

# BCX51-BCX53

## PNP Silicon AF Transistors

### Features

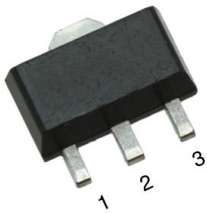
- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- RoHS compliant package

### Mechanical Data

- Case: SOT-89 Molded plastic
- Epoxy: UL94V-O rate flame retardant

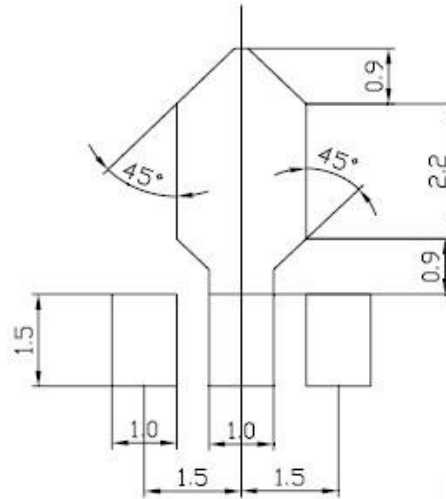
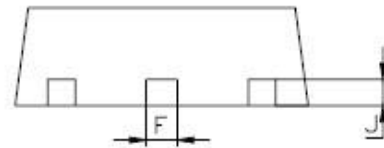
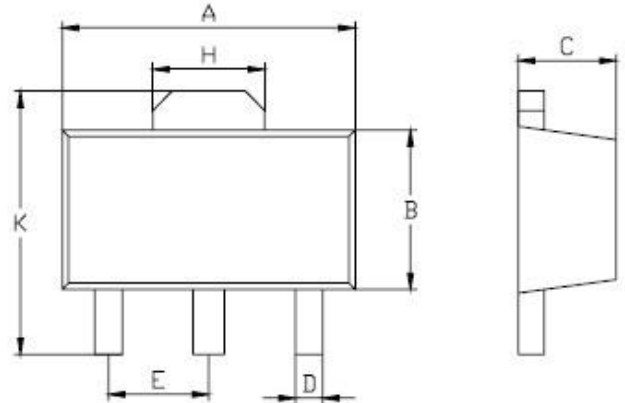
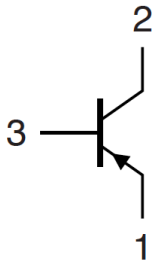
### Packing & Order Information

3,000/Reel



**RoHS  
COMPLIANT**

### Graphic symbol



SOT-89		
Dim	Min	Max
A	4.5	4.7
B	2.3	2.7
C	1.5Typical	
D	0.35	0.55
E	1.4	1.6
F	0.4	0.6
H	1.55	1.75
J	0.4Typical	
K	4.15	4.25
All Dimensions in mm		

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### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

#### Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter	BCX51	BCX52	BCX53	Unit
VCEO	Collector-Emitter Voltage	45	60	80	V
VCBO	Collector-Base Voltage	45	60	100	V
VEBO	Emitter-Base Voltage	5	5	5	V
IC	Collector Current—Continuous	1			A
ICM	Peak collector current, tp ≤ 10	1.5			A
IB	Base current	100			mA
IBM	Peak base current	200			mA
Ptot	Total power dissipation, TS ≤ 120 °C	2			W
TJ	Junction temperature	150			°C
Tstg	Storage temperature	-65~+150			°C

#### THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
RthJS	Junction - soldering point	≤ 15	K/W

#### DC CHARACTERISTICS

Symbol	Parameter		MIN	TYP	MAX	UNIT
V(BR)CEO	Collector-Emitter Breakdown Voltage (Ic=-10mA, IB=0)	BCX51	45			V
		BCX52	60			V
		BCX53	80			V
V(BR)CBO	Collector-Base Breakdown Voltage (Ic=-10μA, IE=0)	BCX51	45			V
		BCX52	60			V
		BCX53	100			V
V(BR)EBO	Emitter-Base Breakdown Voltage (IE=-10μA, Ic=0)	BCX51	5			V
		BCX52	5			V
		BCX53	5			V
ICBO	Collector Cutoff Current V (VCB=-30V)				0.1	uA
	(VcB=-30Vdc, TA=150°C)				20	uA
HFE	DC Current Gain  (IC = 5 mA, VCE = 2 V)	BCX51	25			
		BCX52	25			
		BCX53	25			
	(IC = 150 mA, VCE = 2 V)	BCX51-53	40		250	
		hFE-grp.10	63	100	160	
		hFE-grp.16	100	160	250	

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### DC CHARACTERISTICS

Symbol	Parameter		MIN	TYP	MAX	UNIT
HFE	(IC = 500 mA, VCE = 2 V)	BCX51	25			
		BCX52	25			
		BCX53	25			
VCE(sat)	Collector-Emitter Saturation Voltage (IC = 500 mA, IB = 50 mA)				0.5	V
VBE(on)	Base-Emitter Voltage (IC = 500 mA, VCE = 2 V)				1.0	V

### AC CHARACTERISTICS

Symbol	Parameter		MIN	TYP	MAX	UNIT
fT	Current-Gain-Bandwidth Product (IC = -10mA <sub>dc</sub> , VCE = -5.0V <sub>dc</sub> , f = 100MHz)			125		MHz

### AC CHARACTERISTICS

Type	Marking	Pin Configuration			Package
BCX51	AA	1=B	2=C	3=E	SOT89
BCX51-10	AC	1=B	2=C	3=E	SOT89
BCX51-16	AD	1=B	2=C	3=E	SOT89
BCX52	AE	1=B	2=C	3=E	SOT89
BCX52-10	AG	1=B	2=C	3=E	SOT89
BCX52-16	AM	1=B	2=C	3=E	SOT89
BCX53	AH	1=B	2=C	3=E	SOT89
BCX53-10	AK	1=B	2=C	3=E	SOT89
BCX53-16	AL	1=B	2=C	3=E	SOT89

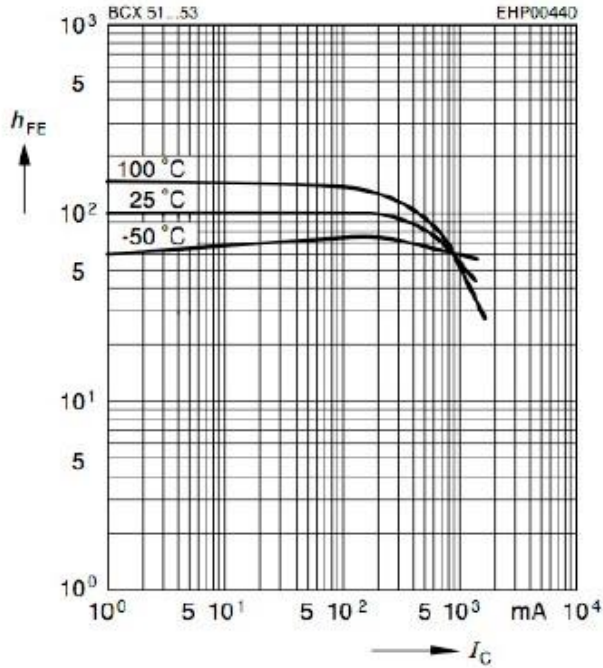
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### ■ RATINGS AND CHARACTERISTIC CURVES

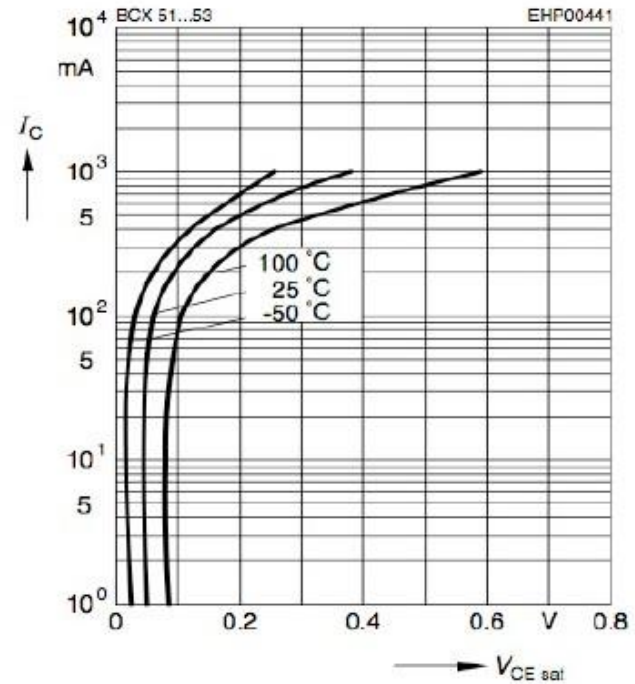
**DC current gain  $h_{FE} = f(I_C)$**

$V_{CE} = 2\text{ V}$



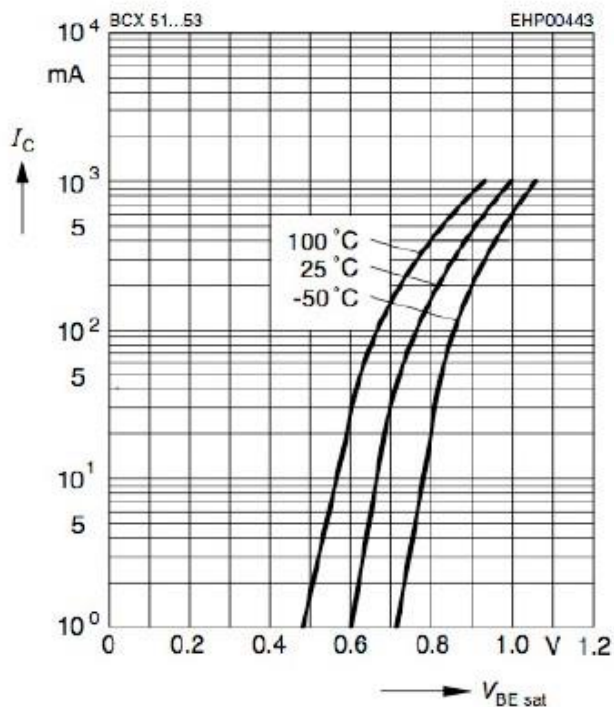
**Collector-emitter saturation voltage**

$I_C = f(V_{CEsat}), h_{FE} = 10$



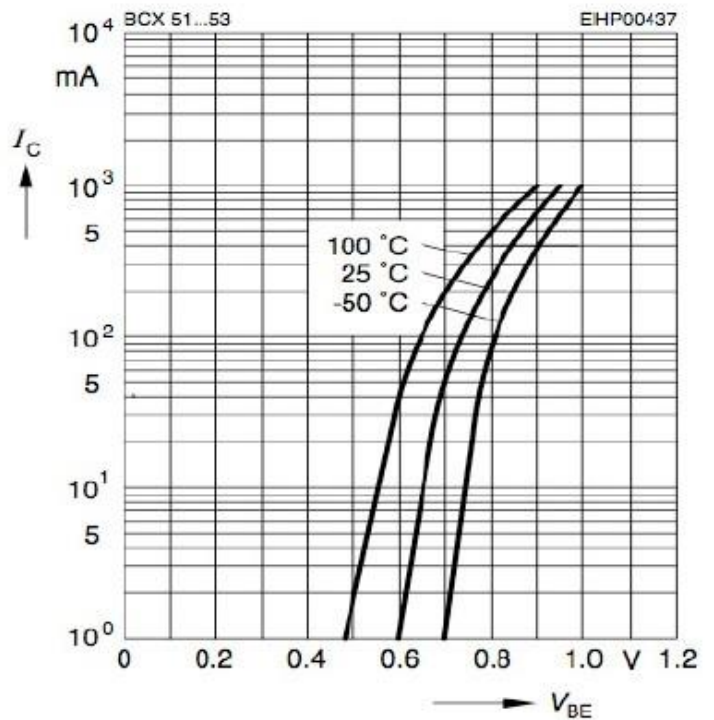
**Base-emitter saturation voltage**

$I_C = f(V_{BEsat}), h_{FE} = 10$



**Collector current  $I_C = f(V_{BE})$**

$V_{CE} = 2\text{ V}$



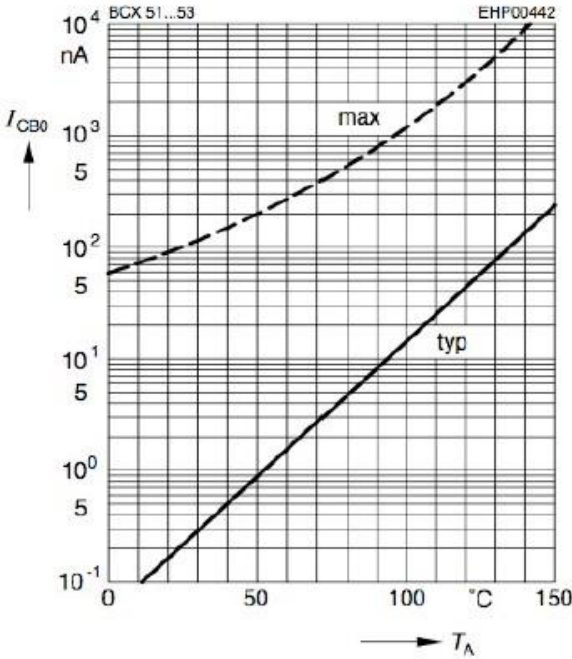
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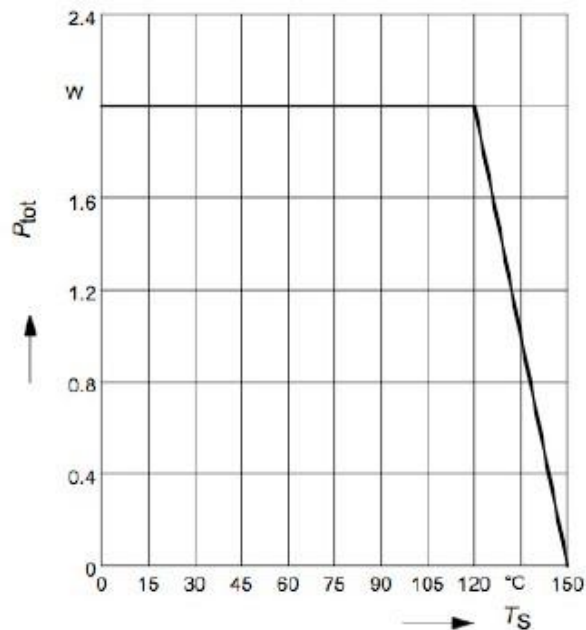
### ■ RATINGS AND CHARACTERISTIC CURVES

**Collector cutoff current  $I_{CBO} = f(T_A)$**

$V_{CBO} = 30 \text{ V}$

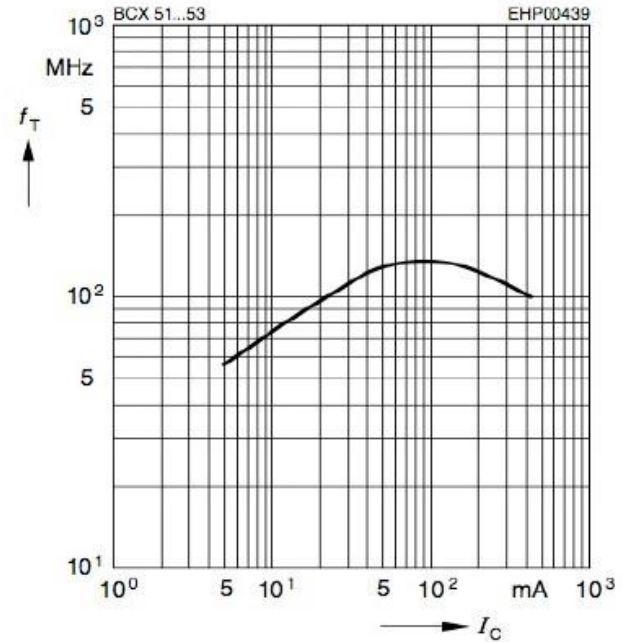


**Total power dissipation  $P_{tot} = f(T_S)$**



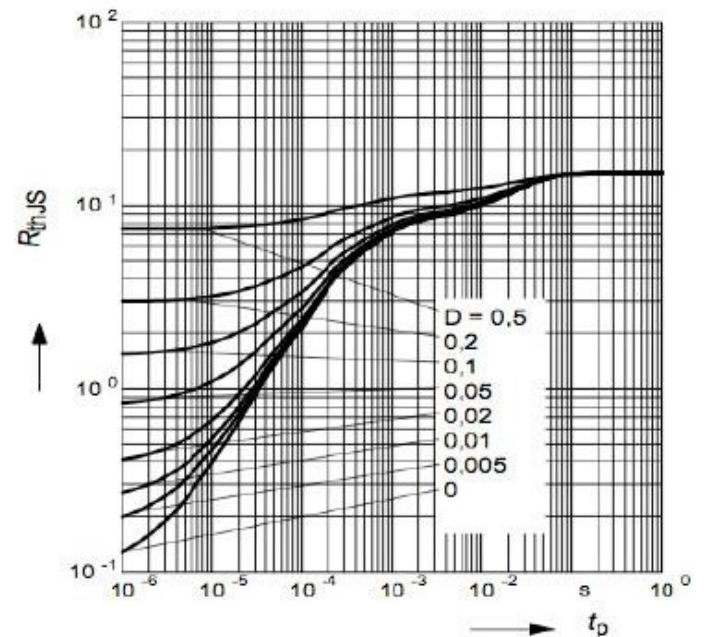
**Transition frequency  $f_T = f(I_C)$**

$V_{CE} = 10 \text{ V}$



**Permissible Pulse Load  $R_{thJS} = f(t_p)$**

**Permissible Pulse Load  $R_{thJS} = f(t_p)$**



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#### Disclaimer

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