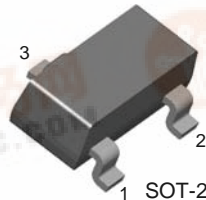




March 2007

FJV42

NPN High Voltage Transistor



1 SOT-23
Marking: 1DF
1. Base 2. Emitter 3. Collector

Absolute Maximum Ratings * $T_a = 25^\circ\text{C}$ 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	$^\circ\text{C}$
P_C	Collector Power Dissipation	350	mW

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

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{TH(j-a)}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C/W}$

Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

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

* Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$



Typical Characteristics

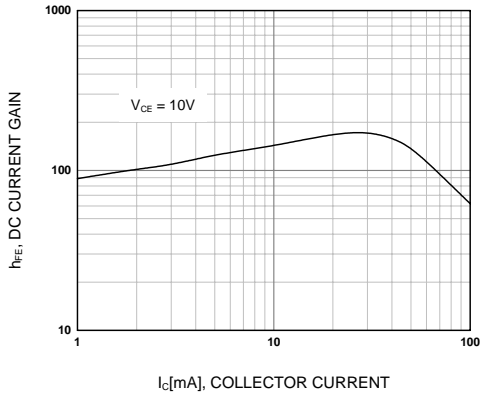
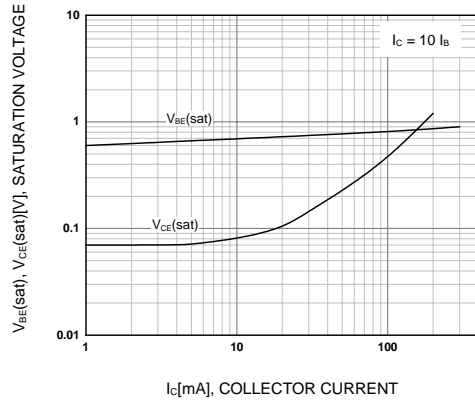


Figure 1. DC current Gain



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

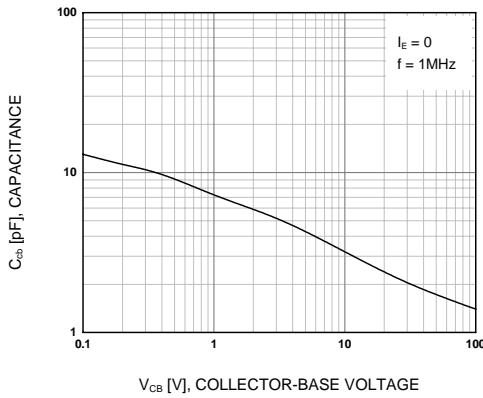


Figure 3. Collector-Base Capacitance

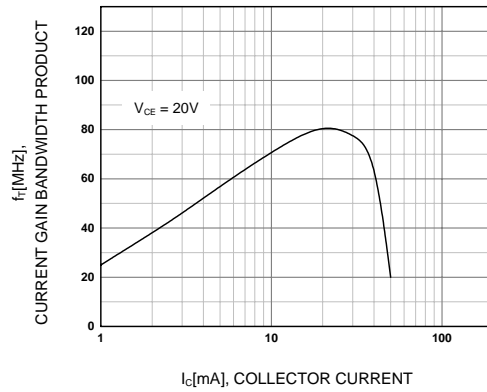
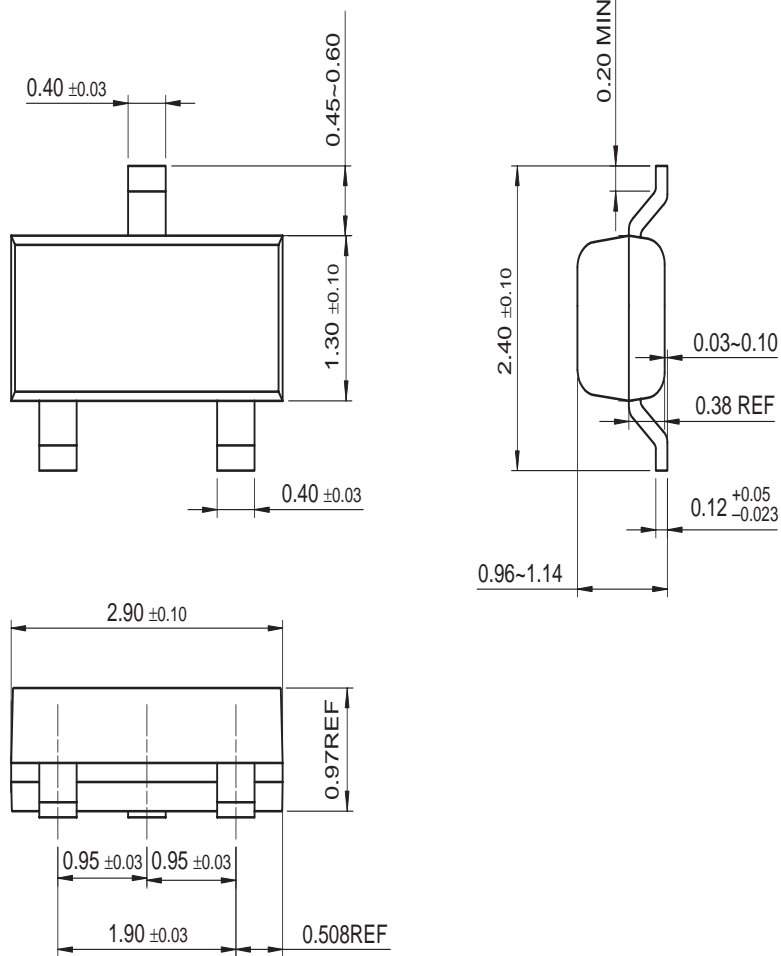


Figure 4. Current Gain Bandwidth Product

Package Dimensions

SOT-23



Dimensions in Millimeters



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