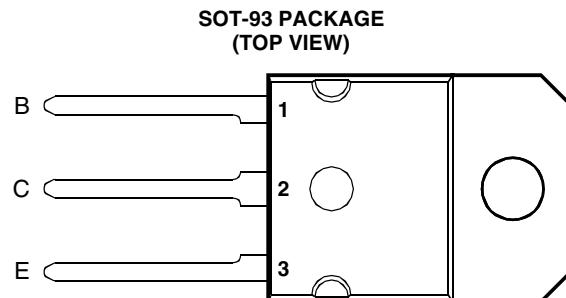


- Designed for Complementary Use with BDV64, BDV64A, BDV64B and BDV64C
- 125 W at 25°C Case Temperature
- 12 A Continuous Collector Current
- Minimum  $h_{FE}$  of 1000 at 4 V, 5 A



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 ( $I_E = 0$ )	$V_{CBO}$	60 80 100 120	V
Collector-emitter voltage ( $I_B = 0$ )	$V_{CEO}$	60 80 100 120	V
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	$V_{CB} = 30 \text{ V}$	$I_B = 0$		BDV65		2		
	$V_{CB} = 40 \text{ V}$	$I_B = 0$		BDV65A		2		
	$V_{CB} = 50 \text{ V}$	$I_B = 0$		BDV65B		2		
	$V_{CB} = 60 \text{ V}$	$I_B = 0$		BDV65C		2		
$I_{CBO}$ Collector cut-off current	$V_{CB} = 60 \text{ V}$	$I_E = 0$		BDV65		0.4		
	$V_{CB} = 80 \text{ V}$	$I_E = 0$		BDV65A		0.4		
	$V_{CB} = 100 \text{ V}$	$I_E = 0$		BDV65B		0.4		
	$V_{CB} = 120 \text{ V}$	$I_E = 0$		BDV65C		0.4		
	$V_{CB} = 30 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDV65		2		
	$V_{CB} = 40 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDV65A		2		
	$V_{CB} = 50 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDV65B		2		
	$V_{CB} = 60 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDV65C		2		
$I_{EBO}$ 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				
$V_{CE(\text{sat})}$ 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
$R_{\theta\text{JC}}$ Junction to case thermal resistance			1	°C/W
$R_{\theta\text{JA}}$ Junction to free air thermal resistance			35.7	°C/W

**PRODUCT INFORMATION**

TYPICAL CHARACTERISTICS

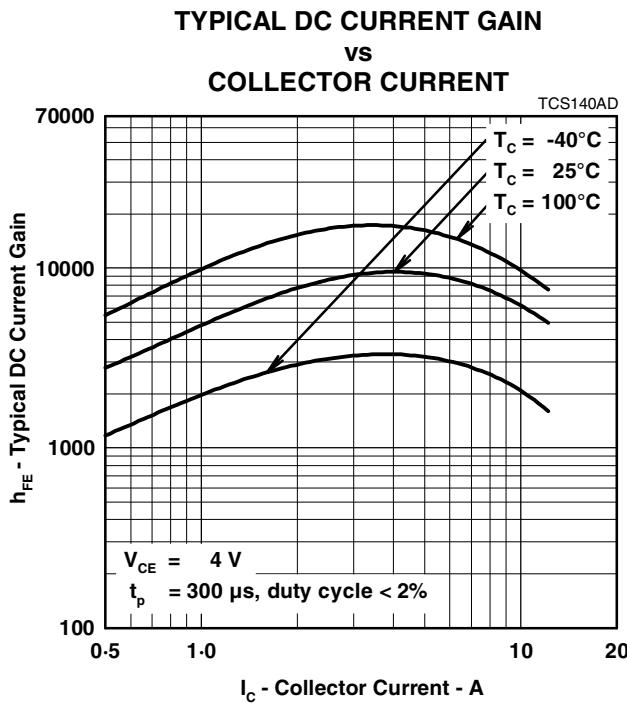


Figure 1.

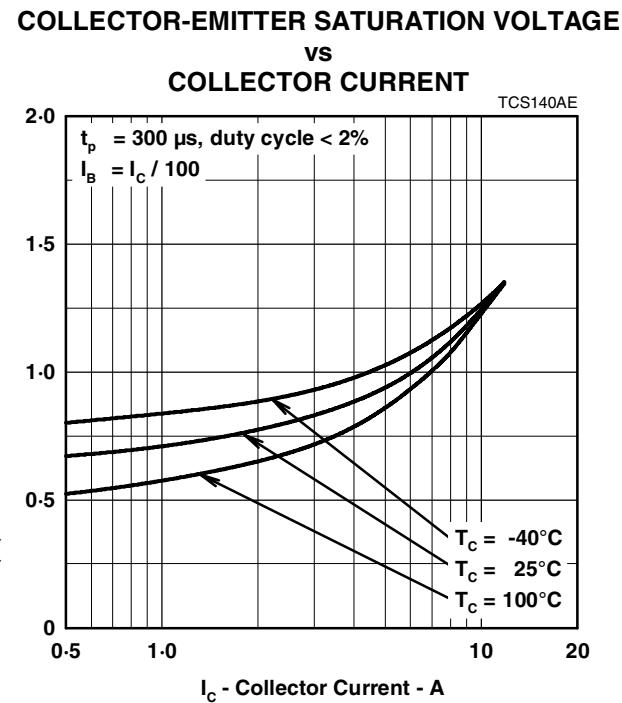


Figure 2.

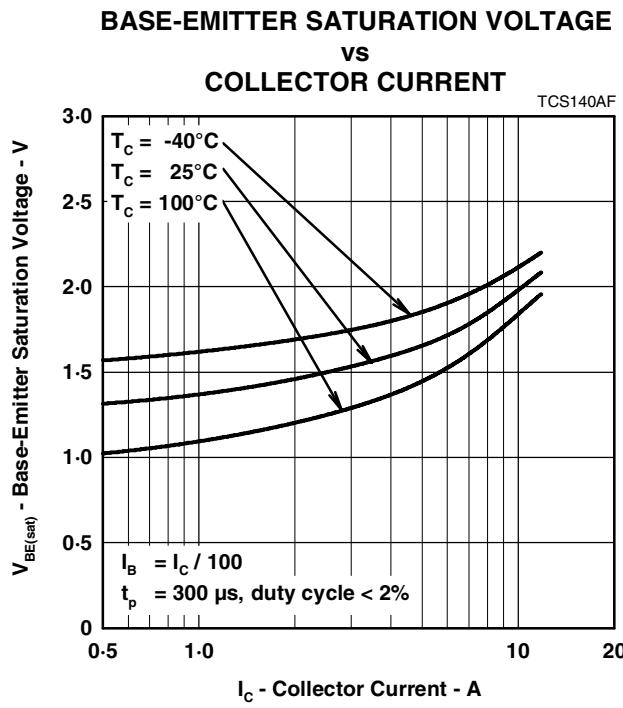


Figure 3.

**PRODUCT INFORMATION**

## THERMAL INFORMATION

### MAXIMUM POWER DISSIPATION vs CASE TEMPERATURE

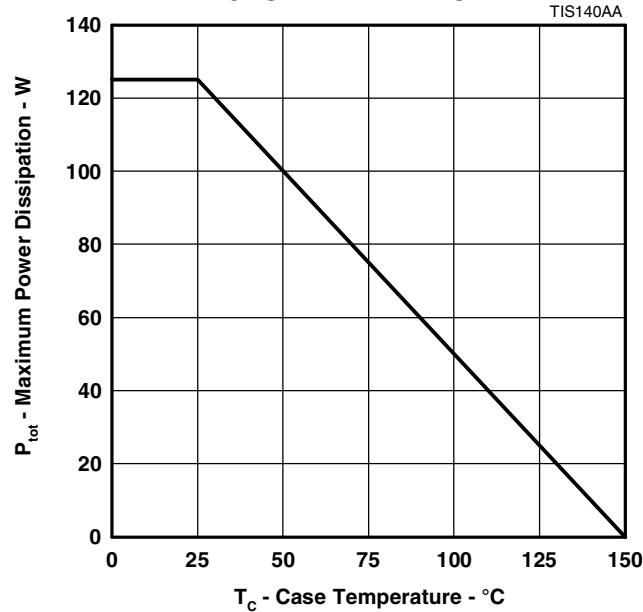


Figure 4.

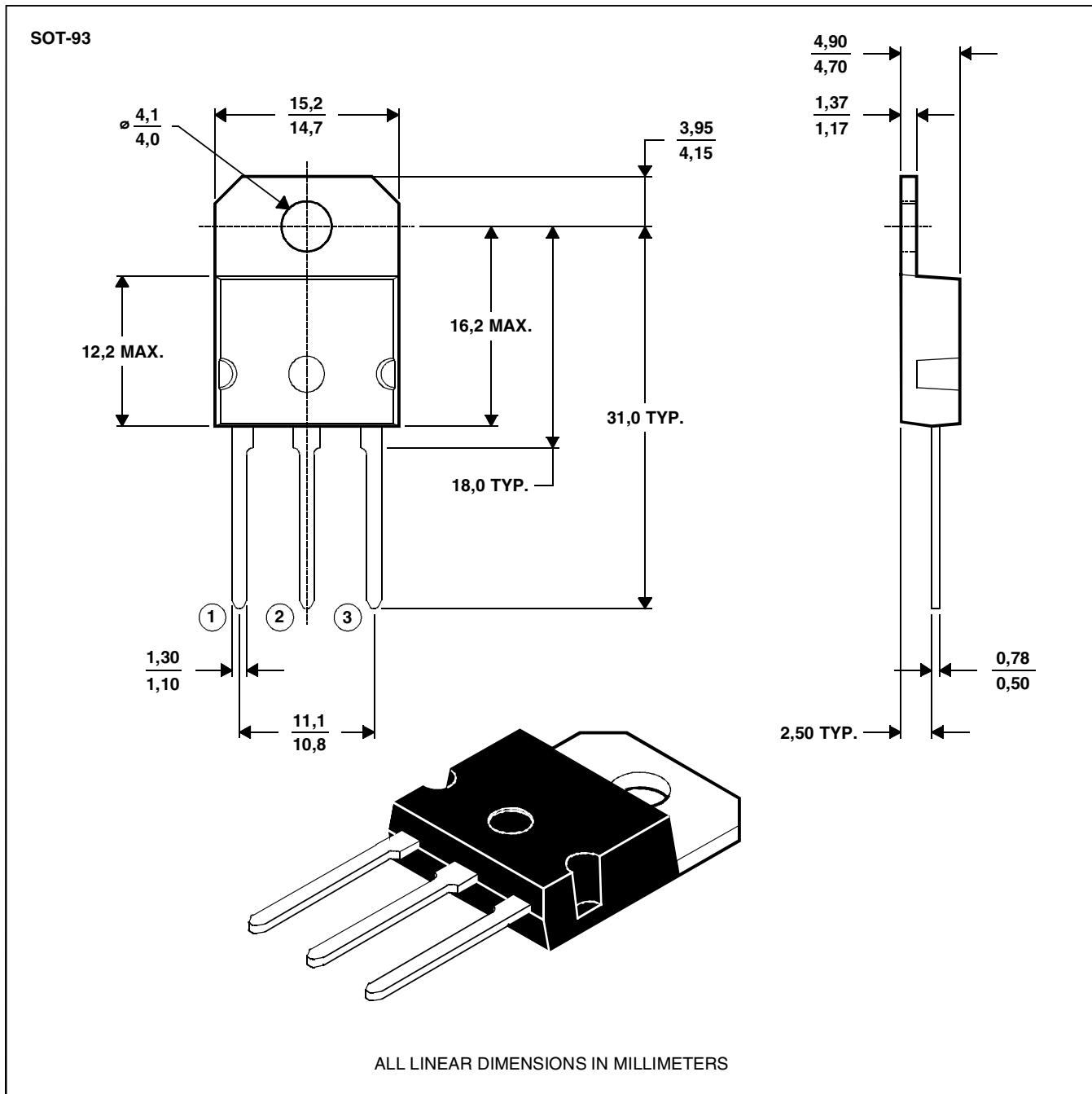
## PRODUCT INFORMATION

## 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.

MDXXAW

## PRODUCT INFORMATION

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