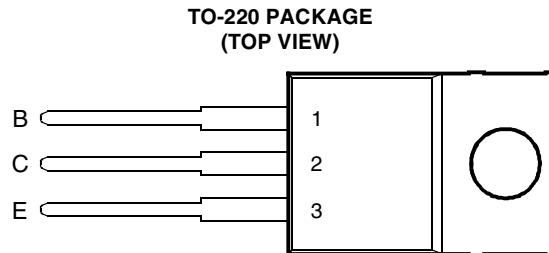


- Designed for Complementary Use with BDW94, BDW94A, BDW94B and BDW94C
- 80 W at 25°C Case Temperature
- 12 A Continuous Collector Current
- Minimum h_{FE} of 750 at 3V, 5 A



Pin 2 is in electrical contact with the mounting base.

MDTRACA

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

RATING	SYMBOL	VALUE	UNIT
Collector-base voltage ($I_E = 0$)	V_{CBO}	BDW93	45
		BDW93A	60
		BDW93B	80
		BDW93C	100
Collector-emitter voltage ($I_B = 0$)	V_{CEO}	BDW93	45
		BDW93A	60
		BDW93B	80
		BDW93C	100
Emitter-base voltage	V_{EBO}	5	V
Continuous collector current	I_C	12	A
Continuous base current	I_B	0.3	A
Continuous device dissipation at (or below) 25°C case temperature (see Note 1)	P_{tot}	80	W
Continuous device dissipation at (or below) 25°C free air temperature (see Note 2)	P_{tot}	2	W
Operating junction temperature range	T_j	-65 to +150	°C
Storage temperature range	T_{stg}	-65 to +150	°C
Operating free-air temperature range	T_A	-65 to +150	°C

NOTES: 1. Derate linearly to 150°C case temperature at the rate of 0.64 W/°C.
2. Derate linearly to 150°C free air temperature at the rate of 16 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	$I_C = 100 \text{ mA}$	$I_B = 0$	(see Note 3)	BDW93 BDW93A BDW93B BDW93C	45 60 80 100		V
I_{CEO}	Collector-emitter cut-off current	$V_{CB} = 40 \text{ V}$	$I_B = 0$		BDW93		1	
		$V_{CB} = 60 \text{ V}$	$I_B = 0$		BDW93A		1	
		$V_{CB} = 80 \text{ V}$	$I_B = 0$		BDW93B		1	
		$V_{CB} = 80 \text{ V}$	$I_B = 0$		BDW93C		1	
I_{CBO}	Collector cut-off current	$V_{CB} = 45 \text{ V}$	$I_E = 0$		BDW93		0.1	
		$V_{CB} = 60 \text{ V}$	$I_E = 0$		BDW93A		0.1	
		$V_{CB} = 80 \text{ V}$	$I_E = 0$		BDW93B		0.1	
		$V_{CB} = 100 \text{ V}$	$I_E = 0$		BDW93C		0.1	
		$V_{CB} = 45 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDW93		5	
		$V_{CB} = 60 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDW93A		5	
		$V_{CB} = 80 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDW93B		5	
		$V_{CB} = 100 \text{ V}$	$I_E = 0$	$T_C = 150^\circ\text{C}$	BDW93C		5	
I_{EBO}	Emitter cut-off current	$V_{EB} = 5 \text{ V}$	$I_C = 0$				2	mA
h_{FE}	Forward current transfer ratio	$V_{CE} = 3 \text{ V}$	$I_C = 3 \text{ A}$		1000			
		$V_{CE} = 3 \text{ V}$	$I_C = 10 \text{ A}$	(see Notes 3 and 4)	100			
		$V_{CE} = 3 \text{ V}$	$I_C = 5 \text{ A}$		750		20000	
$V_{CE(\text{sat})}$	Collector-emitter saturation voltage	$I_B = 20 \text{ mA}$	$I_C = 5 \text{ A}$	(see Notes 3 and 4)			2	V
		$I_B = 100 \text{ mA}$	$I_C = 10 \text{ A}$				3	
$V_{BE(\text{sat})}$	Base-emitter saturation voltage	$I_B = 20 \text{ mA}$	$I_C = 5 \text{ A}$	(see Notes 3 and 4)			2.5	V
		$I_B = 100 \text{ mA}$	$I_C = 10 \text{ A}$				4	
V_{EC}	Parallel diode forward voltage	$I_E = 5 \text{ A}$	$I_B = 0$				2	V
		$I_E = 10 \text{ A}$	$I_B = 0$				4	

NOTES: 3. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

4. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$			1.56	°C/W
$R_{\theta JA}$			62.5	°C/W

PRODUCT INFORMATION

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

TYPICAL CHARACTERISTICS

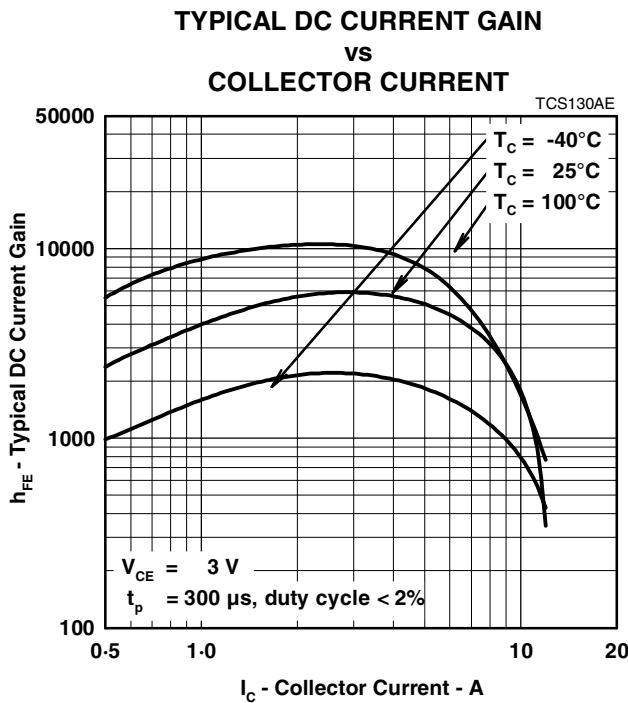


Figure 1.

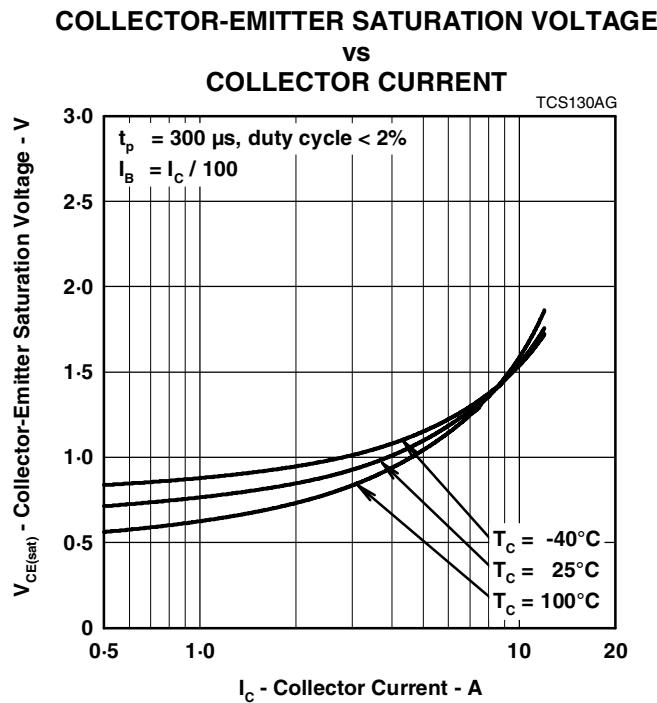


Figure 2.

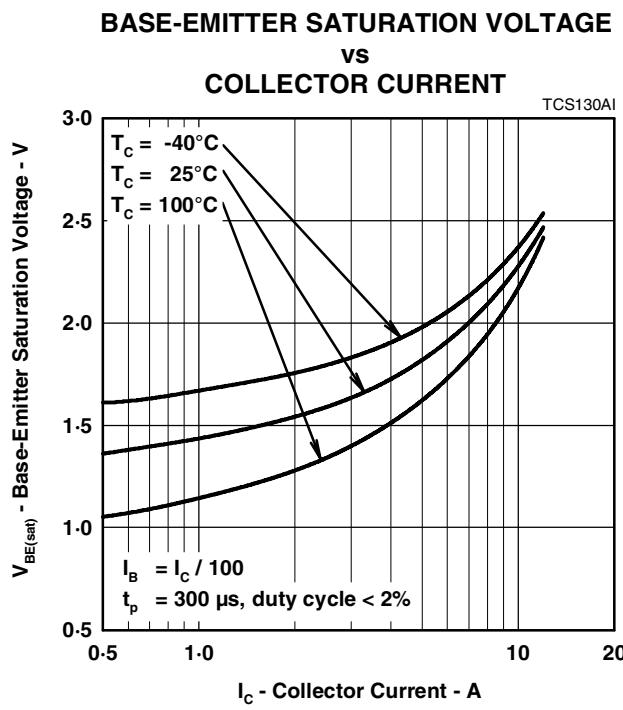


Figure 3.

PRODUCT INFORMATION

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

THERMAL INFORMATION

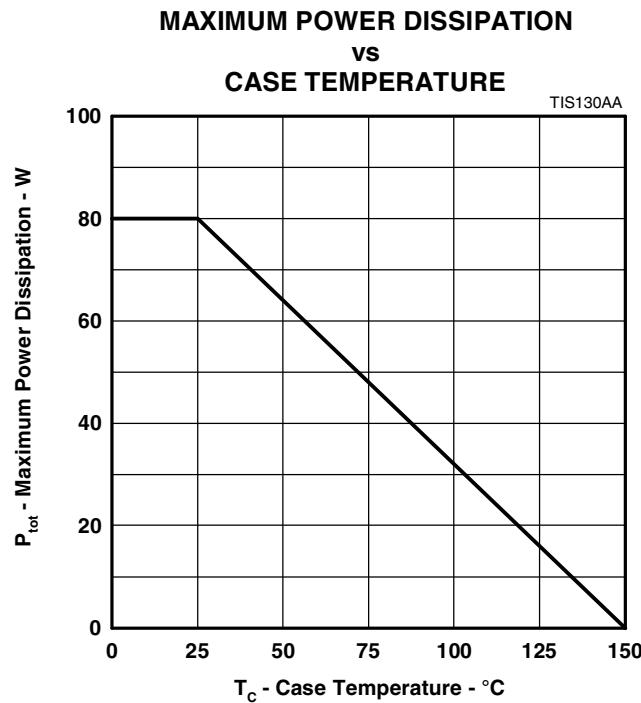


Figure 4.

PRODUCT INFORMATION

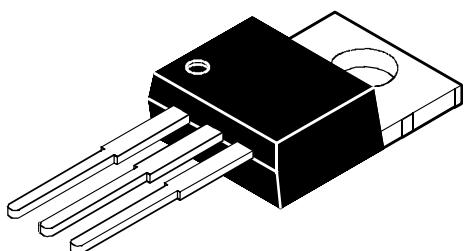
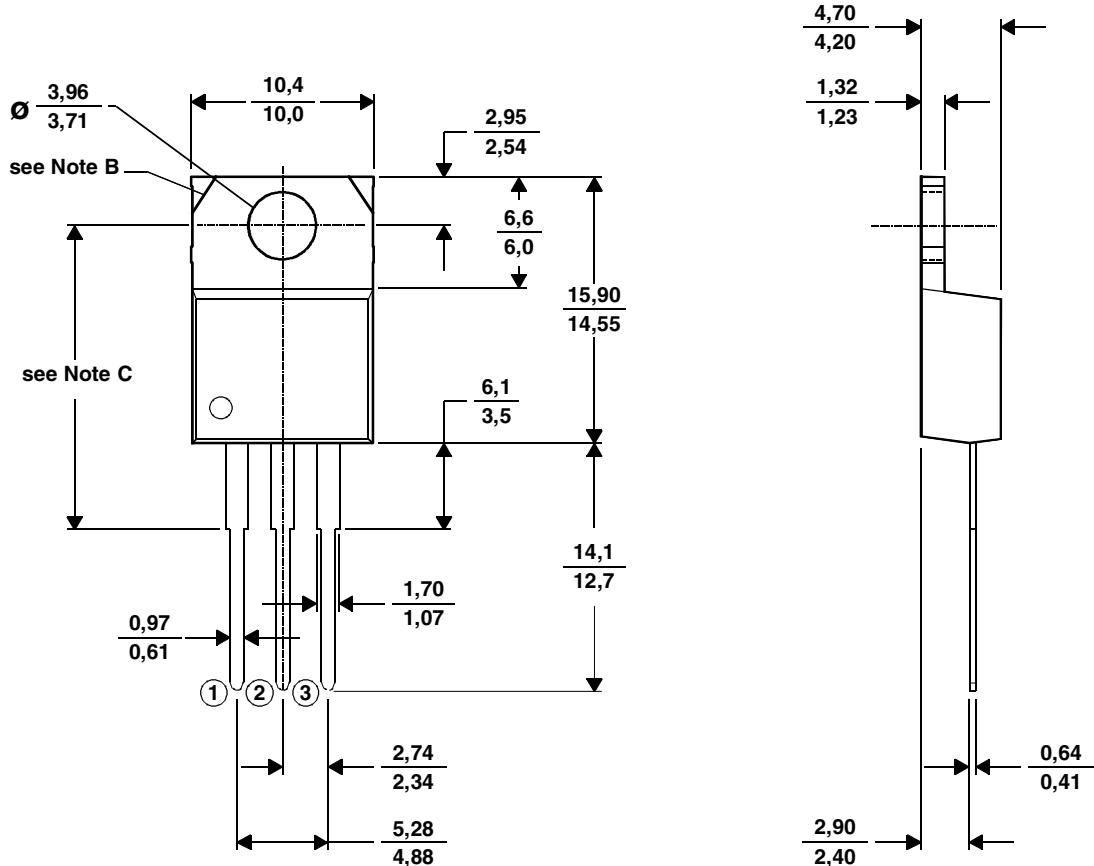
MECHANICAL DATA

TO-220

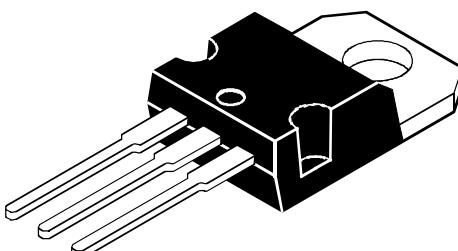
3-pin plastic flange-mount package

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.

TO220



VERSION 1



VERSION 2

ALL LINEAR DIMENSIONS IN MILLIMETERS

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

MDXXB

B. Mounting tab corner profile according to package version.

C. Typical fixing hole centre stand off height according to package version.

Version 1, 18.0 mm. Version 2, 17.6 mm.

PRODUCT INFORMATION