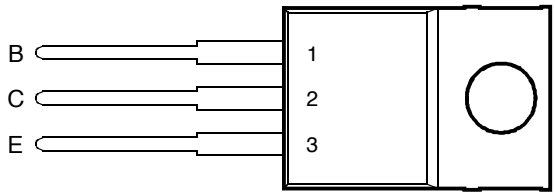
THE DATASHEET OF

BD540C

- **Designed for Complementary Use with the BD539 Series**
- **45 W at 25°C Case Temperature**
- **5 A Continuous Collector Current**
- **Customer-Specified Selections Available**

TO-220 PACKAGE
(TOP VIEW)



Pin 2 is in electrical contact with the mounting base.

MDTRACA

This series fp l_plibqb ^ka not recommended for new designs.

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

RATING		SYMBOL	VALUE	UNIT
Collector-base voltage (I_E = 0)	BD540	V_{CBO}	-40	V
	BD540A		-60	
	BD540B		-80	
	BD540C		-100	
Collector-emitter voltage (I_B = 0) (see Note 1)	BD540	V_{CEO}	-40	V
	BD540A		-60	
	BD540B		-80	
	BD540C		-100	
Emitter-base voltage		V_{EBO}	-5	V
Continuous collector current		I_C	-5	A
Continuous device dissipation at (or below) 25°C case temperature (see Note 2)		P_{tot}	45	W
Continuous device dissipation at (or below) 25°C free air temperature (see Note 3)		P_{tot}	2	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 0.36 W/°C.
3. Derate linearly to 150°C free air temperature at the rate of 16 mW/°C.

electrical characteristics at 25°C case temperature

PARAMETER		TEST CONDITIONS			MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C = -30 mA (see Note 4)	I_B = 0	BD540	-40			V
				BD540A	-60			
				BD540B	-80			
				BD540C	-100			
I_{CES}	Collector-emitter cut-off current	V_{CE} = -40 V	V_{BE} = 0	BD540			-0.2	mA
		V_{CE} = -60 V	V_{BE} = 0	BD540A			-0.2	
		V_{CE} = -80 V	V_{BE} = 0	BD540B			-0.2	
		V_{CE} = -100 V	V_{BE} = 0	BD540C			-0.2	
I_{CEO}	Collector cut-off current	V_{CE} = -30 V	I_B = 0	BD540/540A			-0.3	mA
		V_{CE} = -60 V	I_B = 0	BD540B/540C			-0.3	
I_{EBO}	Emitter cut-off current	V_{EB} = -5 V	I_C = 0				-1	mA
h_{FE}	Forward current transfer ratio	V_{CE} = -4 V	I_C = -0.5 A		40			
		V_{CE} = -4 V	I_C = -1 A	(see Notes 4 and 5)	30			
		V_{CE} = -4 V	I_C = -3 A		12			
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_B = -125 mA	I_C = - 1A				-0.25	V
		I_B = -375 mA	I_C = -3 A	(see Notes 4 and 5)			-0.8	
		I_B = -1 A	I_C = - 5A				-1.5	
V_{BE}	Base-emitter voltage	V_{CE} = -4 V	I_C = -3 A	(see Notes 4 and 5)			-1.25	V
h_{fe}	Small signal forward current transfer ratio	V_{CE} = -10 V	I_C = -0.5 A	f = 1 kHz	20			
$\|h_{fe}\|$	Small signal forward current transfer ratio	V_{CE} = -10 V	I_C = -0.5 A	f = 1 MHz	3			

NOTES: 4. These parameters must be measured using pulse techniques, t_p = 300 µs, duty cycle ≤ 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			2.78	°C/W
$R_{\theta JA}$	Junction to free air thermal resistance			62.5	°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 A	$I_{B(on)}$ = -0.1 A	$I_{B(off)}$ = 0.1 A		0.3		µs
t_{off}	Turn-off time	$V_{BE(off)}$ = 4.3 V	R_L = 30 Ω	t_p = 20 µs, dc ≤ 2%		1		µs

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

TYPICAL CHARACTERISTICS

TYPICAL DC CURRENT GAIN vs COLLECTOR CURRENT

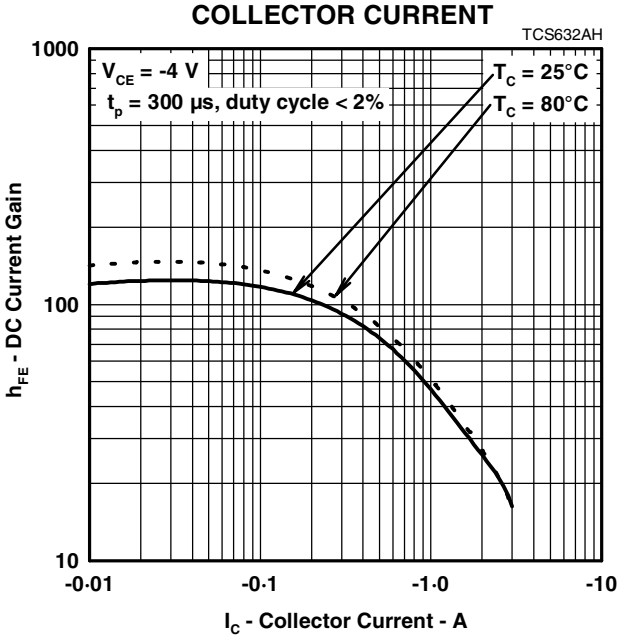


Figure 1.

COLLECTOR-EMITTER SATURATION VOLTAGE vs BASE CURRENT

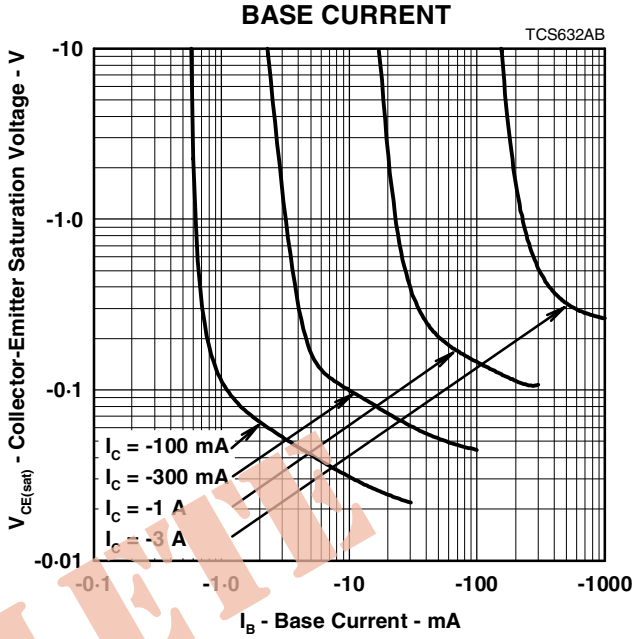


Figure 2.

BASE-EMITTER VOLTAGE vs COLLECTOR CURRENT

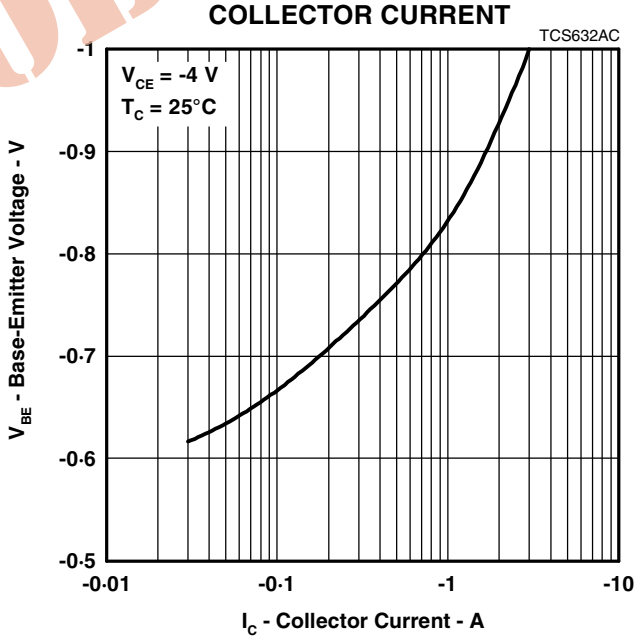


Figure 3.

MAXIMUM SAFE OPERATING REGIONS

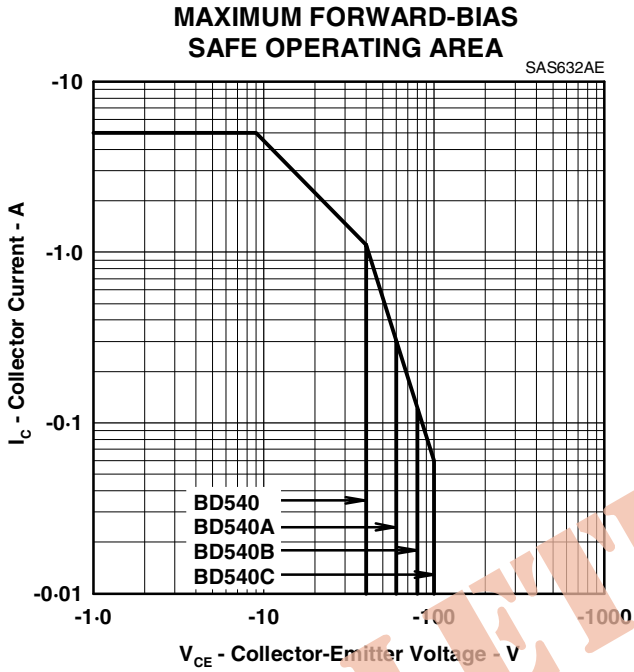


Figure 4.

THERMAL INFORMATION

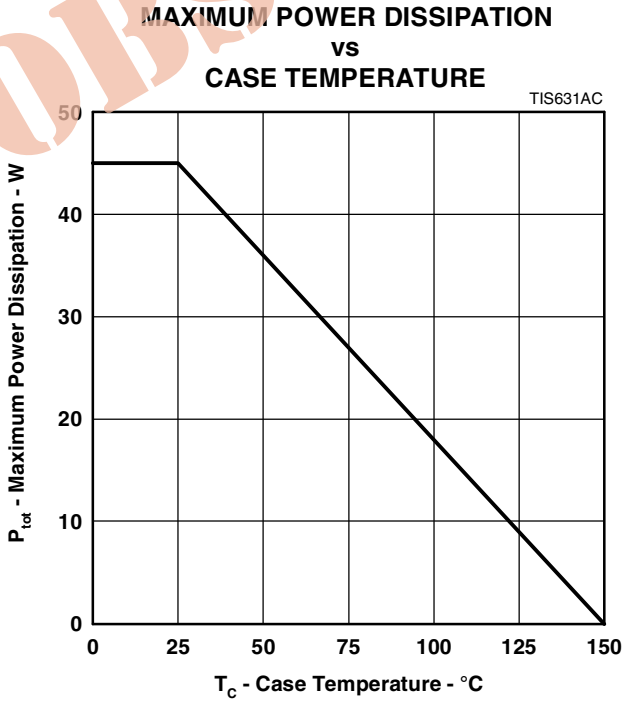


Figure 5.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View BD540C on WIN SOURCE
- Bourns Inc. Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management