

## BD238

### Low voltage PNP power transistor

#### Features

- Low saturation voltage
- PNP transistor

#### Applications

- Audio, power linear and switching applications

#### Description

The device is manufactured in planar technology with "Base Island" layout. The resulting transistor shows exceptional high gain performance coupled with very low saturation voltage. The NPN type is BD237.

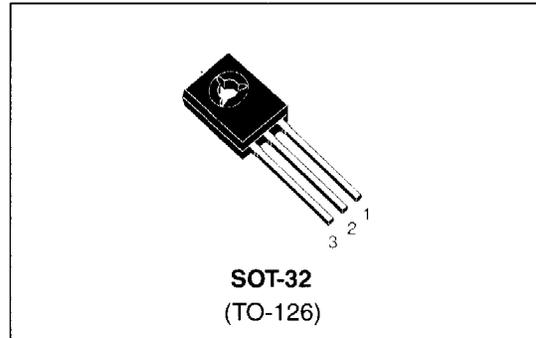
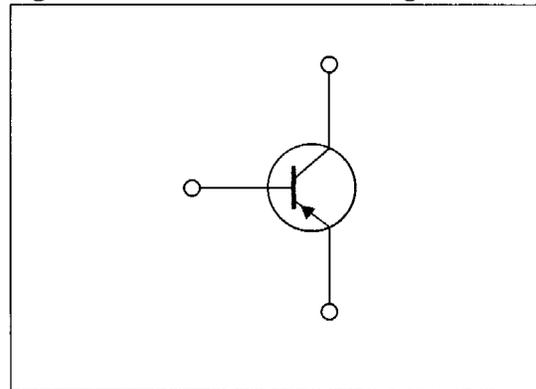


Figure 1. Internal schematic diagram

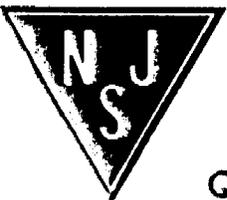


#### Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base voltage ( $I_E = 0$ )	-100	V
$V_{CER}$	Collector-emitter voltage ( $R_{BE} = 1 \text{ k}\Omega$ )	-100	V
$V_{CEO}$	Collector-emitter voltage ( $I_B = 0$ )	-80	V
$V_{EBO}$	Emitter-base voltage ( $I_C = 0$ )	-5	V
$I_C$	Collector current	-2	A
$I_{CM}$	Collector peak current ( $t_p < \text{ms}$ )	-6	A
$P_{TOT}$	Total dissipation at $T_{case} = 25^\circ\text{C}$	25	W
$T_{stg}$	Storage temperature	-65 to 150	$^\circ\text{C}$
$T_J$	Max. operating junction temperature	150	$^\circ\text{C}$

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



## Electrical characteristics

( $T_{\text{case}} = 25\text{ °C}$ ; unless otherwise specified)

**Table 3. Electrical characteristics**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{\text{CBO}}$	Collector cut-off current ( $I_{\text{E}} = 0$ )	$V_{\text{CB}} = -100\text{ V}$ $V_{\text{CB}} = -100\text{ V } T_{\text{c}} = 150\text{ °C}$		-	-0.1 -2	mA mA
$I_{\text{EBO}}$	Emitter cut-off current ( $I_{\text{C}} = 0$ )	$V_{\text{EB}} = -5\text{ V}$		-	-1	mA
$V_{\text{CEO(sus)}}^{(1)}$	Collector-emitter sustaining voltage ( $I_{\text{B}} = 0$ )	$I_{\text{C}} = -100\text{ mA}$	-80	-		V
$V_{\text{CE(sat)}}^{(1)}$	Collector-emitter saturation voltage	$I_{\text{C}} = -1\text{ A} \quad I_{\text{B}} = -0.1\text{ A}$		-	-0.6	V
$V_{\text{BE(on)}}^{(1)}$	Base-emitter on voltage	$I_{\text{C}} = -1\text{ A} \quad V_{\text{CE}} = -2\text{ V}$		-	-1.3	V
$h_{\text{FE}}^{(1)}$	DC current gain	$I_{\text{C}} = -150\text{ mA} \quad V_{\text{CE}} = -2\text{ V}$ $I_{\text{C}} = -1\text{ A} \quad V_{\text{CE}} = -2\text{ V}$	40 25	-		

1. Pulsed duration = 300  $\mu\text{s}$ , duty cycle = 1.5 %.