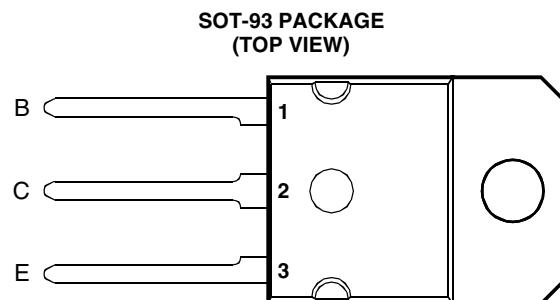


- Designed for Complementary Use with the BD546 Series
- 85 W at 25°C Case Temperature
- 15 A Continuous Collector Current
- Customer-Specified Selections Available

 This model is currently available, but not recommended for new designs. For more information, see http://bourns.com/data/global/pdfs/TSP1203_SOT93_POM.pdf.



Pin 2 is in electrical contact with the mounting base.

MDTRAAA

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.

PRODUCT INFORMATION

electrical characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS			MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$ Collector-emitter breakdown voltage	$I_C = 30 \text{ mA}$ (see Note 4)	$I_B = 0$	BD545 BD545A BD545B BD545C	40 60 80 100			V
I_{CES} Collector-emitter cut-off current	$V_{CE} = 40 \text{ V}$ $V_{CE} = 60 \text{ V}$ $V_{CE} = 80 \text{ V}$ $V_{CE} = 100 \text{ V}$	$V_{BE} = 0$ $V_{BE} = 0$ $V_{BE} = 0$ $V_{BE} = 0$	BD545 BD545A BD545B BD545C			0.4 0.4 0.4 0.4	mA
I_{CEO} Collector cut-off current	$V_{CE} = 30 \text{ V}$ $V_{CE} = 60 \text{ V}$	$I_B = 0$ $I_B = 0$	BD545/545A BD545B/545C			0.7 0.7	mA
I_{EBO} Emitter cut-off current	$V_{EB} = 5 \text{ V}$	$I_C = 0$				1	mA
h_{FE} Forward current transfer ratio	$V_{CE} = 4 \text{ V}$ $V_{CE} = 4 \text{ V}$ $V_{CE} = 4 \text{ V}$	$I_C = 1 \text{ A}$ $I_C = 5 \text{ A}$ $I_C = 10 \text{ A}$		60 25 10			
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 625 \text{ mA}$ $I_B = 2 \text{ A}$	$I_C = 5 \text{ A}$ $I_C = 10 \text{ A}$	(see Notes 4 and 5)			0.8 1	V
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_{fel} $ 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, $t_p = 300 \mu\text{s}$, 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	$V_{BE(off)} = -4 \text{ V}$	$R_L = 5 \Omega$	$t_p = 20 \mu\text{s}, dc \leq 2\%$		1		μs

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

PRODUCT INFORMATION

TYPICAL CHARACTERISTICS

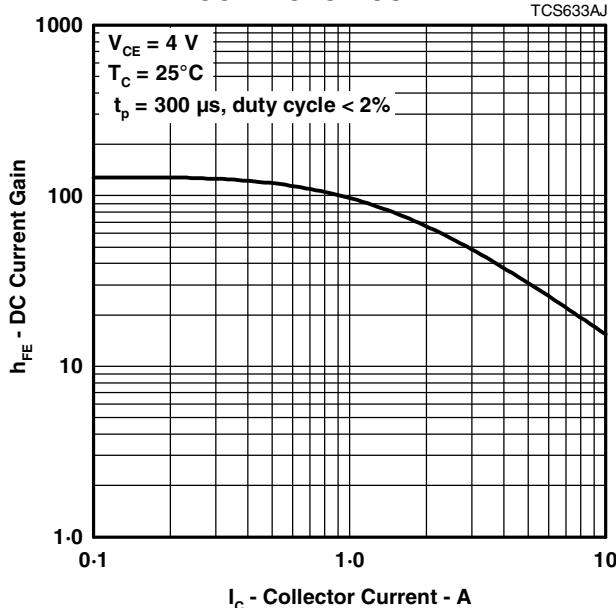
TYPICAL DC CURRENT GAIN
VS
COLLECTOR CURRENT

Figure 1.

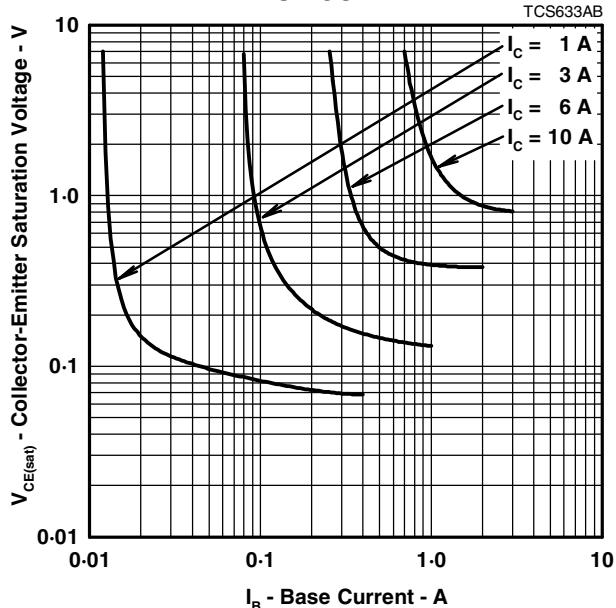
COLLECTOR-EMITTER SATURATION VOLTAGE
VS
BASE CURRENT

Figure 2.

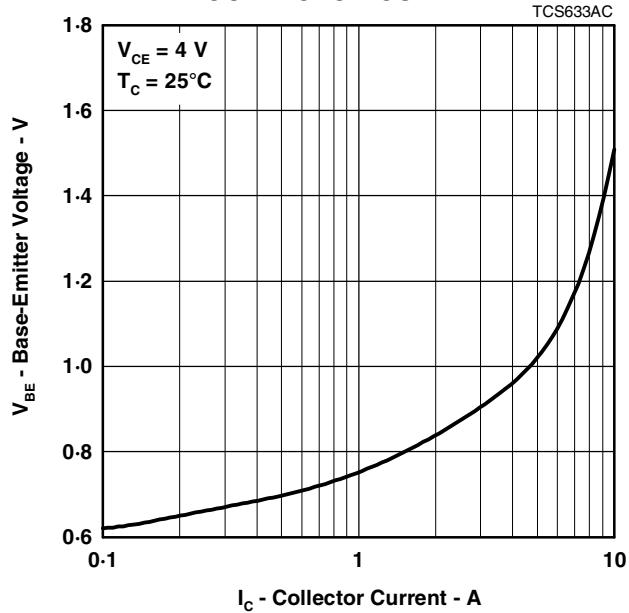
BASE-EMITTER VOLTAGE
VS
COLLECTOR CURRENT

Figure 3.

PRODUCT INFORMATION

MAXIMUM SAFE OPERATING REGIONS

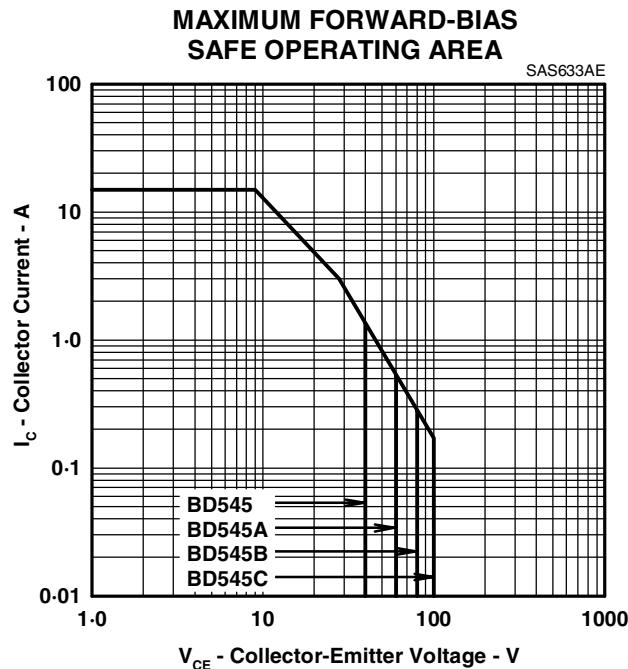


Figure 4.

THERMAL INFORMATION

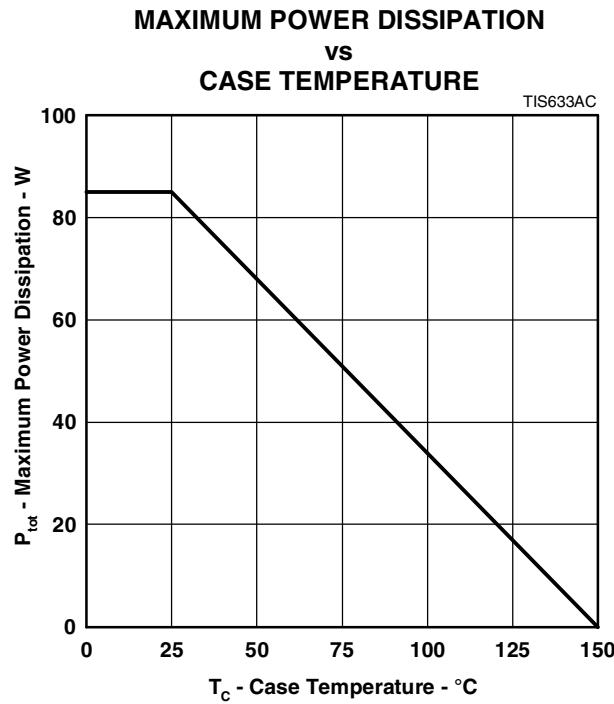


Figure 5.

PRODUCT INFORMATION

JUNE 1973 - REVISED SEPTEMBER 2002

Specifications are subject to change without notice.