

Silicon PNP Darlington Transistor

BDX54A

Medium Power Linear and Switching

60V / 8A

DATASHEET

OEM –SGS Ates

Source: SGS Ates Databook 1977

EPITAXIAL-BASE PNP

**BDX 54
BDX 54A
BDX 54B
BDX 54C**

POWER DARLINGTONS

The BDX 54, BDX 54A, BDX 54B and BDX 54C are silicon epitaxial-base PNP transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package, intended for use in hammer drivers, audio amplifiers and other medium power linear and switching applications.

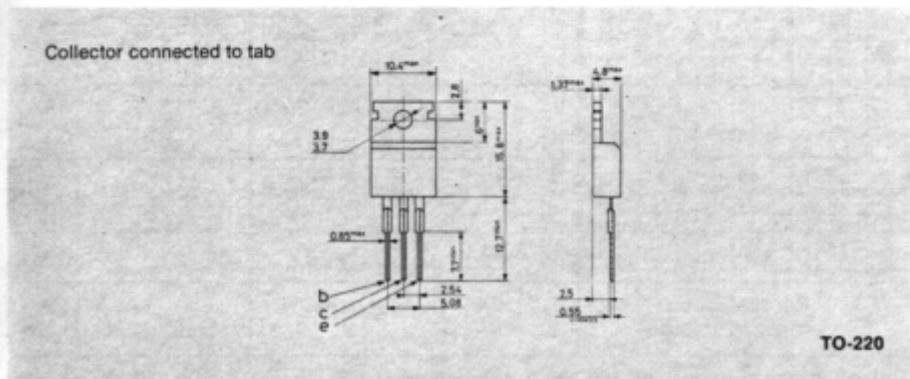
The complementary NPN types are the BDX 53, BDX 53A, BDX 53B and BDX 53C respectively.

ABSOLUTE MAXIMUM RATINGS

		BDX54	BDX54A	BDX54B	BDX54C
V_{CBO}	Collector-base voltage ($I_E = 0$)	-45V	-60V	-80V	-100V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-45V	-60V	-80V	-100V
V_{EBO}	Emitter-base voltage ($I_C = 0$)			-5V	
I_C	Collector current			-8A	
I_{CM}	Collector peak current (repetitive)			-12A	
I_B	Base current			-0.2A	
P_{tot}	Total power dissipation at $T_{case} \leq 25^\circ C$			60W	
T_{stg}	Storage temperature			-65 to 150°C	
T_j	Junction temperature			150 °C	

MECHANICAL DATA

Dimensions in mm



BDX 54
BDX 54A
BDX 54B
BDX 54C

THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	2.08	°C/W
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	70	°C/W

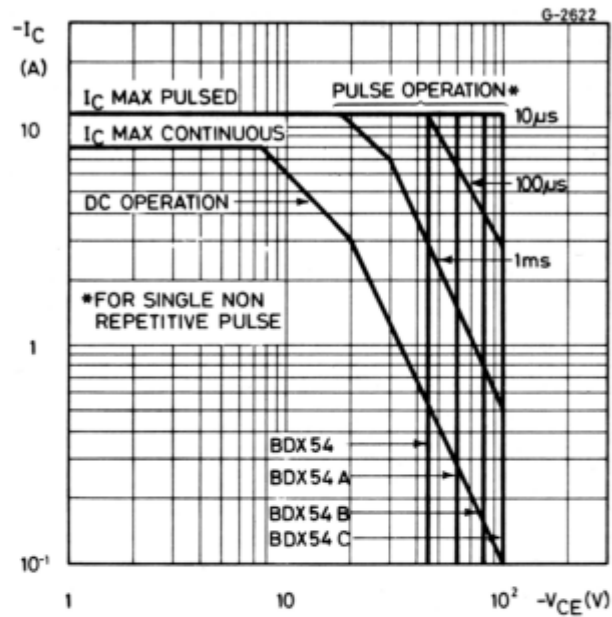
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO} Collector cutoff current ($I_E = 0$)	for BDX54 $V_{CB} = -45V$ for BDX54A $V_{CB} = -60V$ for BDX54B $V_{CB} = -80V$ for BDX54C $V_{CB} = -100V$			-200 -200 -200 -200	μA μA μA μA
I_{CEO} Collector cutoff current ($I_B = 0$)	for BDX54 $V_{CE} = -22V$ for BDX54A $V_{CE} = -30V$ for BDX54B $V_{CE} = -40V$ for BDX54C $V_{CE} = -50V$			-500 -500 -500 -500	μA μA μA μA
I_{EBO} Emitter cutoff current ($I_C = 0$)	$V_{EB} = -5 V$			-2	mA
$V_{CEO(sus)}$ * Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = -100 mA$ for BDX54 for BDX54A for BDX54B for BDX54C	-45 -60 -80 -100			V V V V
$V_{CE(sat)}$ * Collector-emitter saturation voltage	$I_C = -3A$ $I_B = -12mA$			-2	V
$V_{BE(sat)}$ * Base-emitter saturation voltage	$I_C = -3A$ $V_{CE} = -12mA$			-2.5	V
h_{FE} * DC current gain	$I_C = -3A$ $V_{CE} = -3V$	750			—
V_{pF} Parallel-diode forward voltage	$I_F = 3A$ $I_F = 8A$		2.5	1.8	V V

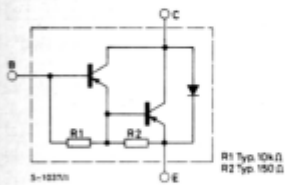
* Pulsed: pulse duration = 300 μs , duty cycle = 1.5%

**BDX 54
BDX 54A
BDX 54B
BDX 54C**

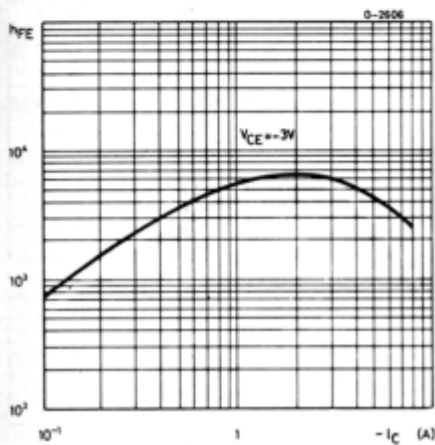
Safe operating areas



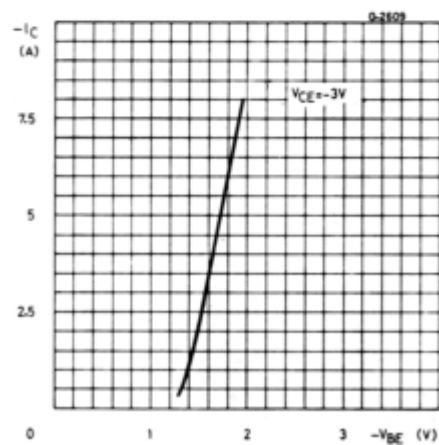
Internal circuit diagram



DC current gain

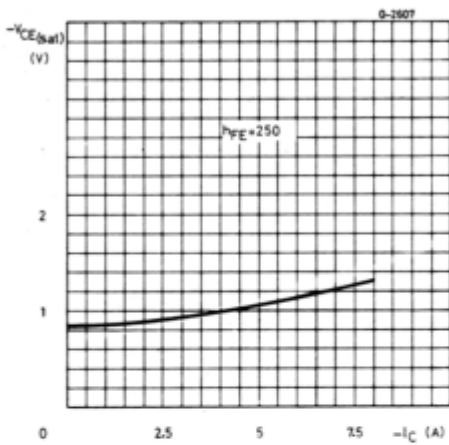


DC transconductance

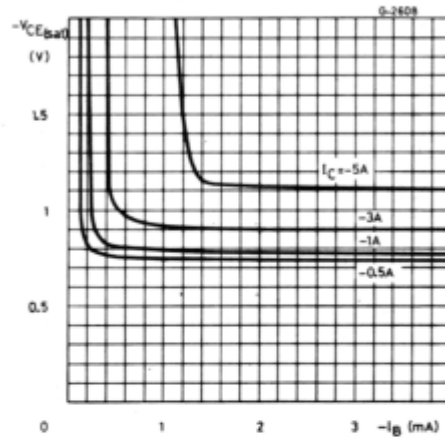




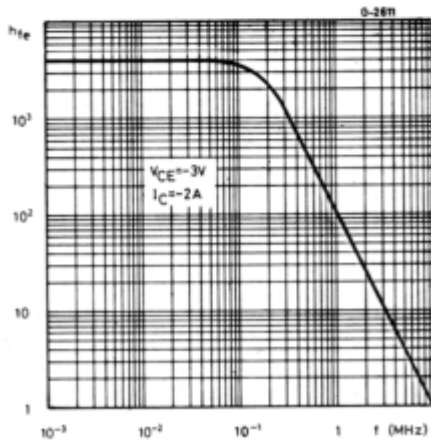
Collector-emitter saturation voltage



Collector-emitter saturation voltage



Small signal current gain



Saturated switching characteristics

