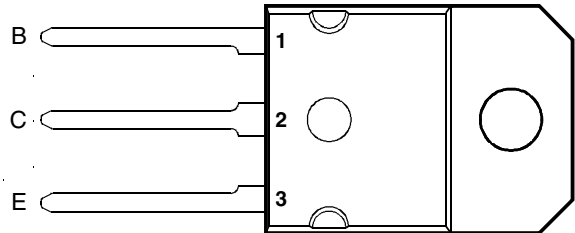




- Designed for Complementary Use with BDV65, BDV65A, BDV65B and BDV65C
- 125 W at 25°C Case Temperature
- 12 A Continuous Collector Current
- Minimum  $h_{FE}$  of 1000 at 4 V, 5 A

SOT-93 PACKAGE  
(TOP VIEW)



Pin 2 is in electrical contact with the mounting base.

MDTRAA

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

RATING		SYMBOL	VALUE	UNIT
Collector-base voltage ( $I_E = 0$ )	BDV64	$V_{CBO}$	-60	V
	BDV64A		-80	
	BDV64B		-100	
	BDV64C		-120	
Collector-emitter voltage ( $I_B = 0$ )	BDV64	$V_{CEO}$	-60	V
	BDV64A		-80	
	BDV64B		-100	
	BDV64C		-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)	BDV64 BDV64A BDV64B BDV64C	-60 -80 -100 -120		V
$I_{CEO}$ Collector-emitter cut-off current	$V_{CB} = -30 \text{ V}$ $I_B = 0$ $V_{CB} = -40 \text{ V}$ $I_B = 0$ $V_{CB} = -50 \text{ V}$ $I_B = 0$ $V_{CB} = -60 \text{ V}$ $I_B = 0$	BDV64 BDV64A BDV64B BDV64C		-2 -2 -2 -2	mA
$I_{CBO}$ Collector cut-off current	$V_{CB} = -60 \text{ V}$ $I_E = 0$ $V_{CB} = -80 \text{ V}$ $I_E = 0$ $V_{CB} = -100 \text{ V}$ $I_E = 0$ $V_{CB} = -120 \text{ V}$ $I_E = 0$ $V_{CB} = -30 \text{ V}$ $I_E = 0$ $T_C = 150^\circ\text{C}$ $V_{CB} = -40 \text{ V}$ $I_E = 0$ $T_C = 150^\circ\text{C}$ $V_{CB} = -50 \text{ V}$ $I_E = 0$ $T_C = 150^\circ\text{C}$ $V_{CB} = -60 \text{ V}$ $I_E = 0$ $T_C = 150^\circ\text{C}$	BDV64 BDV64A BDV64B BDV64C BDV64 BDV64A BDV64B BDV64C		-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	°C/W
$R_{\theta JA}$ Junction to free air thermal resistance			35.7	°C/W

TYPICAL CHARACTERISTICS

TYPICAL DC CURRENT GAIN  
VS  
COLLECTOR CURRENT

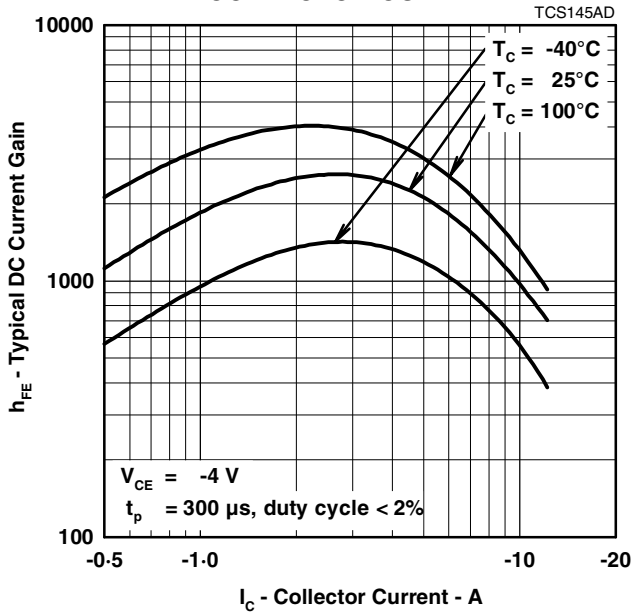


Figure 1.

COLLECTOR-EMITTER SATURATION VOLTAGE  
VS  
COLLECTOR CURRENT

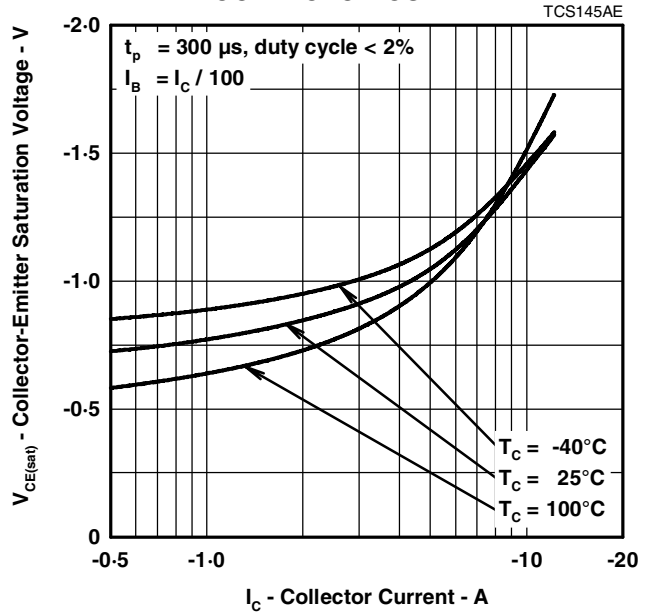


Figure 2.

BASE-EMITTER SATURATION VOLTAGE  
VS  
COLLECTOR CURRENT

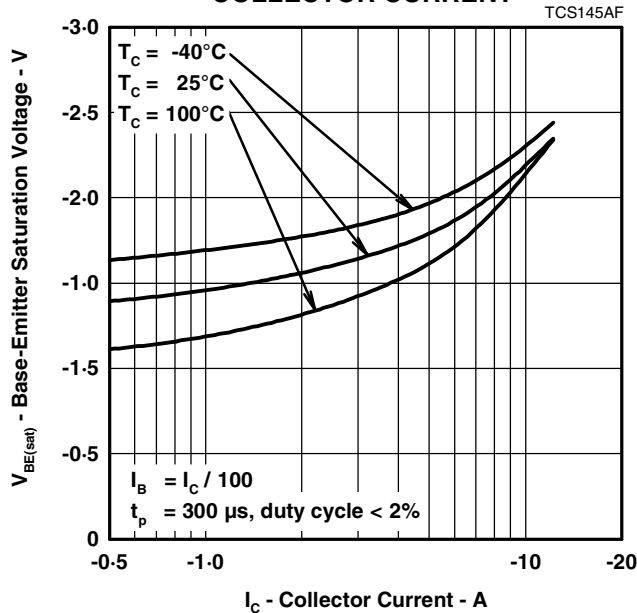
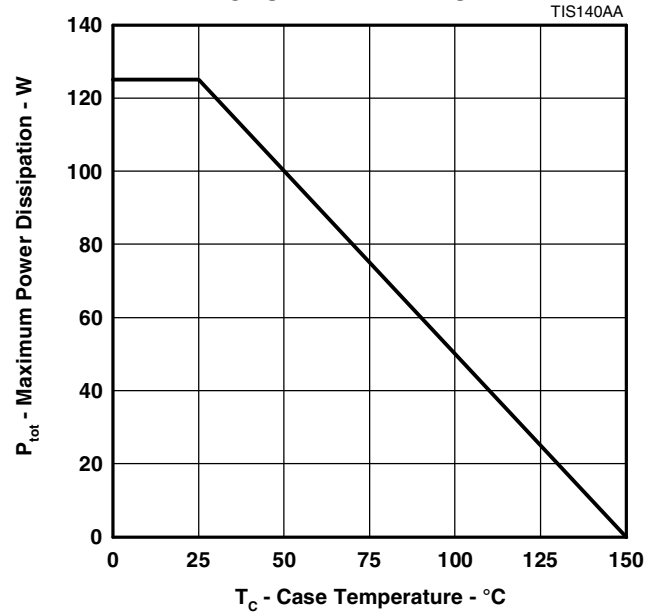


Figure 3.

**PRODUCT INFORMATION**

**THERMAL INFORMATION**

**MAXIMUM POWER DISSIPATION  
vs  
CASE TEMPERATURE**



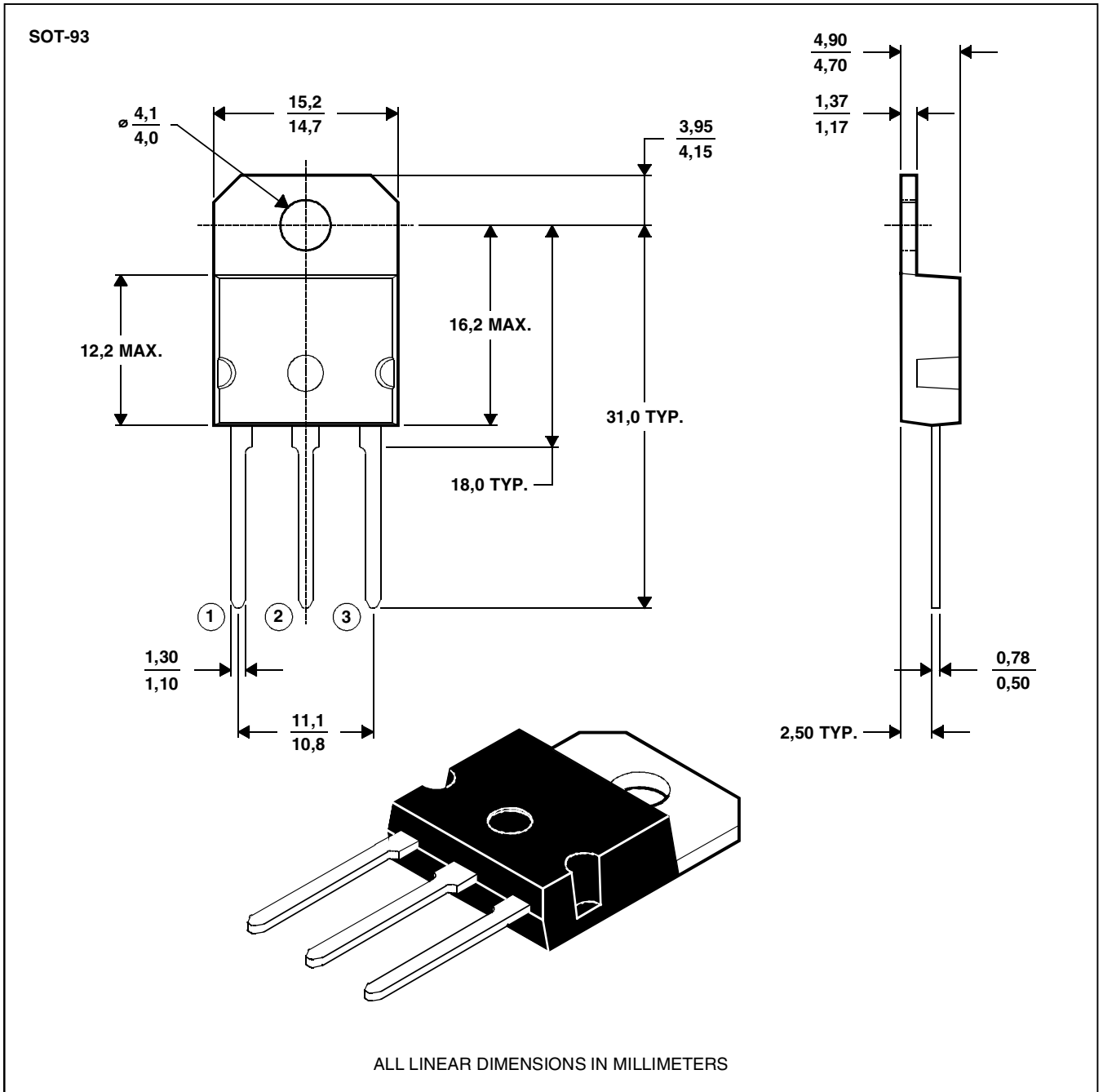
**Figure 4.**

**MECHANICAL DATA**

**SOT-93**

**3-pin plastic flange-mount package**

This single-in-line package consists of a circuit mounted on a lead frame and encapsulated within a plastic compound. The compound will withstand soldering temperature with no deformation, and circuit performance characteristics will remain stable when operated in high humidity conditions. Leads require no additional cleaning or processing when used in soldered assembly.



NOTE A: The centre pin is in electrical contact with the mounting tab.

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**PRODUCT INFORMATION**

JUNE 1993 - REVISED SEPTEMBER 2002  
Specifications are subject to change without notice.