO}$	$I_E=0, V_{CB}=30\text{V}$			100	nA
			$I_E=0, V_{CB}=30\text{V}, T_J=125^\circ\text{C}$			10	$\mu\text{A}$
Emitter Cut-Off Current		$I_{EBO}$	$I_C=0, V_{EB}=5\text{V}$			10	$\mu\text{A}$
DC Current Gain (Note)		$h_{FE}$	$V_{CE}=2\text{V}$	$I_C=5\text{mA}$	25		
				$I_C=150\text{mA}$	40		160
				$I_C=500\text{mA}$	25		
DC Current Gain (Note)			$I_C=150\text{mA}, V_{CE}=2\text{V}$		40		100
					63		160
Collector-Emitter Saturation Voltage (Note)		$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$			0.5	V
Base-Emitter Voltage (Note)		$V_{BE}$	$I_C=500\text{mA}, V_{CE}=2\text{V}$			1	V
Transition Frequency		$f_T$	$I_C=500\text{mA}, V_{CE}=5\text{V}, f=100\text{MHz}$		190		MHz

Note: Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

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