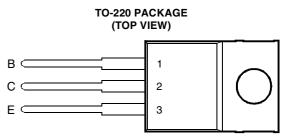
PNP SILICON POWER DARLINGTONS

BOURNS®

- Designed for Complementary Use with BDX53, BDX53A, BDX53B and BDX53C
- 60 W at 25°C Case Temperature
- 8 A Continuous Collector Current
- Minimum h_{FE} of 750 at 3V, 3 A



BDX54, BDX54A, BDX54B, BDX54C

Pin 2 is in electrical contact with the mounting base.

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

RATING	SYMBOL	VALUE	UNIT	
	BDX54		-45	
Collector-base voltage ($I_E = 0$)	BDX54A	V	-60	v
	BDX54B	V _{CBO}	-80	v
	BDX54C		-100	
	BDX54		-45	
Collector emitter veltage (I)	BDX54A	V	-60	V
Collector-emitter voltage ($I_B = 0$)	BDX54B	V _{CEO}	-80	
	BDX54C		-100	
Emitter-base voltage	V _{EBO}	-5	V	
Continuous collector current	Ι _C	-8	A	
Continuous base current	I _B	-0.2	A	
Continuous device dissipation at (or below) 25°C case temperature (see Note	P _{tot}	60	W	
Continuous device dissipation at (or below) 25°C free air temperature (see Note	P _{tot}	2	W	
Operating junction temperature range	Тj	-65 to +150	°C	
Operating 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 0.48 W/°C.

2. Derate linearly to 150°C free air temperature at the rate of 16 mW/°C.

PRODUCT INFORMATION

BDX54, BDX54A, BDX54B, BDX54C PNP SILICON POWER DARLINGTONS



electrical characteristics at 25°C case temperature (unless otherwise noted)

	PARAMETER		TEST	CONDITIONS		MIN	ТҮР	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C = -100 mA	I _B = 0	(see Note 3)	BDX54 BDX54A BDX54B BDX54C	-45 -60 -80 -100			V
I _{CEO}	Collector-emitter cut-off current	$\begin{array}{rrrr} V_{CE} = & -30 \ V \\ V_{CE} = & -30 \ V \\ V_{CE} = & -40 \ V \\ V_{CE} = & -50 \ V \end{array}$	$I_{B} = 0$ $I_{B} = 0$ $I_{B} = 0$ $I_{B} = 0$		BDX54 BDX54A BDX54B BDX54C			-0.5 -0.5 -0.5 -0.5	mA
I _{CBO}	Collector cut-off current	$V_{CB} = -45 V$ $V_{CB} = -60 V$ $V_{CB} = -80 V$ $V_{CB} = -100 V$	$I_{E} = 0$ $I_{E} = 0$ $I_{E} = 0$ $I_{E} = 0$		BDX54 BDX54A BDX54B BDX54C			-0.2 -0.2 -0.2 -0.2	mA
I _{EBO}	Emitter cut-off current	V _{EB} = -5 V	$I_{\rm C} = 0$					-2	mA
h _{FE}	Forward current transfer ratio	V _{CE} = -3 V	I _C = -3 A	(see Notes 3 and 4)		750			
V _{BE(sat)}	Base-emitter saturation voltage	I _B = -12 mA	I _C = -3 A	(see Notes 3 and 4)				-2.5	V
V _{CE(sat)}	Collector-emitter saturation voltage	I _B = -12 mA	I _C = -3 A	(see Notes 3 and 4)				-2	V
V _{EC}	Parallel diode forward voltage	I _E = -3 A	I _B = 0					-2.5	V

NOTES: 3. These parameters must be measured using pulse techniques, t_p = 300 µs, duty cycle \leq 2%.

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

thermal characteristics

	PARAMETER			MAX	UNIT
R _{θJC}	Junction to case thermal resistance			2.08	°C/W
R_{\thetaJA}	Junction to free air thermal resistance			62.5	°C/W

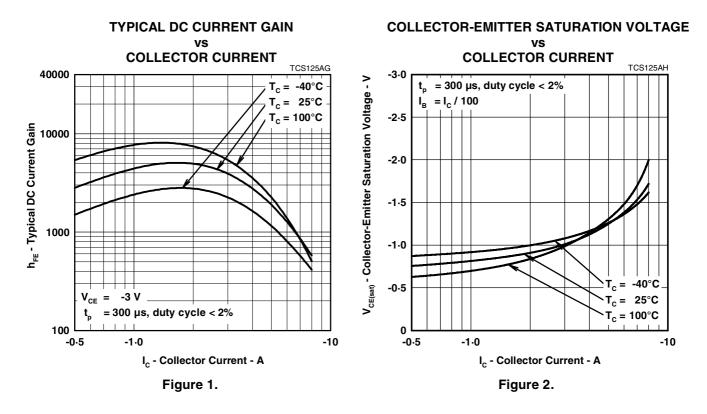
resistive-load-switching characteristics at 25°C case temperature

	PARAMETER	TEST CONDITIONS [†]			MIN	ТҮР	MAX	UNIT
t _{on}	Turn-on time	I _C = -3 A	I _{B(on)} = -12 mA	$I_{B(off)} = 12 \text{ mA}$		1		μs
t _{off}	Turn-off time	$V_{BE(off)} = 4.2 V$	$R_L = 10 \ \Omega$	$t_p = 20 \ \mu s, \ dc \leq 2\%$		5		μs

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



TYPICAL CHARACTERISTICS

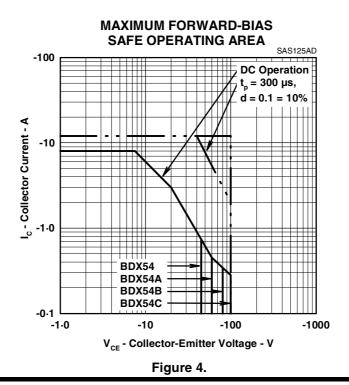


BASE-EMITTER SATURATION VOLTAGE vs **COLLECTOR CURRENT** TCS125AI -3.0 -40°C Tc = V_{BE(sat)} - Base-Emitter Saturation Voltage - V 25°C Tc = = 100°C -2.0 -2.5 -1.0 -1.5 = I_c / 100 I_B = 300 μ s, duty cycle < 2% -0.5 -0.5 -1.0 -10 I_c - Collector Current - A Figure 3.

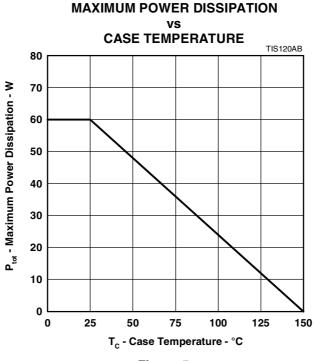
PRODUCT INFORMATION

MAY 1989 - REVISED SEPTEMBER 2002 Specifications are subject to change without notice.

MAXIMUM SAFE OPERATING REGIONS









PRODUCT INFORMATION