

BDW84, BDW84A, BDW84B, BDW84C, BDW84D

PNP SILICON POWER DARLINGTONS

BOURNS®

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 5)	BDW84 BDW84A BDW84B BDW84C BDW84D	-45 -60 -80 -100 -120		V
I_{CEO} Collector-emitter cut-off current	$V_{CE} = -30 \text{ V}$ $V_{CE} = -30 \text{ V}$ $V_{CE} = -40 \text{ V}$ $V_{CE} = -50 \text{ V}$ $V_{CE} = -60 \text{ V}$	$I_B = 0$ $I_B = 0$ $I_B = 0$ $I_B = 0$ $I_B = 0$		BDW84 BDW84A BDW84B BDW84C BDW84D		-1 -1 -1 -1 -1	mA
I_{CBO} Collector cut-off current	$V_{CB} = -45 \text{ V}$ $V_{CB} = -60 \text{ V}$ $V_{CB} = -80 \text{ V}$ $V_{CB} = -100 \text{ V}$ $V_{CB} = -120 \text{ V}$ $V_{CB} = -45 \text{ V}$ $V_{CB} = -60 \text{ V}$ $V_{CB} = -80 \text{ V}$ $V_{CB} = -100 \text{ V}$ $V_{CB} = -120 \text{ V}$	$I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$ $I_E = 0$	$T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$ $T_C = 150^\circ\text{C}$	BDW84 BDW84A BDW84B BDW84C BDW84D BDW84 BDW84A BDW84B BDW84C BDW84D		-0.5 -0.5 -0.5 -0.5 -0.5 -5 -5 -5 -5 -5	mA
I_{EBO} Emitter cut-off current	$V_{EB} = -5 \text{ V}$	$I_C = 0$				-2	mA
h_{FE} Forward current transfer ratio	$V_{CE} = -3 \text{ V}$ $V_{CE} = -3 \text{ V}$	$I_C = -6 \text{ A}$ $I_C = -15 \text{ A}$	(see Notes 5 and 6)	750 100		20000	
$V_{BE(on)}$ Base-emitter voltage	$V_{CE} = -3 \text{ V}$	$I_C = -6 \text{ A}$	(see Notes 5 and 6)			-2.5	V
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = -12 \text{ mA}$ $I_B = -150 \text{ mA}$	$I_C = -6 \text{ A}$ $I_C = -15 \text{ A}$	(see Notes 5 and 6)			-2.5 -4	V
V_{EC} Parallel diode forward voltage	$I_E = -15 \text{ A}$	$I_B = 0$				-3.5	V

NOTES: 5. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

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

resistive-load-switching characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS [†]			MIN	TYP	MAX	UNIT
t_{on} Turn-on time	$I_C = -10 \text{ A}$	$I_{B(on)} = -40 \text{ mA}$	$I_{B(off)} = 40 \text{ mA}$		0.9		μs
t_{off} Turn-off time	$V_{BE(off)} = 4.2 \text{ V}$	$R_L = 3 \Omega$	$t_p = 20 \mu\text{s}$, dc $\leq 2\%$		7		μs

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

PRODUCT INFORMATION

AUGUST 1978 - REVISED JUNE 2011

Specifications are subject to change without notice.

TYPICAL CHARACTERISTICS

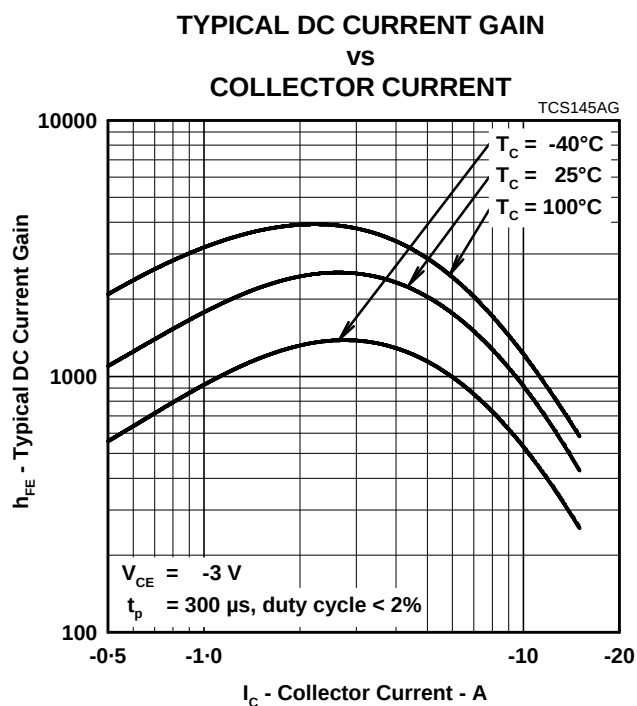


Figure 1.

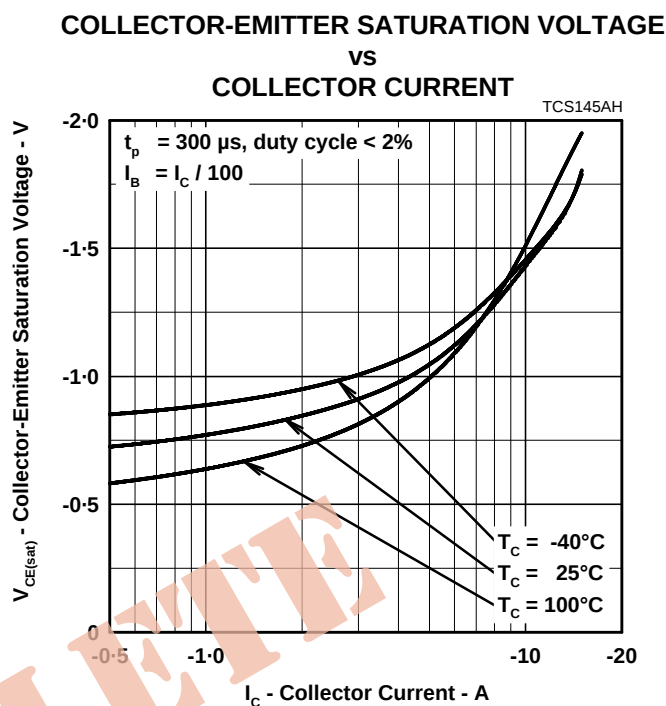


Figure 2.

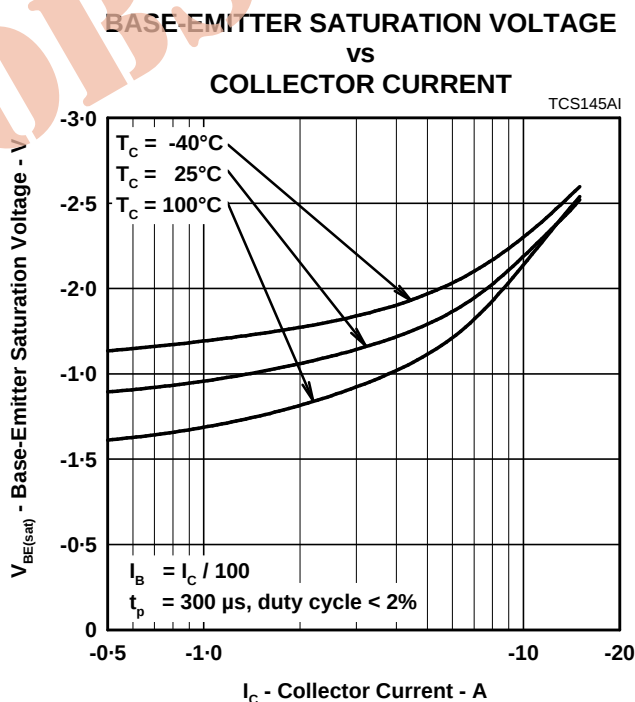


Figure 3.

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MAXIMUM SAFE OPERATING REGIONS

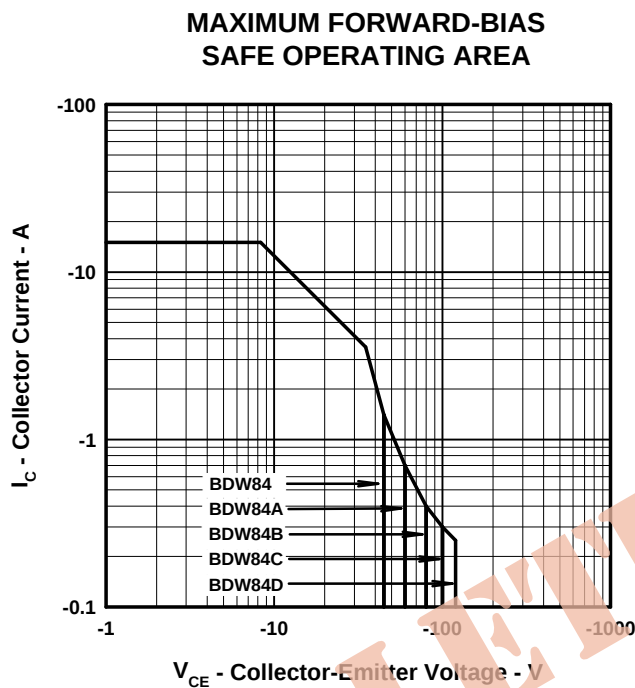


Figure 4.

THERMAL INFORMATION

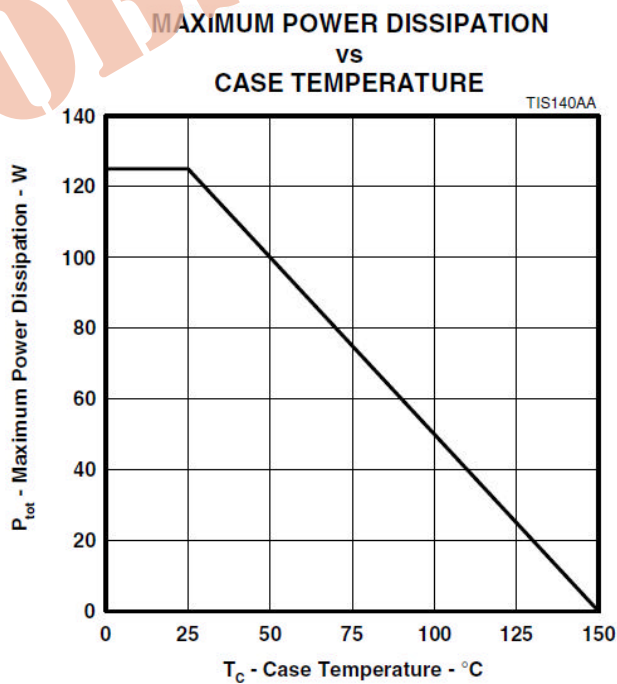


Figure 5.

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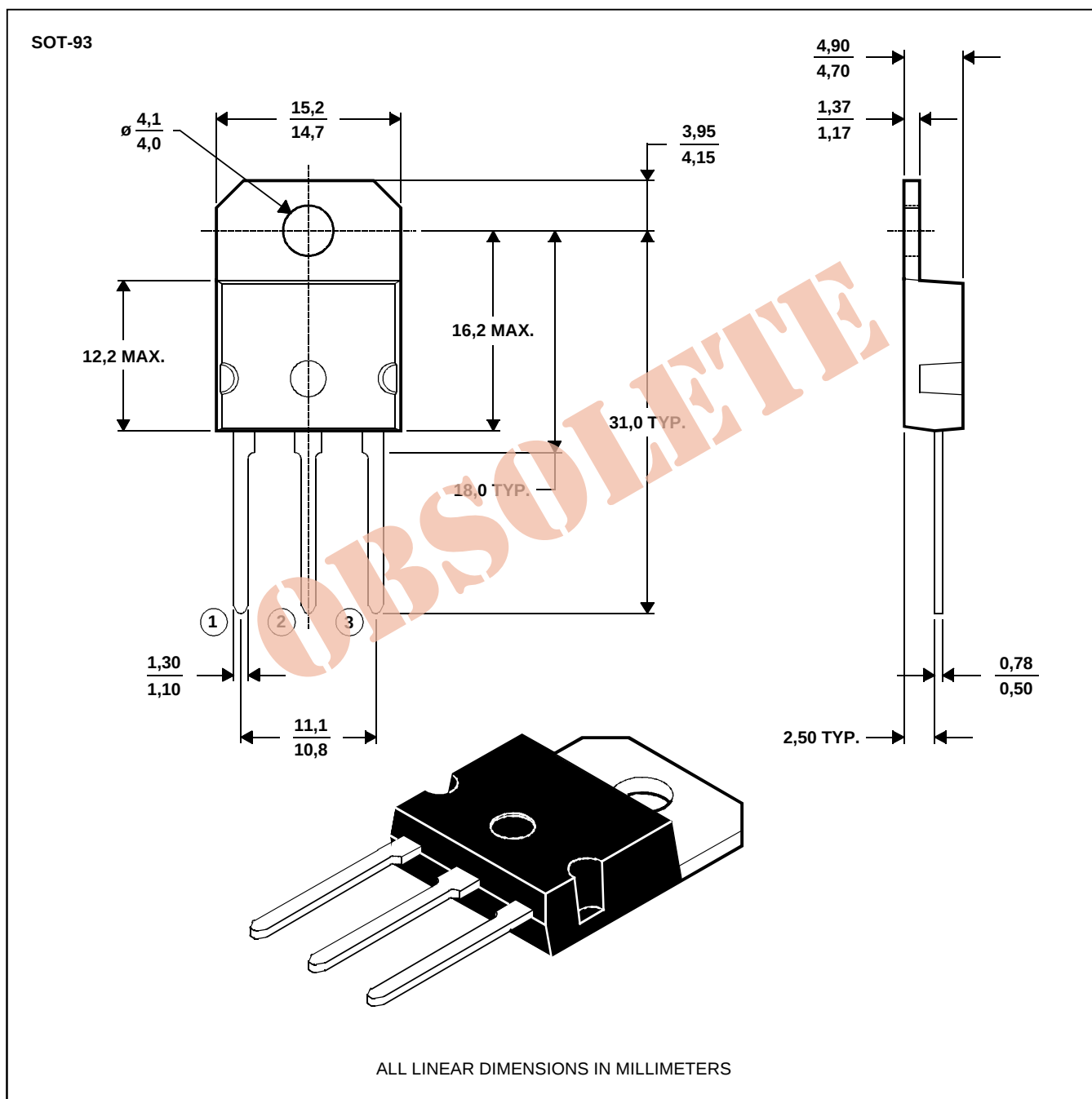
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MECHANICAL DATA

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

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