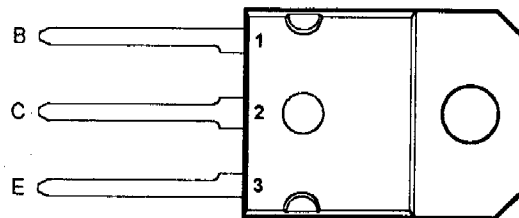


**BD545, BD545A, BD545B, BD545C
NPN SILICON POWER TRANSISTORS**

- Designed for Complementary Use with the BD546 Series
- 85 W at 25°C Case Temperature
- 15 A Continuous Collector Current
- Customer-Specified Selections Available

SOT-93 PACKAGE
(TOP VIEW)

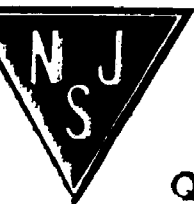


Pin 2 is in electrical contact with the mounting base.

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

RATING		SYMBOL	VALUE	UNIT
Collector-base voltage ($I_E = 0$)	BD545	V_{CBO}	40	V
	BD545A		60	
	BD545B		80	
	BD545C		100	
Collector-emitter voltage ($I_B = 0$) (see Note 1)	BD545	V_{CEO}	40	V
	BD545A		60	
	BD545B		80	
	BD545C		100	
Emitter-base voltage		V_{EBO}	5	V
Continuous collector current		I_C	15	A
Continuous device dissipation at (or below) 25°C case temperature (see Note 2)		P_{tot}	85	W
Continuous device dissipation at (or below) 25°C free air temperature (see Note 3)		P_{tot}	3.5	W
Operating free air temperature range		T_A	-65 to +150	°C
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	260	°C

- NOTES: 1. These values apply when the base-emitter diode is open circuited.
2. Derate linearly to 150°C case temperature at the rate of 0.68 W/°C.
3. Derate linearly to 150°C free air temperature at the rate of 28 mW/°C.



NJ Semi-Conductors reserves the right to change test conditions, parameters 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.

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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	BD545			40			V
	BD545A			60			
	BD545B			80			
	BD545C			100			
I_{CES} Collector-emitter cut-off current	$V_{CE} = 40\text{ V}$	$V_{BE} = 0$	BD545			0.4	mA
	$V_{CE} = 60\text{ V}$	$V_{BE} = 0$	BD545A			0.4	
	$V_{CE} = 80\text{ V}$	$V_{BE} = 0$	BD545B			0.4	
	$V_{CE} = 100\text{ V}$	$V_{BE} = 0$	BD545C			0.4	
I_{CEO} Collector cut-off current	$V_{CE} = 30\text{ V}$	$I_B = 0$	BD545/545A			0.7	mA
	$V_{CE} = 60\text{ V}$	$I_B = 0$	BD545B/545C			0.7	
I_{EBO} Emitter cut-off current	$V_{EB} = 5\text{ V}$	$I_C = 0$				1	mA
h_{FE} Forward current transfer ratio	$V_{CE} = 4\text{ V}$	$I_C = 1\text{ A}$		60			
	$V_{CE} = 4\text{ V}$	$I_C = 5\text{ A}$	(see Notes 4 and 5)	25			
	$V_{CE} = 4\text{ V}$	$I_C = 10\text{ A}$		10			
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 625\text{ mA}$	$I_C = 5\text{ A}$	(see Notes 4 and 5)			0.8	V
	$I_B = 2\text{ A}$	$I_C = 10\text{ A}$				1	
V_{BE} Base-emitter voltage	$V_{CE} = 4\text{ V}$	$I_C = 10\text{ A}$	(see Notes 4 and 5)			1.8	V
h_{fe} Small signal forward current transfer ratio	$V_{CE} = 10\text{ V}$	$I_C = 0.5\text{ A}$	$f = 1\text{ kHz}$	20			
$ h_{fe} $ Small signal forward current transfer ratio	$V_{CE} = 10\text{ V}$	$I_C = 0.5\text{ A}$	$f = 1\text{ MHz}$	3			

NOTES: 4. These parameters must be measured using pulse techniques, $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

5. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			1.47	°C/W
$R_{\theta JA}$ Junction to free air thermal resistance			35.7	°C/W

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

PARAMETER	TEST CONDITIONS †			MIN	TYP	MAX	UNIT
t_{on} Turn-on time	$I_C = 6\text{ A}$	$I_{B(on)} = 0.6\text{ A}$	$I_{B(off)} = -0.6\text{ A}$		0.6		μs
t_{off} Turn-off time	$V_{BE(off)} = -4\text{ V}$	$R_L = 5\text{ }\Omega$	$t_p = 20\text{ }\mu\text{s}$, dc $\leq 2\%$		1		μs

† Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.