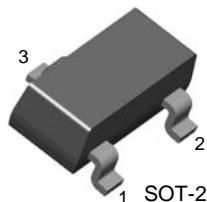




# FJV42

## NPN High Voltage Transistor



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
$V_{CB0}$	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	$^\circ\text{C}/\text{W}$

### 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	$I_C = 100 \text{ uA}, I_E = 0$	350		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \text{ uA}, I_C = 0$	6		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 200 \text{ V}, I_E = 0$		0.1	$\mu\text{A}$
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = 5.0 \text{ V}, I_C = 0$		0.1	$\mu\text{A}$
$h_{FE}$	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
$f_T$	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 Cycles  $\leq 2\%$

## Typical Characteristics

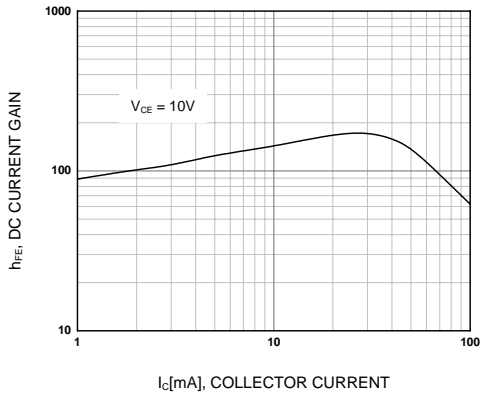


Figure 1. DC current Gain

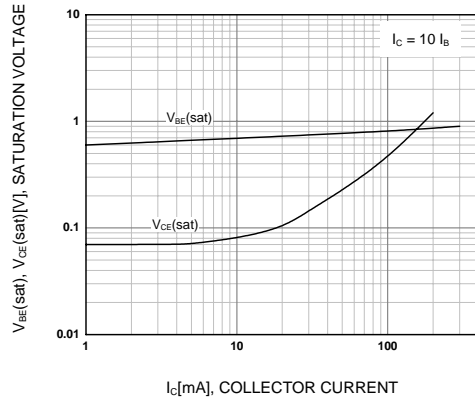


Figure 2. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

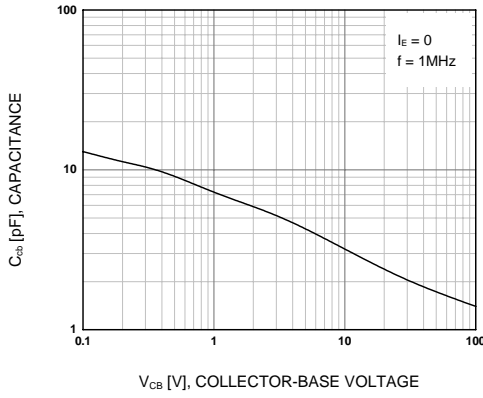


Figure 3. Collector-Base Capacitance

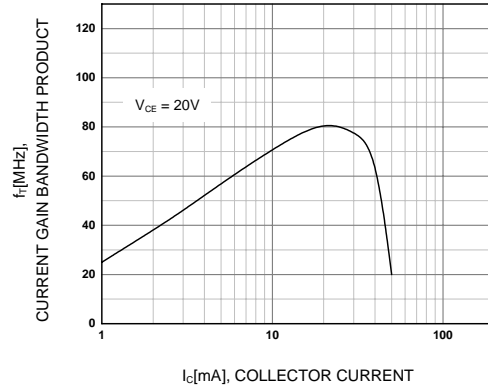
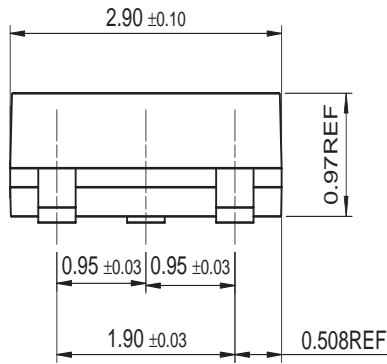
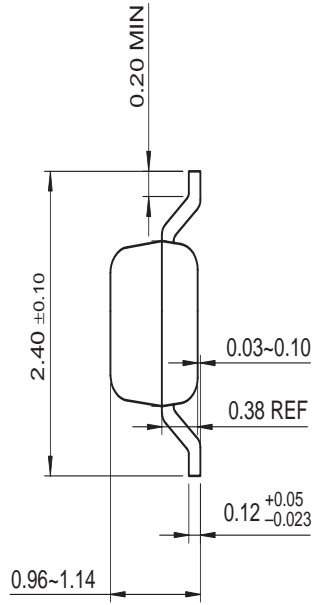
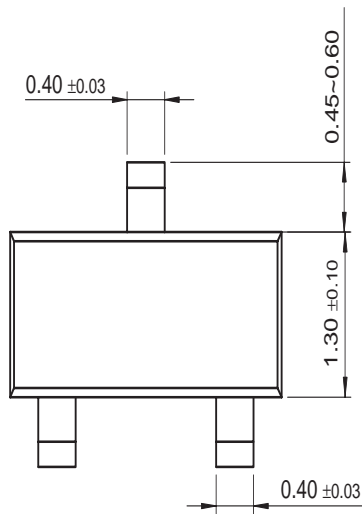


Figure 4. Current Gain Bandwidth Product

# Package Dimensions

## SOT-23



Dimensions in Millimeters



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E <sup>2</sup> CMOS™	MSXPro™	SMART START™	Wire™
EcoSPARK®	OCX™	SPM™	
EnSigna™	OCXPro™	SuperFET™	
FACT Quiet Series™	OPTOLOGIC®	SuperSOT™-3	
FACT®	OPTOPLANAR™®	SuperSOT™-6	
FAST®	PACMAN™	SuperSOT™-8	
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