

Features

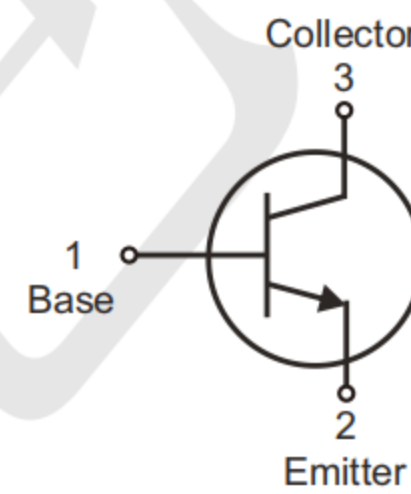
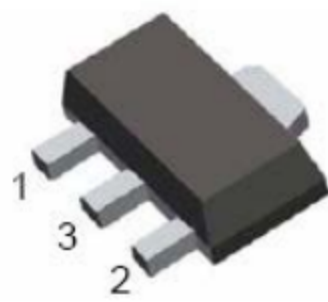
- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: TPBCX51/TPBCX52/TPBCX53.

Ordering Information

- Shipping Qty:1000 /7inch Tape& Reel

Circuit Diagram

SOT-89



Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

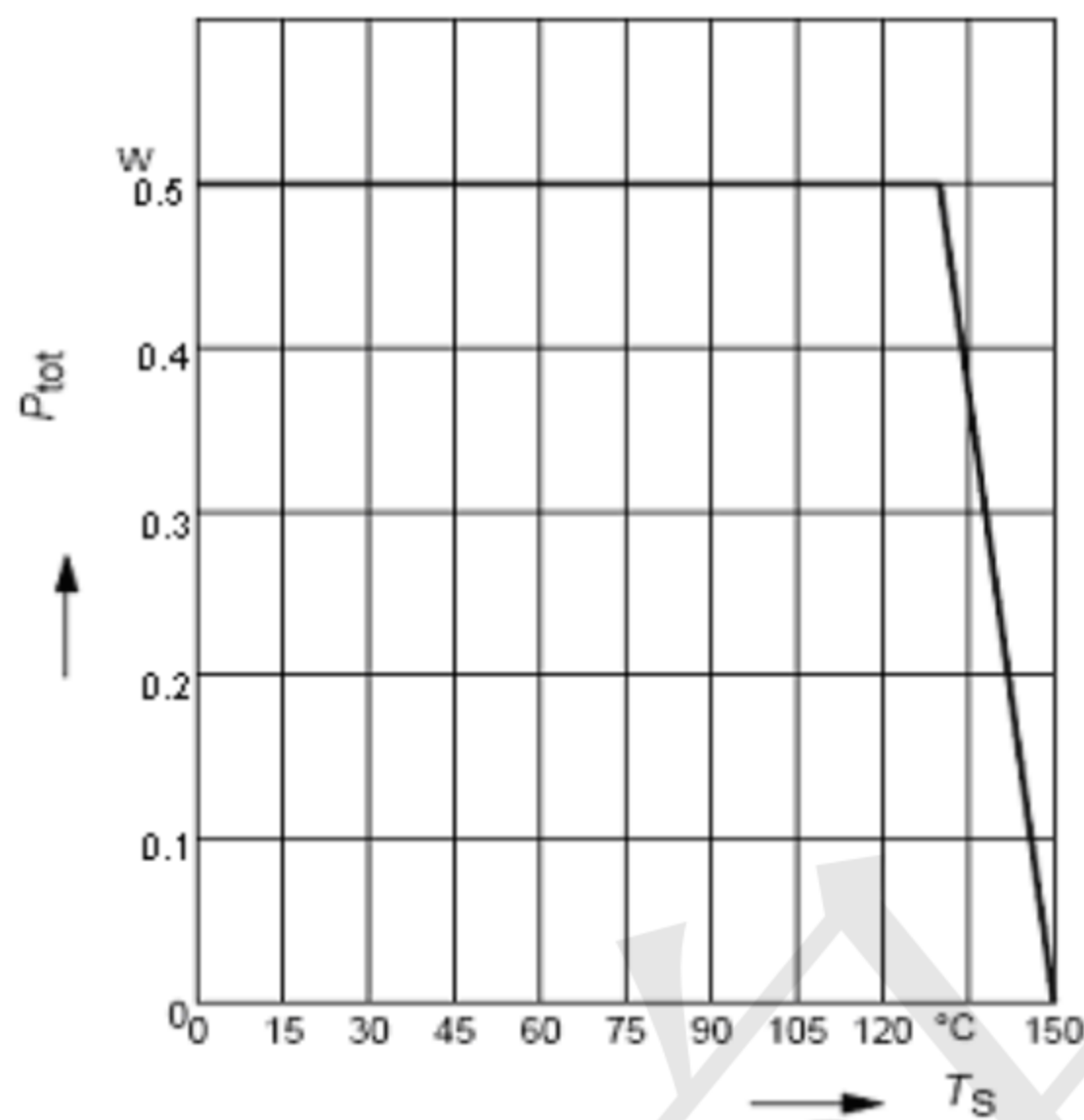
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	45	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	DC Collector Current	1	A
I_{CM}	Peak Collector Current	1.5	A
I_B	Base current	100	mA
I_{BM}	Peak base current	200	mA
P_{tot}	Total power dissipation $T_S=130^\circ\text{C}$	500	mW
T_j, T_{stg}	Junction and Storage Temperature	-65 to +150	°C
$R_{\theta JA}$	Thermal resistance junction to ambient air	75	°C/W
$R_{\theta JC}$	Junction-case thermal resistance	35	°C/W

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A$ $I_B=0$	45		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA$ $I_B=0$	45		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A$ $I_C=0$	5		V
Collector cut-off current	I_{CBO}	$V_{CB}=30V$ $I_E=0$		100	nA
		$V_{CB}=30V$ $I_E=0$, $T_A=150^\circ C$		20	μA
DC current gain	h_{FE}	$V_{CE}=2V$ $I_C=5mA$	25		
		$V_{CE}=2V$ $I_C=150mA$	40	250	
		$V_{CE}=2V$ $I_C=150mA$ -10	63	160	
		-16	100	250	
		$V_{CE}=2V$ $I_C=500mA$	25		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500mA$ $I_B=50mA$		0.5	V
Base-emitter voltage	V_{BE}	$I_C=500mA$, $V_{CE}=2V$		1	V
Transition frequency	f_T	$V_{CE}=10V$, $I_C=50mA$, $f=20MHz$	100		MHz

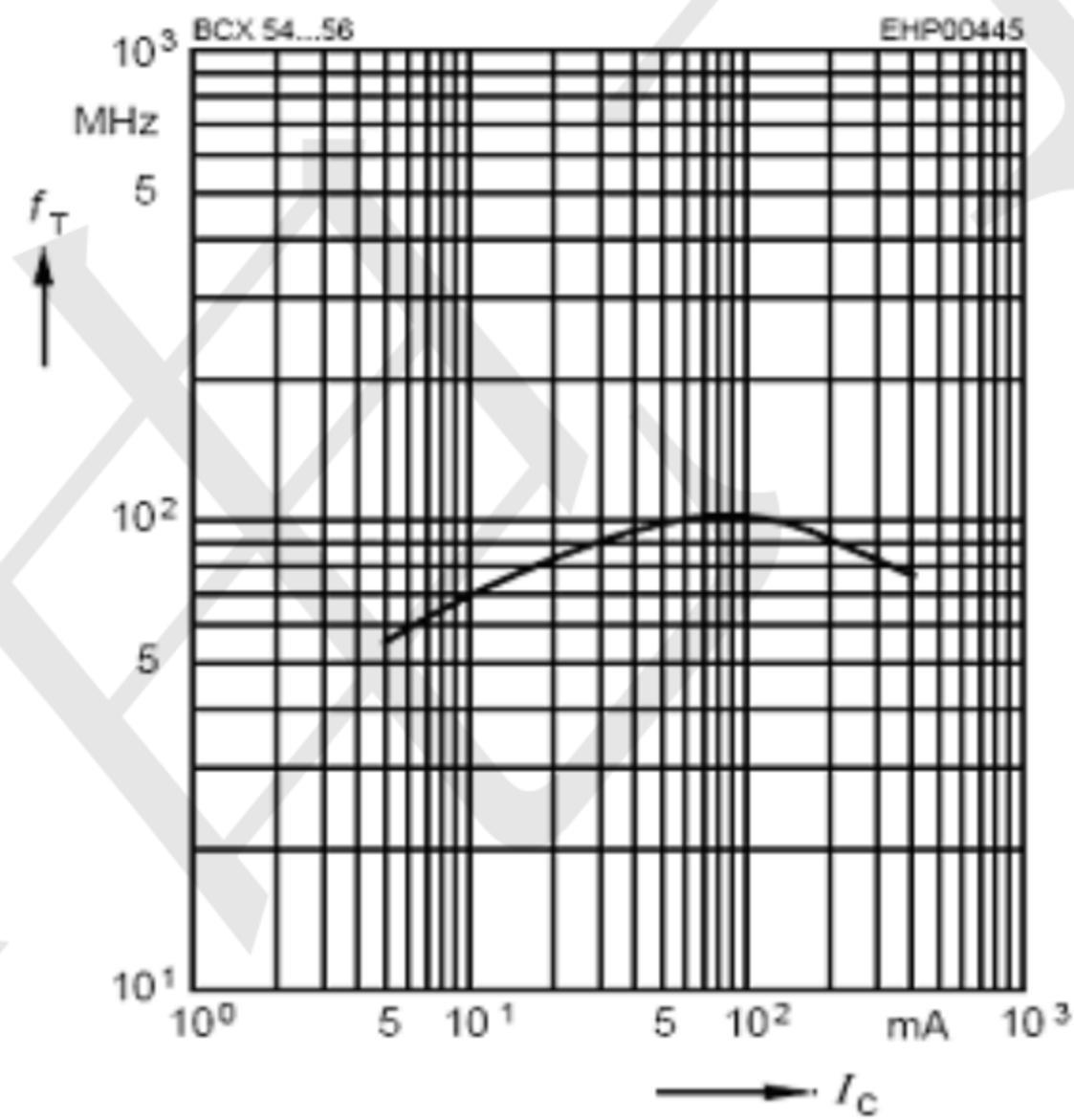
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

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



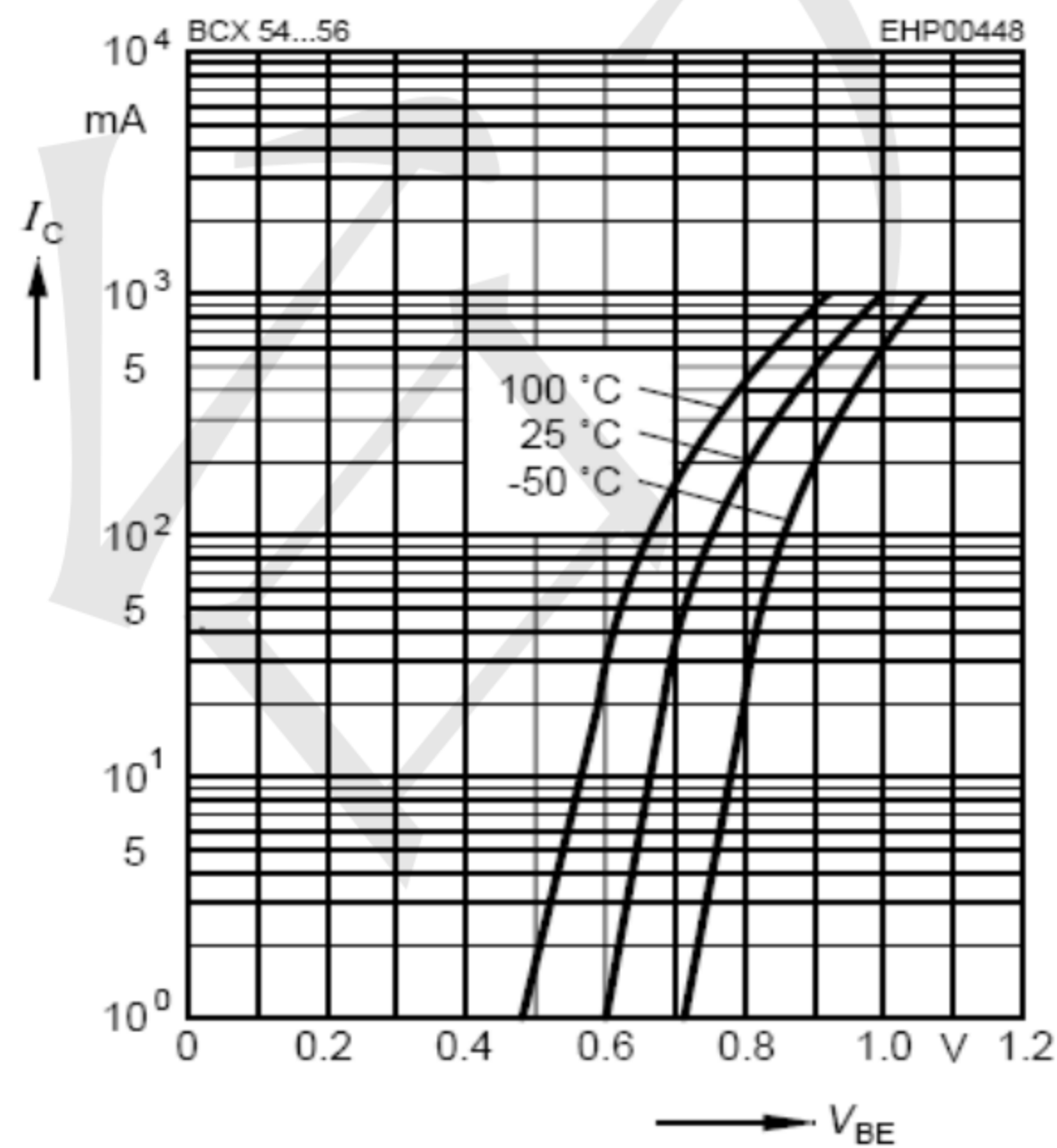
Transition frequency $f_T = f(I_C)$

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



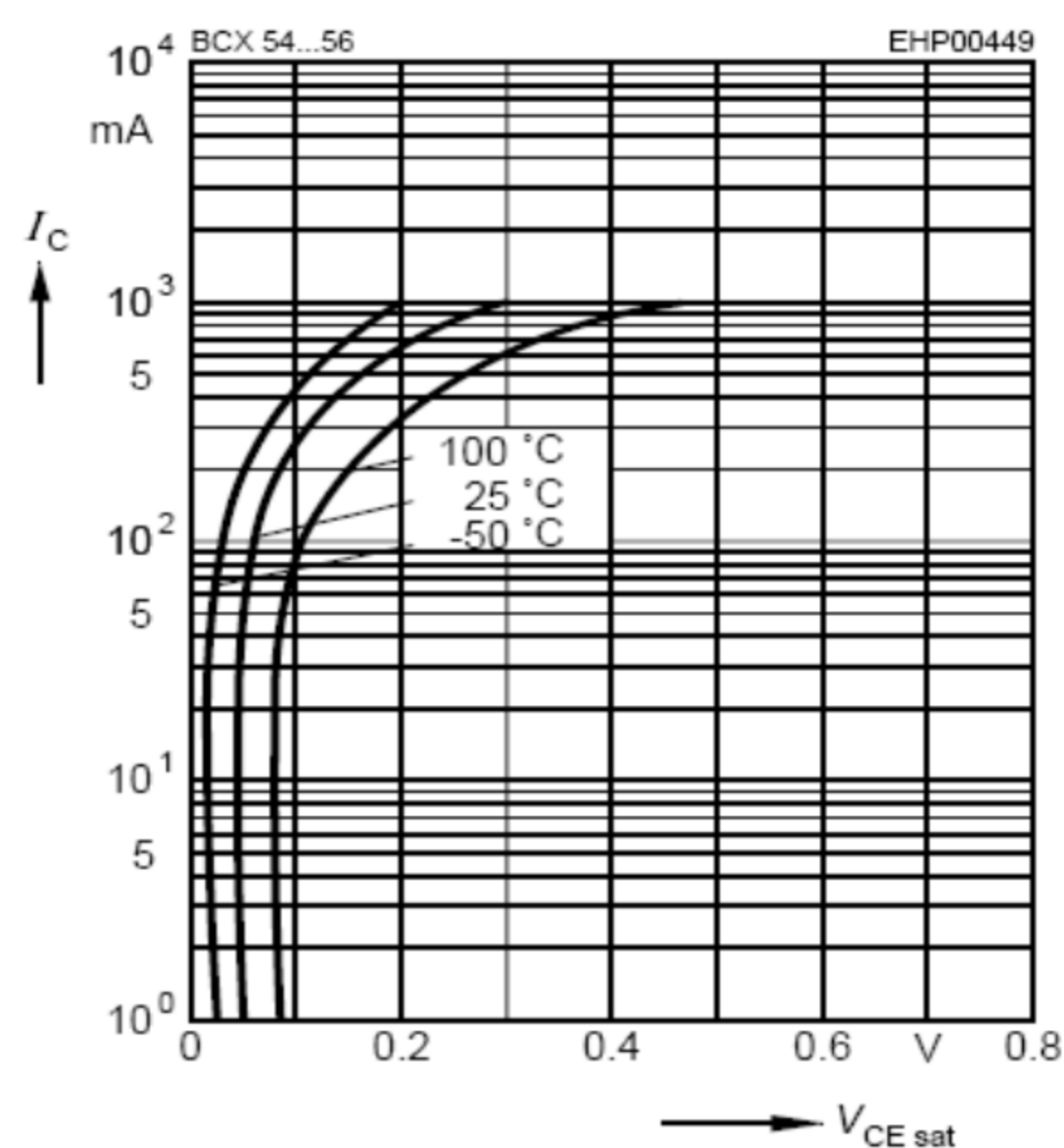
Collector current $I_C = f(V_{BE})$

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



Collector-emitter saturation voltage

$I_C = f(V_{CE\text{sat}}), h_{FE} = 10$

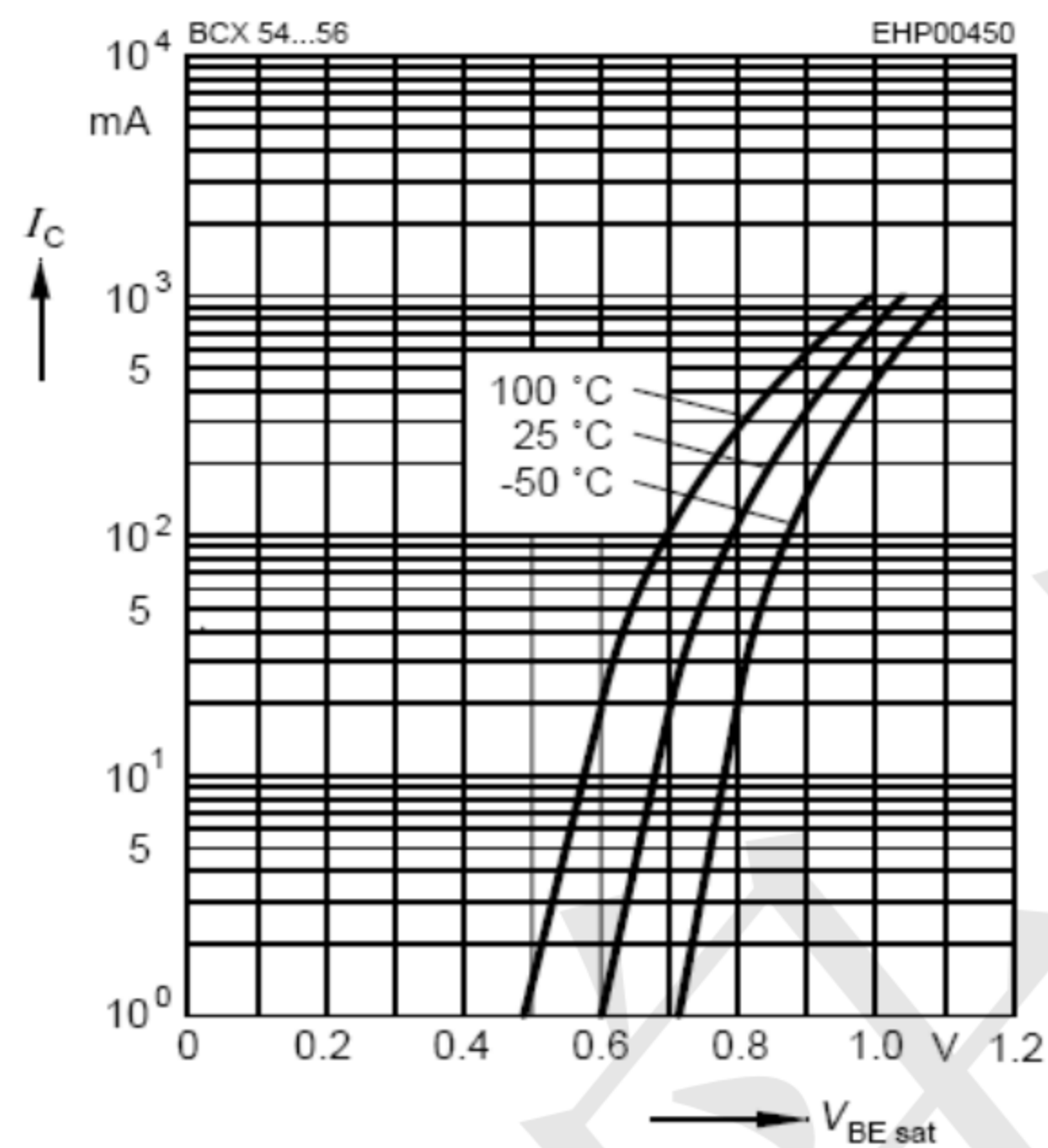




Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

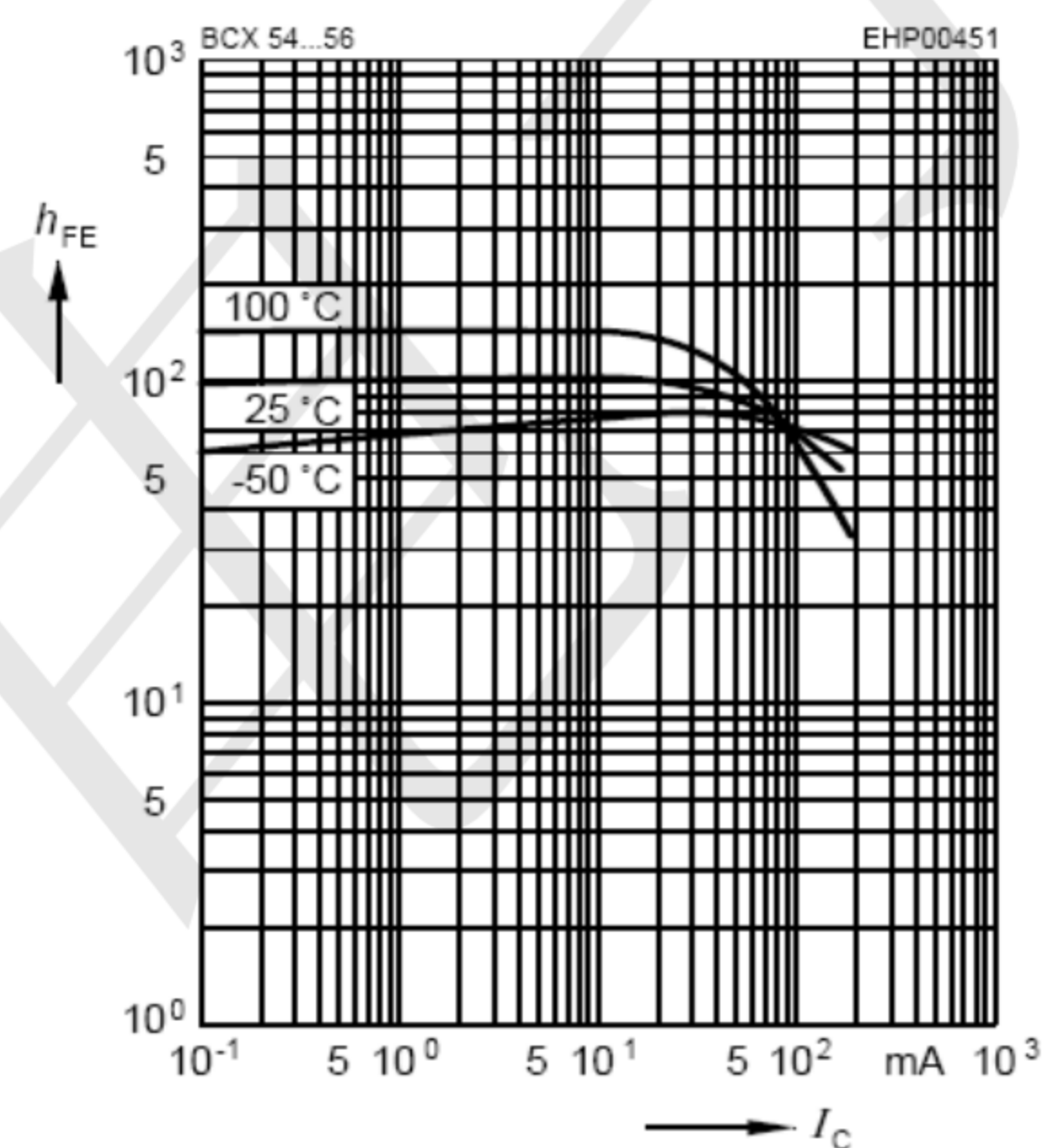
Base-emitter saturation voltage

$$I_C = f(V_{BE\text{sat}}), h_{FE} = 10$$



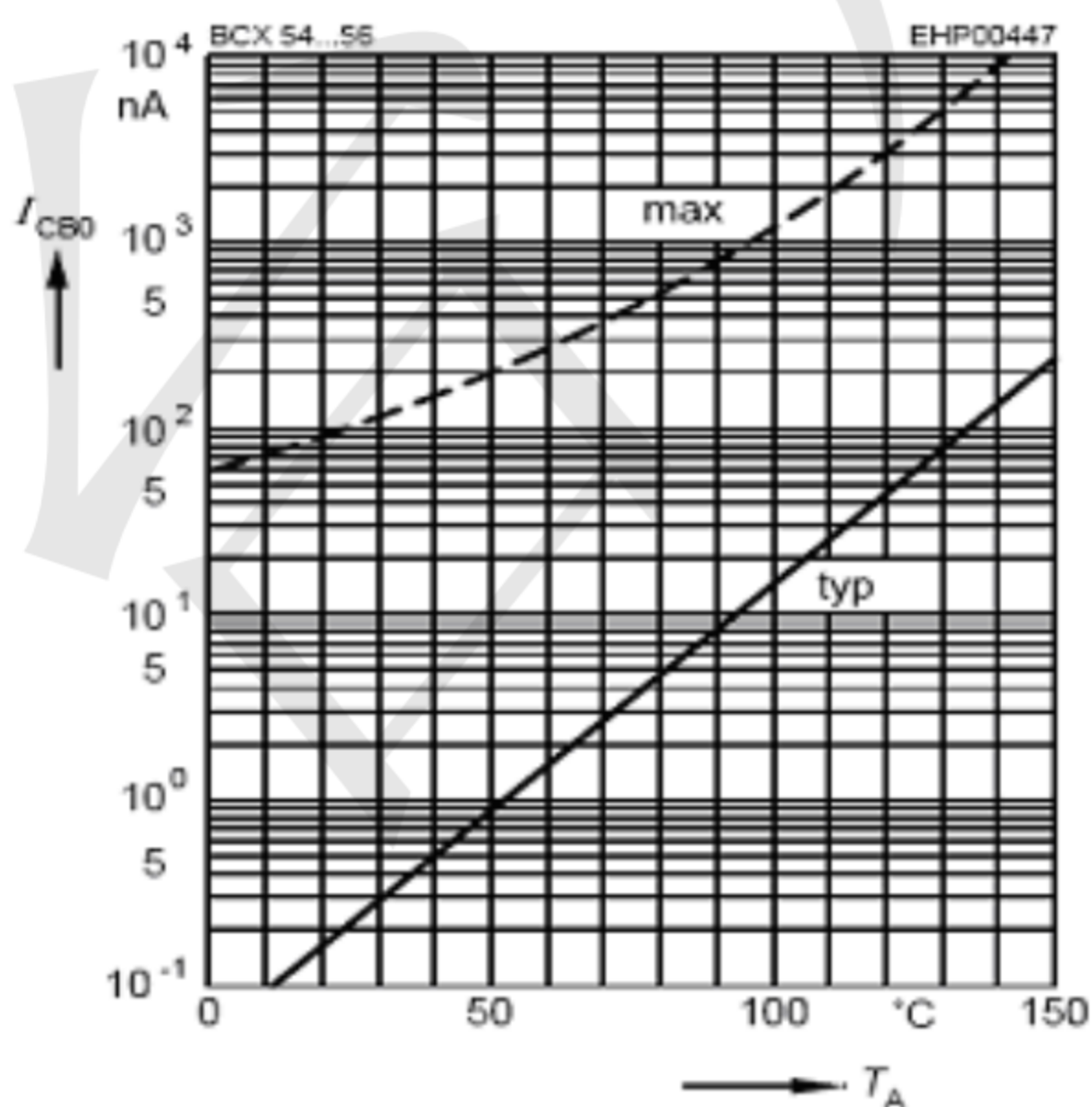
DC current gain $h_{FE} = f(I_C)$

$$V_{CE} = 2V$$

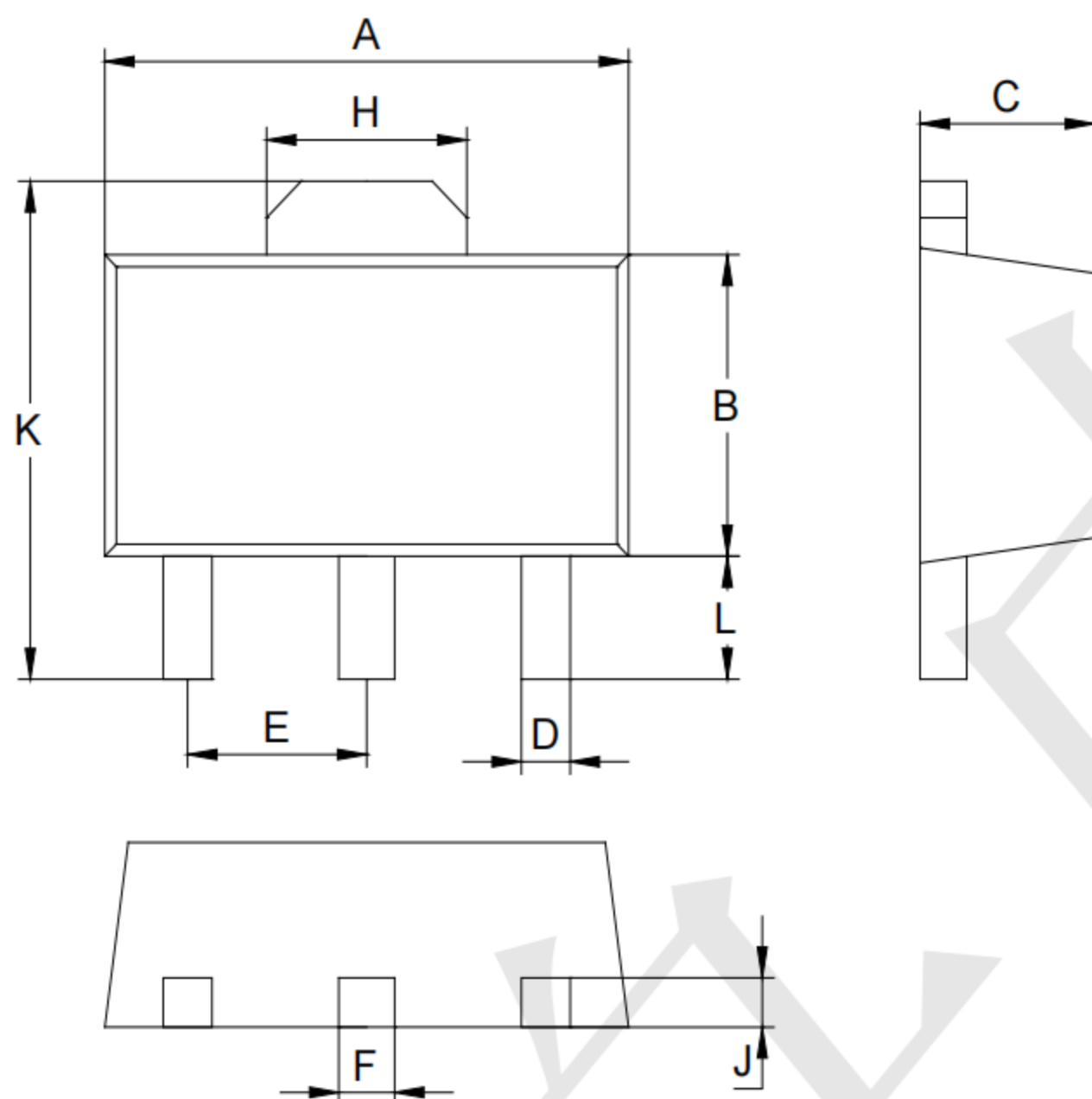


Collector cutoff current $I_{CBO} = f(T_A)$

$$V_{CB} = 30V$$

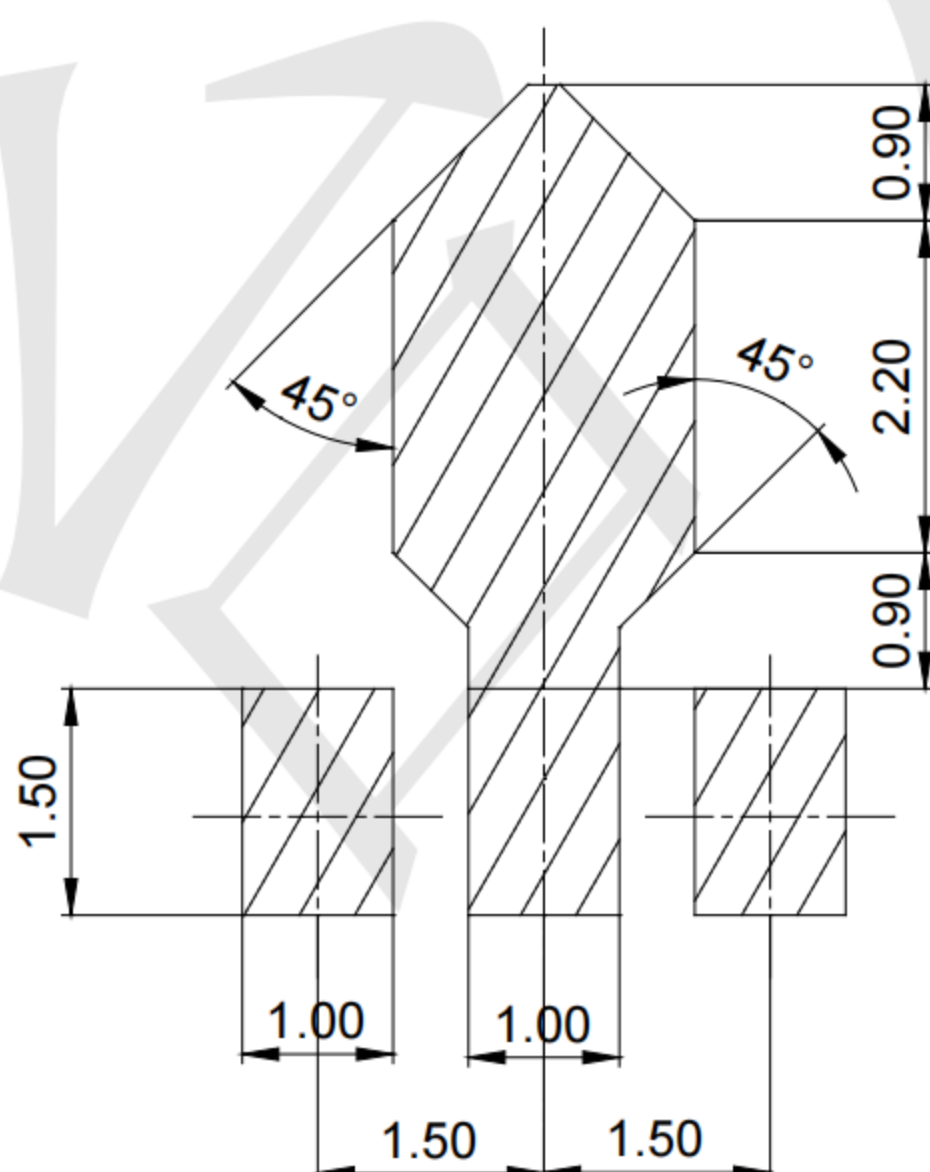


Outline Drawing - SOT-89



SOT-89		
Dim	Min	Max
A	4.30	4.70
B	2.25	2.65
C	1.30	1.70
D	0.30	0.50
E	1.40	1.60
F	0.38	0.58
H	1.60	1.80
J	0.30	0.50
L	0.90	1.10
K	3.95	4.35
All Dimensions in mm		

Land Pattern - SOT-89



Unit: mm