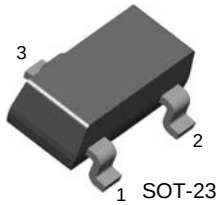
FAIRCHILD SEMICONDUCTOR®

March 2007

FJV42

NPN High Voltage Transistor



SOT-23
Marking: 1DF

1. Base 2. Emitter 3. Collector

Absolute Maximum Ratings * T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	350	V
V_{CEO}	Collector-Emitter Voltage	350	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	500	mA
T_{STG}	Storage Temperature Range	-55~150	°C
P_C	Collector Power Dissipation	350	mW

* These ratings are limiting values above which the serviceability of any semiconductor device may by impaired.

Thermal Characteristics

Symbol	Parameter	Value	Units
R_{TH}(j-a)	Thermal Resistance, Junction to Ambiet	357	°C/W

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	MIN	MAX	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 5.0 mA, I_B = 0	350		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 uA, I_E = 0	350		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 100 uA, I_C = 0	6		V
I_{CBO}	Collector-Cutoff Current	V_{CB} = 200 V, I_E = 0		0.1	uA
I_{EBO}	Emitter-Cutoff Current	V_{EB} = 5.0 V, I_C = 0		0.1	uA
h_{FE}	DC Current Gain*	I_C = 1.0 mA, V_{CE} = 10 V I_C = 10 mA, V_{CE} = 10 V I_C = 30 mA, V_{CE} = 10 V	25 40 40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage *	I_C = 20 mA, I_B = 2.0 mA		0.5	V
$V_{BE(sat)}$	Base-Emitter Breakdown Voltage *	I_C = 20 mA, I_B = 2.0 mA		0.9	V
f_T	Current Gain - Bandwidth Product	I_C = 10 mA, V_{CE} = 20V, f =100 MHz	50		MHz
C_{cb}	Output Capacitance	V_{CB} = 20 V, I_E = 0, f = 1.0 MHz		3	pF

* Pulse Test: PW≤300μs, Duty Cycle≤2%

Typical Characteristics

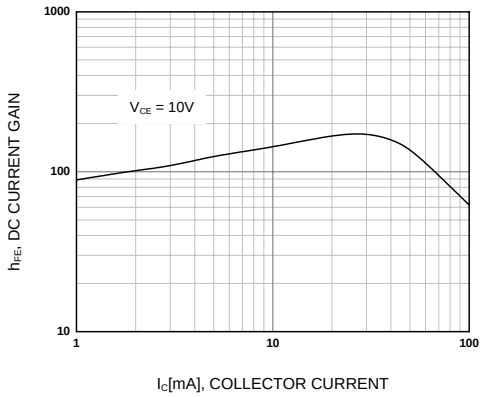


Figure 1. DC current Gain

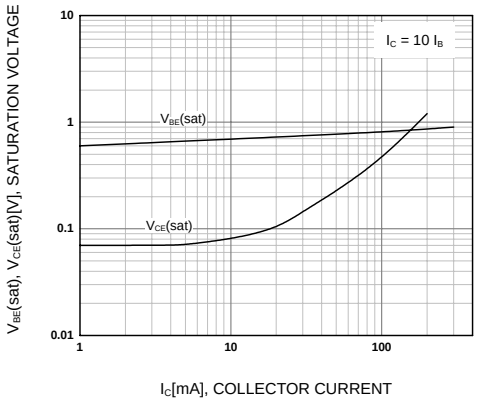


Figure 2. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

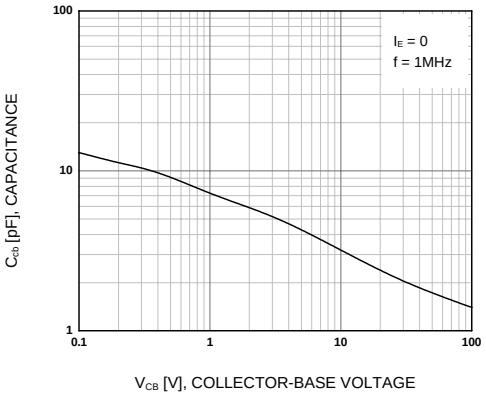


Figure 3. Collector-Base Capacitance

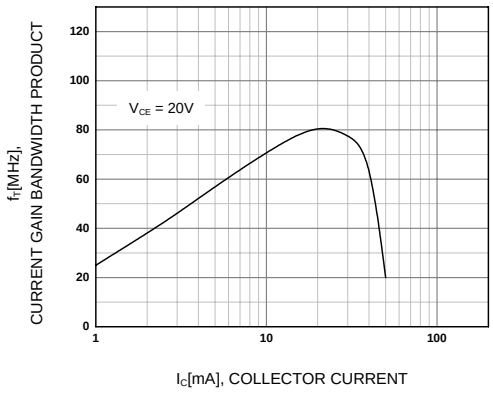
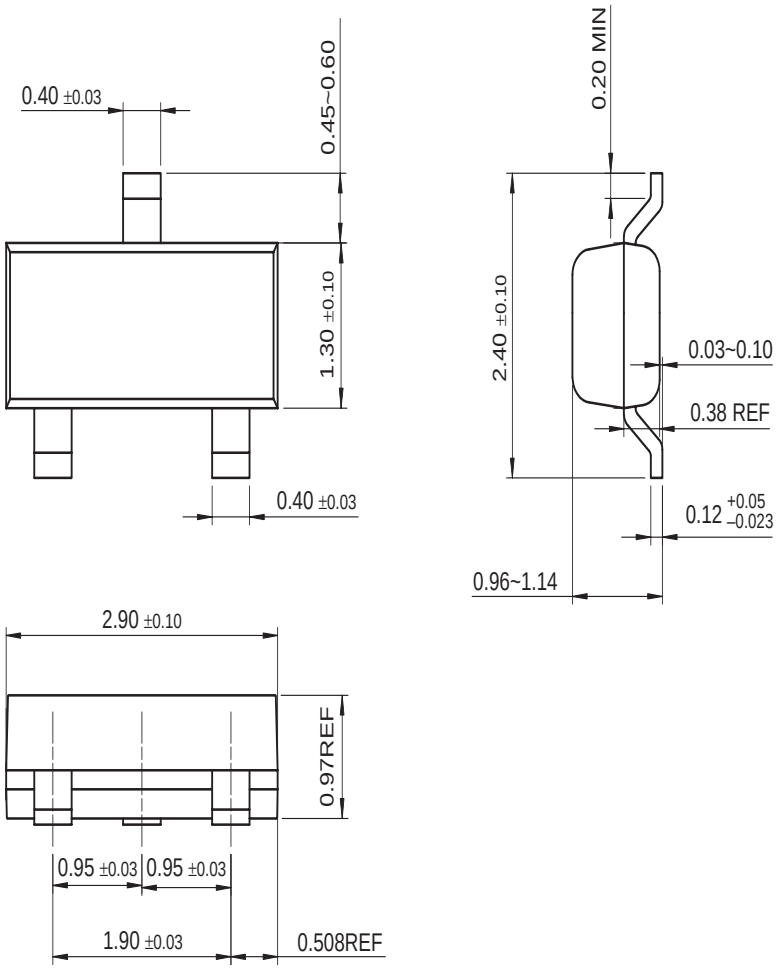


Figure 4. Current Gain Bandwidth Product

Package Dimensions

SOT-23



Dimensions in Millimeters

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SPM™
SuperFET™
SuperSOT™-3
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