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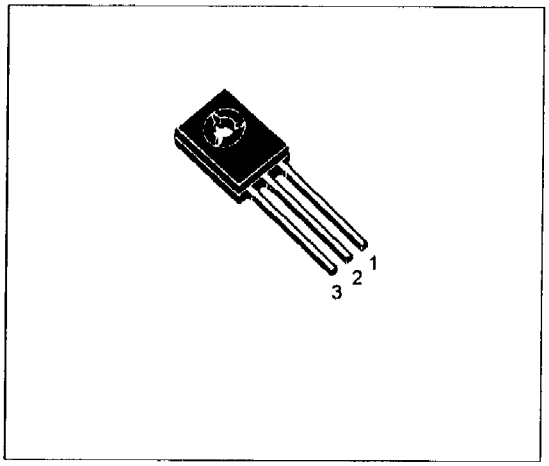
BD235/BD236
BD237/BD238

COMPLEMENTARY SILICON POWER TRANSISTORS

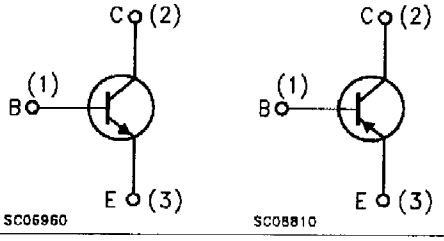
DESCRIPTION

The BD235 and BD237 are silicon epitaxial-base NPN power transistors in Jedec SOT-32 plastic package inteded for use in medium power linear and switching applications.

The complementary PNP types are BD236 and BD238 respectively.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value		Unit
		NPN	BD235	BD237	
		PNP	BD236	BD238	
V_{CBO}	Collector-Base Voltage (I_E = 0)		60	100	V
V_{CER}	Collector-Base Voltage (R_{BE} = 1KΩ)		60	100	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		60	80	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		5		V
I_C	Collector Current		2		A
I_{CM}	Collector Peak Current		6		A
P_{tot}	Total Dissipation at T_c = 25 °C		25		W
T_{stg}	Storage Temperature		-65 to 150		°C
T_j	Max. Operating Junction Temperature		150		°C

For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	5	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CE} = rated V_{CEO} V_{CE} = rated V_{CEO} T_c = 150 °C			0.1 2	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 100 mA for **BD235/BD236** for **BD237/BD238**	 60 80			 V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 1 A I_B = 0.1 A			0.6	V
V_{BE}*	Base-Emitter Voltage	I_C = 1 A V_{CE} = 2 V			1.3	V
h_{FE}*	DC Current Gain	I_C = 150 mA V_{CE} = 2 V I_C = 1 A V_{CE} = 2 V	40 25			
f_T	Transition frequency	I_C = 250 mA V_{CE} = 10 V	3			MHz
h_{FE1}/h_{FE2}*	Matched Pairs	I_C = 150 mA V_{CE} = 2 V		1.6		

* Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %

SOT-32 (TO-126) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	10.5		10.8	0.413		0.445
b	0.7		0.9	0.028		0.035
b1	0.49		0.75	0.019		0.030
C	2.4		2.7	0.040		0.106
c1	1.0		1.3	0.039		0.050
D	15.4		16.0	0.606		0.629
e		2.2			0.087	
e3	4.15		4.65	0.163		0.183
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100
H2		2.15			0.084