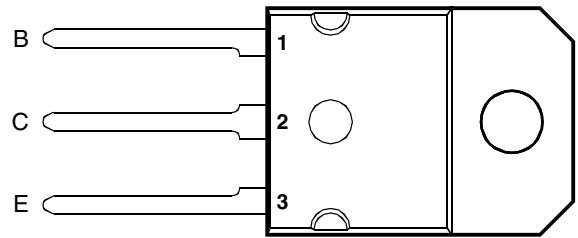


- Designed for Complementary Use with BDV64, BDV64A, BDV64B and BDV64C
- 125 W at 25°C Case Temperature
- 12 A Continuous Collector Current
- Minimum  $h_{FE}$  of 1000 at 4 V, 5 A



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](http://bourns.com/data/global/pdfs/TSP1203_SOT93_POM.pdf).

SOT-93 PACKAGE  
(TOP VIEW)



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 ( $I_E = 0$ )	BDV65	$V_{CBO}$	60	V
	BDV65A		80	
	BDV65B		100	
	BDV65C		120	
Collector-emitter voltage ( $I_B = 0$ )	BDV65	$V_{CEO}$	60	V
	BDV65A		80	
	BDV65B		100	
	BDV65C		120	
Emitter-base voltage		$V_{EBO}$	5	V
Continuous collector current		$I_C$	12	A
Peak collector current (see Note 1)		$I_{CM}$	15	A
Continuous base current		$I_B$	0.5	A
Continuous device dissipation at (or below) 25°C case temperature (see Note 2)		$P_{tot}$	125	W
Continuous device dissipation at (or below) 25°C free air temperature (see Note 3)		$P_{tot}$	3.5	W
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. This value applies for  $t_p \leq 0.1$  ms, duty cycle  $\leq 10\%$   
 2. Derate linearly to 150°C case temperature at the rate of 0.56 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 (unless otherwise noted)**

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)	BDV65 BDV65A BDV65B BDV65C	60 80 100 120		V
$I_{CEO}$ Collector-emitter cut-off current	$V_{CB} = 30 \text{ V}$ $V_{CB} = 40 \text{ V}$ $V_{CB} = 50 \text{ V}$ $V_{CB} = 60 \text{ V}$	$I_B = 0$ $I_B = 0$ $I_B = 0$ $I_B = 0$		BDV65 BDV65A BDV65B BDV65C		2 2 2 2	mA
$I_{CBO}$ Collector cut-off current	$V_{CB} = 60 \text{ V}$ $V_{CB} = 80 \text{ V}$ $V_{CB} = 100 \text{ V}$ $V_{CB} = 120 \text{ V}$ $V_{CB} = 30 \text{ V}$ $V_{CB} = 40 \text{ V}$ $V_{CB} = 50 \text{ V}$ $V_{CB} = 60 \text{ V}$	$I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$	$T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$	BDV65 BDV65A BDV65B BDV65C BDV65 BDV65A BDV65B BDV65C		0.4 0.4 0.4 0.4 2 2 2 2	mA
$I_{EBO}$ Emitter cut-off current	$V_{EB} = 5 \text{ V}$	$I_C = 0$				5	mA
$h_{FE}$ Forward current transfer ratio	$V_{CE} = 4 \text{ V}$	$I_C = 5 \text{ A}$	(see Notes 4 and 5)	1000			
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 20 \text{ mA}$	$I_C = 5 \text{ A}$	(see Notes 4 and 5)			2	V
$V_{BE}$ Base-emitter voltage	$V_{CE} = 4 \text{ V}$	$I_C = 5 \text{ A}$	(see Notes 4 and 5)			2.5	V
$V_{EC}$ Parallel diode forward voltage	$I_E = 10 \text{ A}$	$I_B = 0$	(see Notes 4 and 5)			3.5	V

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**

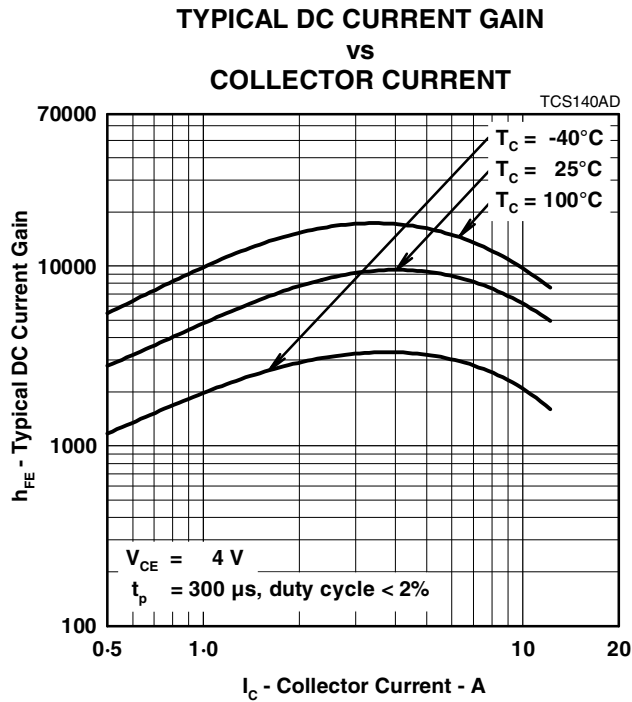
PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			1	$^\circ\text{C/W}$
$R_{\theta JA}$ Junction to free air thermal resistance			35.7	$^\circ\text{C/W}$

**PRODUCT INFORMATION**

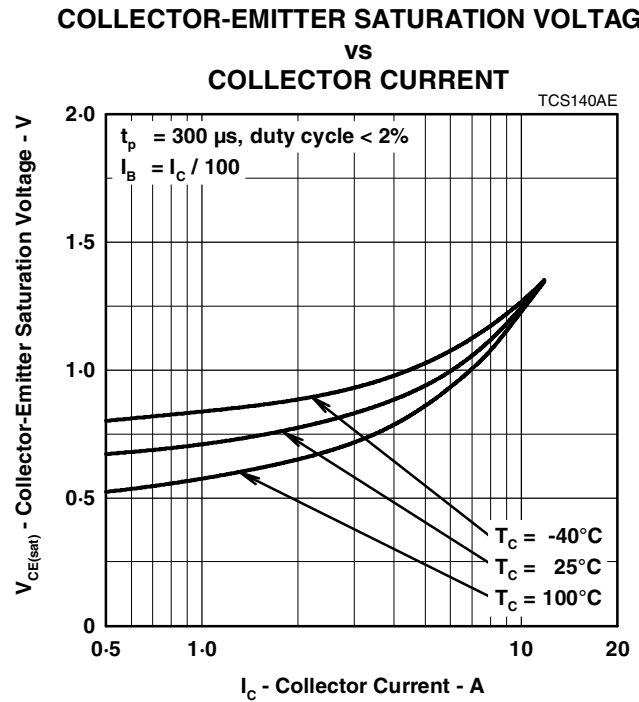
JUNE 1993 - REVISED SEPTEMBER 2002

Specifications are subject to change without notice.

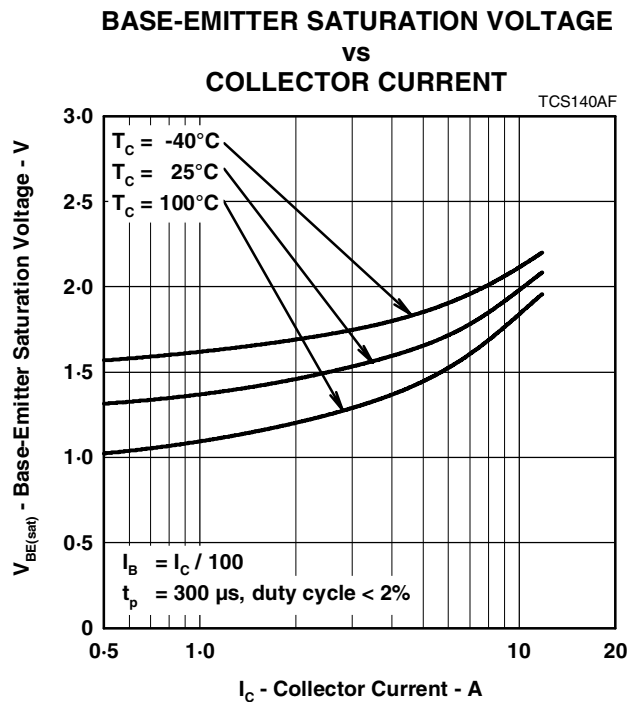
**TYPICAL CHARACTERISTICS**



**Figure 1.**



**Figure 2.**

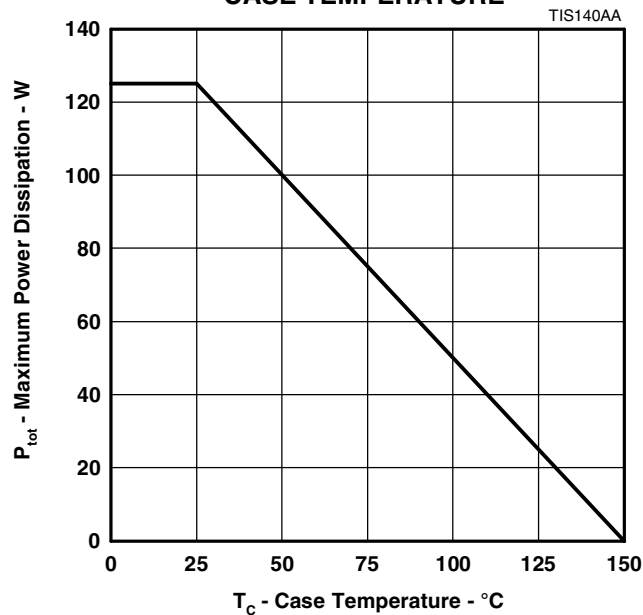


**Figure 3.**

**PRODUCT INFORMATION**

**THERMAL INFORMATION**

**MAXIMUM POWER DISSIPATION  
vs  
CASE TEMPERATURE**



**Figure 4.**

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Bourns:

[BDV65](#) [BDV65B-S](#) [BDV65B](#) [BDV65C](#) [BDV65A](#) [BDV65A-S](#) [BDV65-S](#) [BDV65C-S](#)