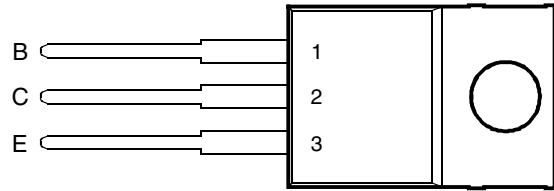




- Designed for Complementary Use with BD896, BD898, BD900 and BD902
- 70 W at 25°C Case Temperature
- 8 A Continuous Collector Current
- Minimum h_{FE} of 750 at 3V, 3A

TO-220 PACKAGE
(TOP VIEW)



This series is obsolete and not recommended for new designs.

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 ($I_E = 0$)	BD895	V_{CBO}	45	V
	BD897		60	
	BD899		80	
	BD901		100	
Collector-emitter voltage ($I_B = 0$)	BD895	V_{CEO}	45	V
	BD897		60	
	BD899		80	
	BD901		100	
Base-emitter voltage		V_{EBO}	5	V
Continuous collector current		I_C	8	A
Continuous base current		I_B	0.3	A
Continuous device dissipation at (or below) 25°C case temperature (see Note 1)		P_{tot}	70	W
Continuous device dissipation at (or below) 25°C free air temperature (see Note 2)		P_{tot}	2	W
Operating free-air temperature range		T_A	-65 to +150	°C
Operating junction temperature range		T_j	-65 to +150	°C
Storage temperature range		T_{stg}	-65 to +150	°C

NOTES: 1. Derate linearly to 150°C case temperature at the rate of 0.56 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)	BD895	45		V	
				BD897	60			
				BD899	80			
				BD901	100			
I_{CEO} Collector-emitter cut-off current	$V_{CE} = 30 \text{ V}$	$I_B = 0$		BD895		0.5	mA	
				BD897		0.5		
				BD899		0.5		
				BD901		0.5		
I_{CBO} Collector cut-off current	$V_{CB} = 45 \text{ V}$	$I_E = 0$		BD895		0.2	mA	
				BD897		0.2		
				BD899		0.2		
				BD901		0.2		
	$V_{CB} = 60 \text{ V}$	$I_E = 0$			BD895			2
					BD897			2
					BD899			2
					BD901			2
$V_{CB} = 80 \text{ V}$	$I_E = 0$			BD895		2		
				BD897		2		
				BD899		2		
				BD901		2		
$V_{CB} = 100 \text{ V}$	$I_E = 0$			BD895		2		
				BD897		2		
				BD899		2		
				BD901		2		
I_{EBO} Emitter cut-off current	$V_{EB} = 5 \text{ V}$	$I_C = 0$	(see Notes 3 and 4)			2	mA	
h_{FE} Forward current transfer ratio	$V_{CE} = 3 \text{ V}$	$I_C = 3 \text{ A}$	(see Notes 3 and 4)	750				
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 12 \text{ mA}$	$I_C = 3 \text{ A}$	(see Notes 3 and 4)			2.5	V	
$V_{BE(on)}$ Base-emitter voltage	$V_{CE} = 3 \text{ V}$	$I_C = 3 \text{ A}$	(see Notes 3 and 4)			2.5	V	
V_F Parallel diode forward voltage	$I_F = 8 \text{ A}$					3.5	V	

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
$R_{\theta JC}$ Junction to case thermal resistance			1.79	°C/W
$R_{\theta JA}$ Junction to free air thermal resistance			62.5	°C/W

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

PARAMETER	TEST CONDITIONS †			MIN	TYP	MAX	UNIT
t_{on} Turn-on time	$I_C = 3 \text{ A}$	$I_{B(on)} = 12 \text{ mA}$	$I_{B(off)} = -12 \text{ mA}$		1		μs
t_{off} Turn-off time				$V_{BE(off)} = -3.5 \text{ V}$	$R_L = 10 \Omega$		5

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

TYPICAL CHARACTERISTICS

**TYPICAL DC CURRENT GAIN
VS
COLLECTOR CURRENT**

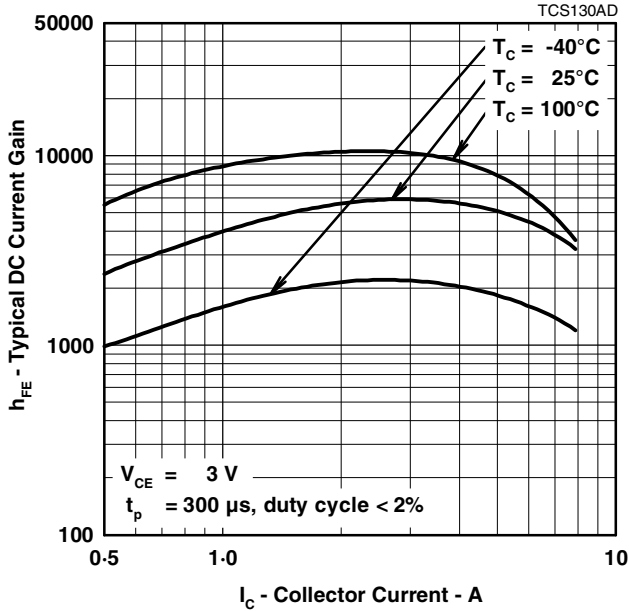


Figure 1.

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

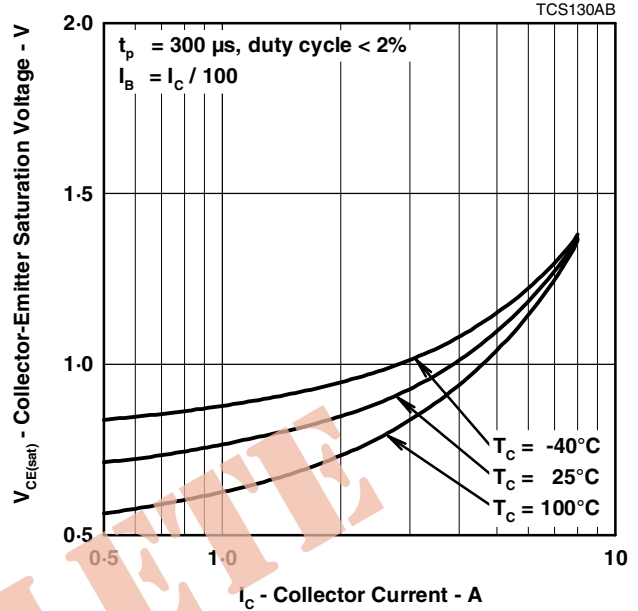


Figure 2.

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

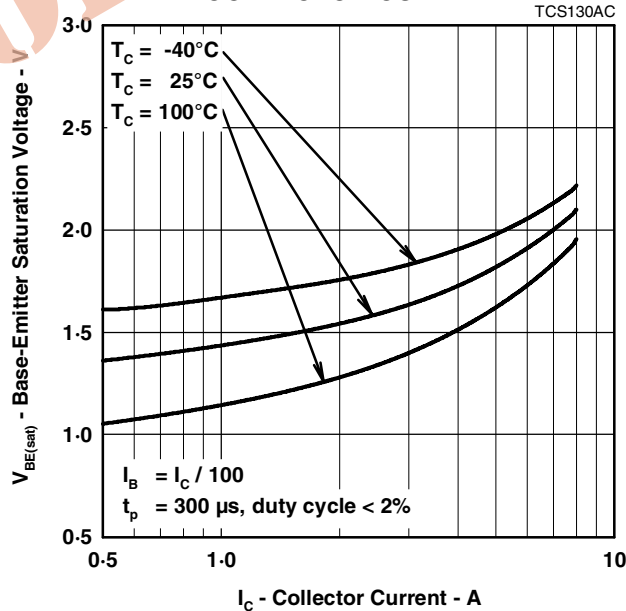


Figure 3.

PRODUCT INFORMATION

MAXIMUM SAFE OPERATING REGIONS

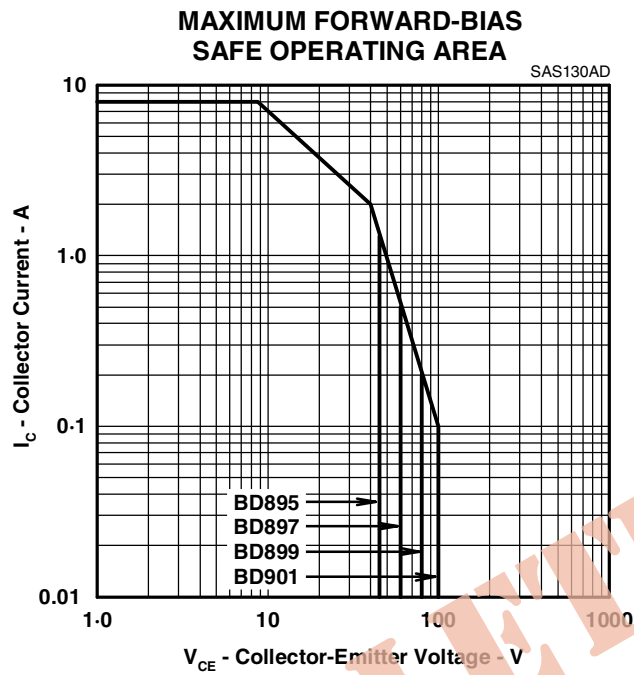


Figure 4.

THERMAL INFORMATION

**MAXIMUM POWER DISSIPATION
vs
CASE TEMPERATURE**

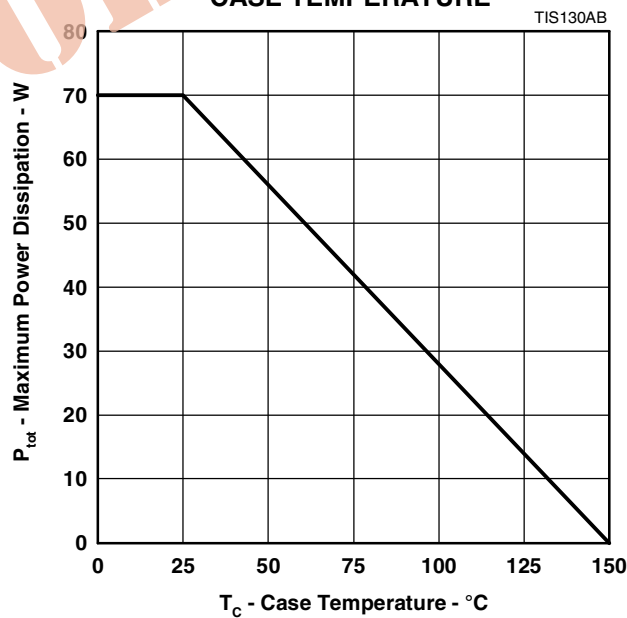


Figure 5.

PRODUCT INFORMATION

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