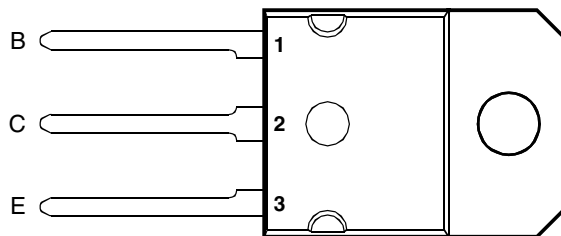




- Designed for Complementary Use with BDV64, BDV64A, BDV64B and BDV64C
- 125 W at 25°C Case Temperature
- 12 A Continuous Collector Current
- Minimum h_{FE} of 1000 at 4 V, 5 A

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	$^\circ\text{C/W}$

TYPICAL CHARACTERISTICS

**TYPICAL DC CURRENT GAIN
VS
COLLECTOR CURRENT**

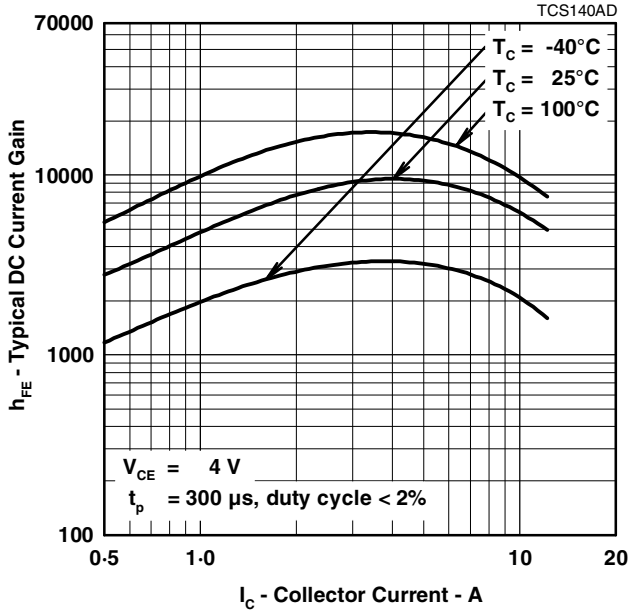


Figure 1.

**COLLECTOR-EMITTER SATURATION VOLTAGE
VS
COLLECTOR CURRENT**

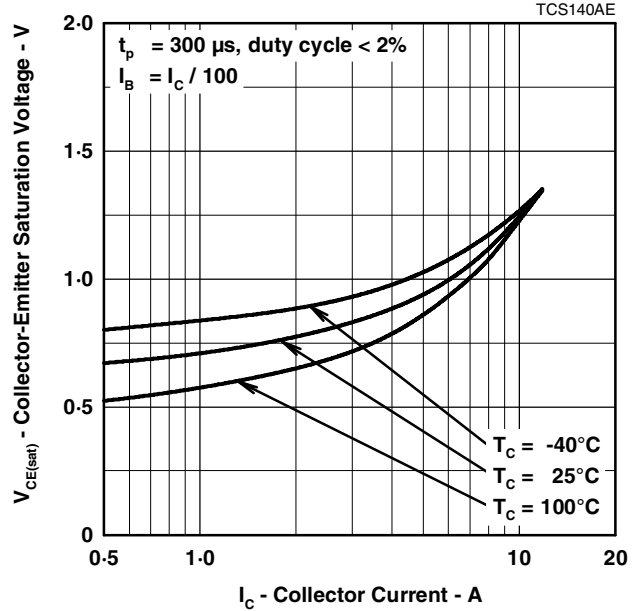


Figure 2.

**BASE-EMITTER SATURATION VOLTAGE
VS
COLLECTOR CURRENT**

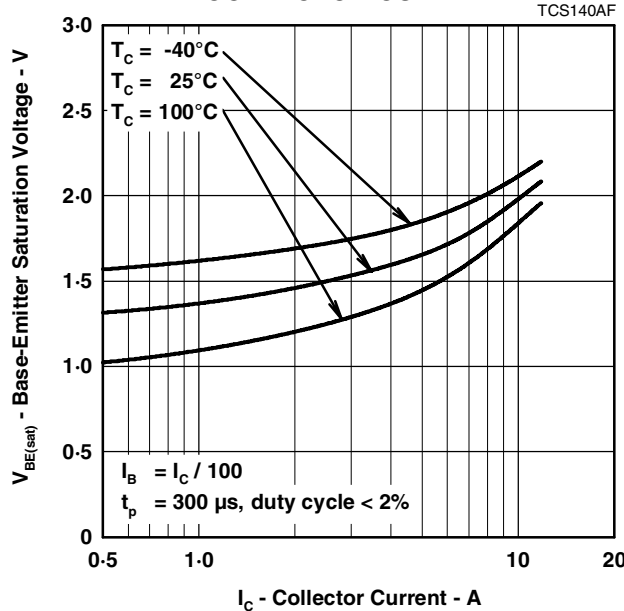


Figure 3.

PRODUCT INFORMATION

THERMAL INFORMATION

**MAXIMUM POWER DISSIPATION
vs
CASE TEMPERATURE**

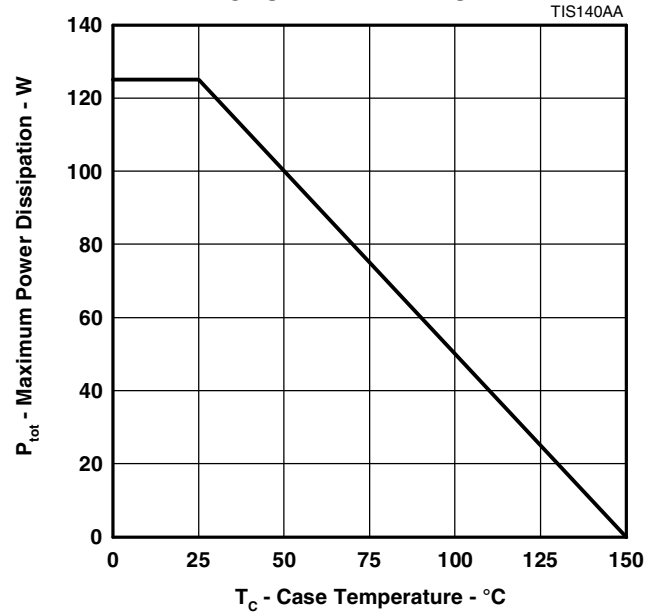


Figure 4.