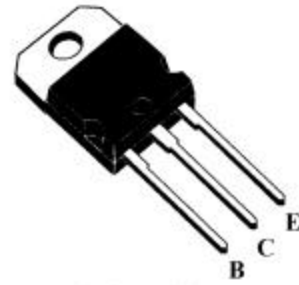


NPN SILICON POWER TRANSISTOR BD245C

- ♦ 80 W at 25°C Case Temperature
- ♦ 10A Continuous Collector Current
- ♦ 15A Peak Collector Current
- 100V Collector-Emmitter Voltage
- Custom selections available



SOT-93

Note : Collector is connected to the mounting base

Absolute maximum ratings at 25°C case temperature (unless otherwise noted)

RATING	SYMBOL	VALUE	UNIT
Collector-Base Voltage (I _e =0)	V _{CB0}	100	V
Collector-Emmitter Voltage (I _b =0)	V _{CEO}	100	V
Emmitter-base voltage (reverse)	V _{EBO}	5	V
Continuous collector current	I _C	10	A
Peak collector current (max 300μs, duty cycle 2%)	I _{CM}	15	A
Continuous base current	I _B	3	A
Continuous device dissipation at max 25°C case temperature (see note 1)	P _{tot}	80	W
Continuous device dissipation at max 25°C free air temperature (see note 2)	P _{tot}	3.5	W
Unclamped inductive load energy (see note 3)	$\frac{1}{2}LI_C^2$	62.5	mJ
Operating junction temperature range	T _j	-65 to +150	°C
Storage temperature range	T _{stg}	-65 to +150	°C
Lead temperature 3.2 mm from case for 10 seconds	T _L	250	°C

NOTES

1. Derate linearly to 150°C case temperature at the rate of 0.64 W/°C. This rating is not applicable to isolated packages.
2. Derate linearly to 150°C free air temperature at the rate of 24 mW/°C
3. This rating is based on the capability of the transistor to operate safely in a circuit of: L=20 mH, I_{B(on)}=40mA, R_{BE} = 270 ohm, V_{BE(off)} = 0, R_S = 0.1 ohm, I_{CC} = 2.5A., duty max 1%.

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Electrical characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$ Collector-emitter breakdown voltage	$I_C = 30 \text{ mA}$ $I_B = 0$ (see note 4)	100	120		V
I_{CES} Collector-emitter cut-off current	$V_{CE} = 100\text{V}$ $V_{BE} = 0$		0.04	400	μA
I_{CEO} Collector cut-off current	$V_{CE} = 100\text{V}$ $I_B = 0$		0.04	700	μA
I_{EBO} Emitter cut-off current	$V_{EB} = 5\text{V}$ $I_C = 0$			1	mA
h_{FE} Forward current transfer ratio	$V_{CE} = 4\text{V}$ $I_C = 1\text{A}$ $V_{CE} = 4\text{V}$ $I_C = 3\text{A}$ (see notes 4 and 5) $V_{CE} = 4\text{V}$ $I_C = 10\text{A}$ (see notes 4 and 5)	40 20 4	100 80 20		
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 300\text{mA}$ $I_C = 3\text{A}$ (see notes 4 and 5) $I_B = 2.5\text{A}$ $I_C = 10\text{A}$ (see notes 4 and 5)			1 4	V
V_{be} Base-emitter voltage	$V_{CE} = 4\text{V}$ $I_C = 3\text{A}$ (see notes 4 and 5) $V_{CE} = 4\text{V}$ $I_C = 10\text{A}$ (see notes 4 and 5)			1.6 3	V
h_{fe} Small signal forward current transfer ratio	$V_{CE} = 10\text{V}$ $I_C = 500\text{mA}$ $f = 1 \text{ kHz}$	20			

NOTES

4. Measured in pulse mode $t_p=300\mu\text{s}$, duty cycle $<2\%$
5. To be measured using sense contacts for base and emitter.

Thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			1.56	$^{\circ}\text{C/W}$
$R_{\theta JA}$ Junction to free air thermal resistance			35.7	$^{\circ}\text{C/W}$

Resistive-load-switching characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{on} Turn-on time	$I_C = 1\text{A}$ $I_{B(on)} = 100\text{mA}$ $I_{B(off)} = -100\text{mA}$		0.3		μs
t_{off} Turn-off time	$V_{BE(off)} = -4 \text{ V}$ $R_L = 20 \text{ ohm}$ $t_p = 20 \mu\text{s}$		1		μs