Silicon NPN Transistor

BFX34

High Current, General Purpose

60V / 5A

DATASHEET

OEM –SGS Ates

Source: SGS Ates Databook 1977

Datasheet Rev. 2.0 – 09/19 – data without warranty / liability

BFX 34

EPITAXIAL PLANAR NPN

HIGH CURRENT, GENERAL PURPOSE TRANSISTOR

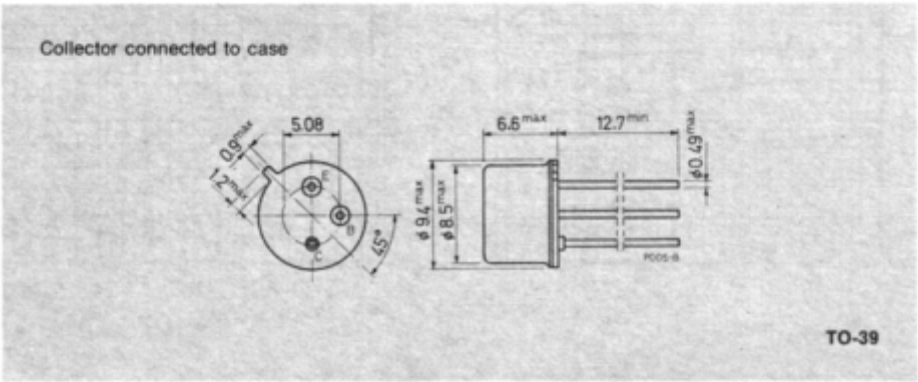
The BFX 34 is a silicon epitaxial planar NPN transistor in Jedec TO-39 metal case, intended for high current applications.
Very low saturation voltage and high speed at high current levels make it ideal for power drivers, power amplifiers, switching power supplies relay drivers, inverters.

ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	120	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	60	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	6	V
I_C	Collector current	5	A
P_{tot}	Total power dissipation at $T_{amb} \leq 25°C$	0.87	W
	$T_{case} \leq 25°C$	5	W
T_{stg}	Storage temperature	-65 to 200	°C
T_j	Junction temperature	200	°C

MECHANICAL DATA

Dimensions in mm



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THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	35	°C/W
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	200	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cutoff current (V_{BE} = 0)	V_{CE} = 60V		0.02	10	μA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = 4V		0.05	10	μA
$V_{(BR)\ CBO}$*	Collector-base breakdown voltage (I_E = 0)	I_C = 5mA	120			V
$V_{CEO\ (sus)}$*	Collector-emitter sustaining voltage (I_B = 0)	I_C = 100mA	60			V
$V_{(BR)\ EBO}$*	Emitter-base breakdown voltage (I_C = 0)	I_E = 1 mA	6			V
$V_{CE\ (sat)}$*	Collector-emitter saturation voltage	I_C = 5A I_B = 0.5A		0.4	1	V
$V_{BE\ (sat)}$*	Base-emitter saturation voltage	I_C = 5A I_B = 0.5A		1.3	1.6	V
h_{FE}*	DC current gain	I_C = 1A V_{CE} = 2V		100		—
		I_C = 1.5A V_{CE} = 0.6V		75		—
		I_C = 2A V_{CE} = 2V	40	80	150	—
f_T	Transition frequency	I_C = 0.5 A V_{CE} = 5 V, f = 20 MHz	70	100		MHz
C_{EBO}	Emitter-base capacitance	I_C = 0 V_{EB} = 0.5V, f = 1 MHz		300	500	pF
C_{CBO}	Collector-base capacitance	I_E = 0 V_{CB} = 10V, f = 1 MHz		40	100	pF
t_{on}	Turn-on time	I_C = 5 A V_{CC} = 20 V, I_{B1} = $-I_{B2}$ = 0.5 A		0.25	0.6	μs
t_{off}	Turn-off time			0.6	1.2	μs

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

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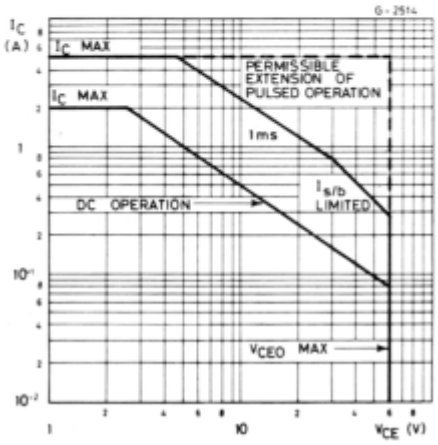
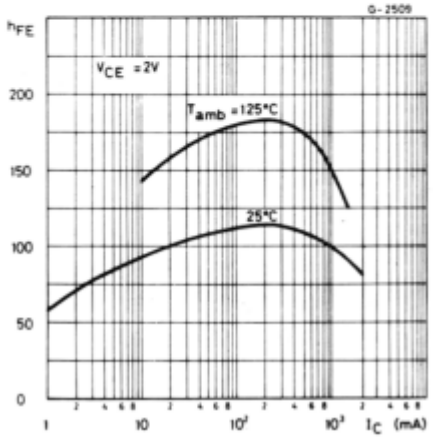
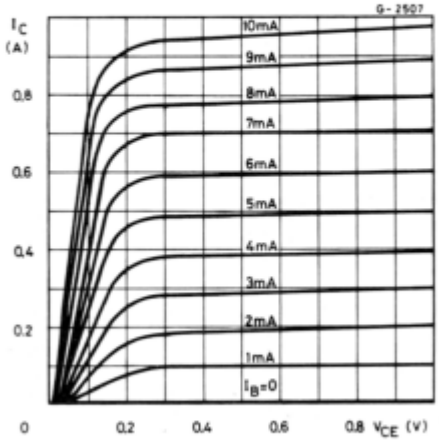
Safe operating areas



DC current gain



Output characteristics



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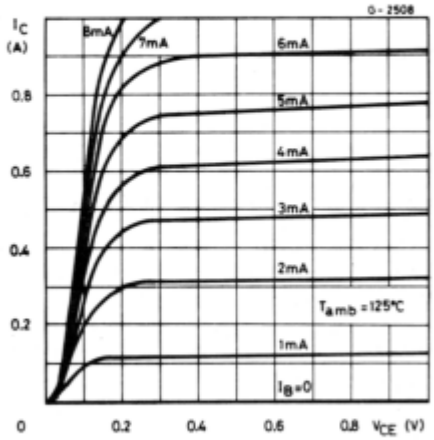

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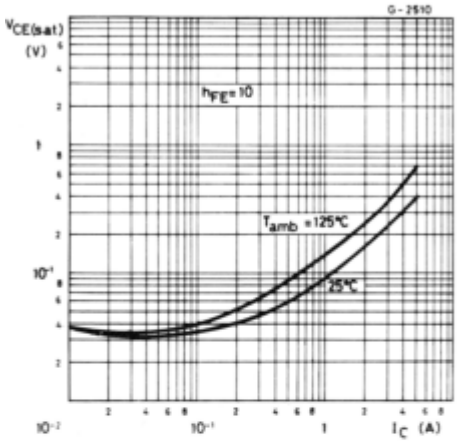
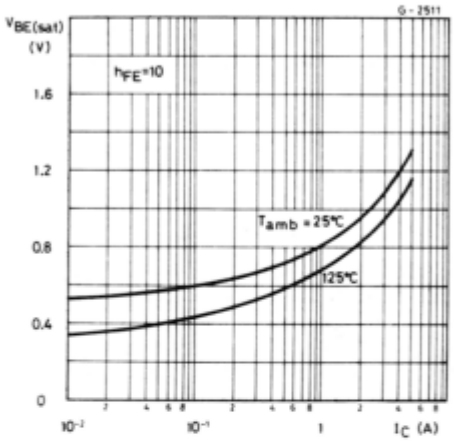
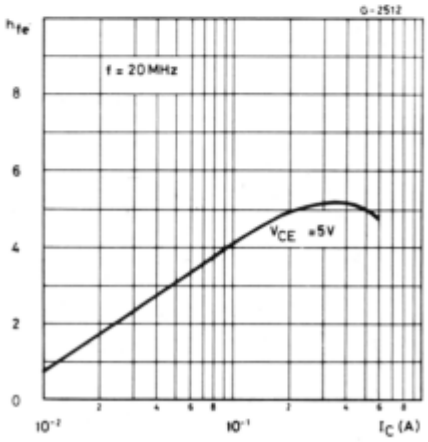
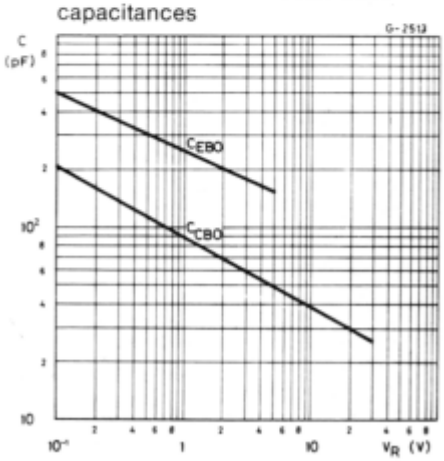
Collector-emitter saturation voltage



Base-emitter saturation voltage



Small signal current gain



Emitter-base and collector-base capacitances