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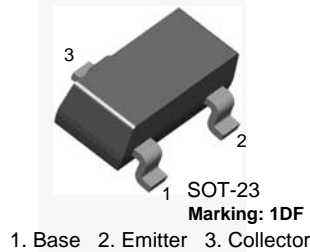
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October 2014

## FJV42 NPN High-Voltage Transistor



### Ordering Information

Part Number	Marking	Package	Packing Method
FJV42MTF	1DF	SOT-23 3L	Tape and Reel

### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{CEO}$	Collector-Emitter Voltage	350	V
$V_{CBO}$	Collector-Base Voltage	350	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current	500	mA
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

### Thermal Characteristics<sup>(1)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	$^\circ\text{C}/\text{W}$

**Note:**

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

## Electrical Characteristics

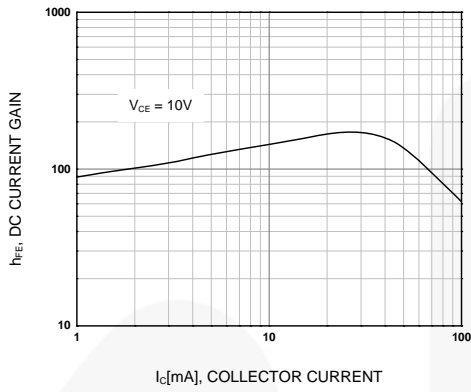
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage <sup>(2)</sup>	$I_C = 5.0\text{ mA}, I_B = 0$	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 Cut-Off Current	$V_{CB} = 200\text{ V}, I_E = 0$		0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 5.0\text{ V}, I_C = 0$		0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain <sup>(2)</sup>	$I_C = 1.0\text{ mA}, V_{CE} = 10\text{ V}$	25		
		$I_C = 10\text{ mA}, V_{CE} = 10\text{ V}$	40		
		$I_C = 30\text{ mA}, V_{CE} = 10\text{ V}$	40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage <sup>(2)</sup>	$I_C = 20\text{ mA}, I_B = 2.0\text{ mA}$		0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage <sup>(2)</sup>	$I_C = 20\text{ mA}, I_B = 2.0\text{ mA}$		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

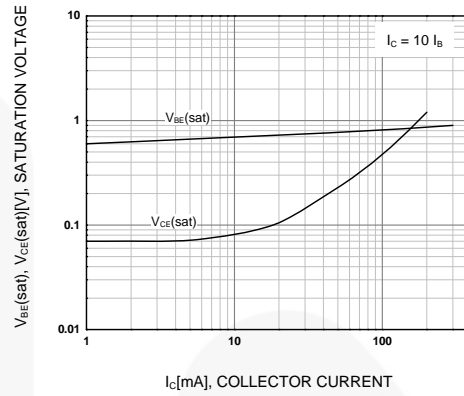
**Note:**

2. Pulse test: Pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$

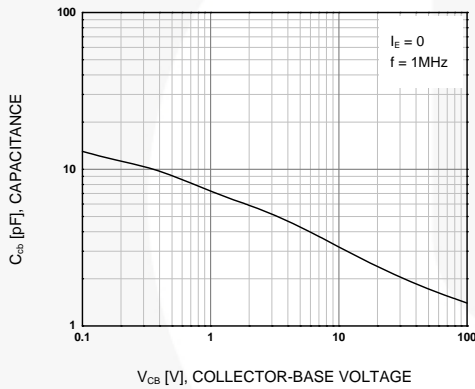
## Typical Performance Characteristics



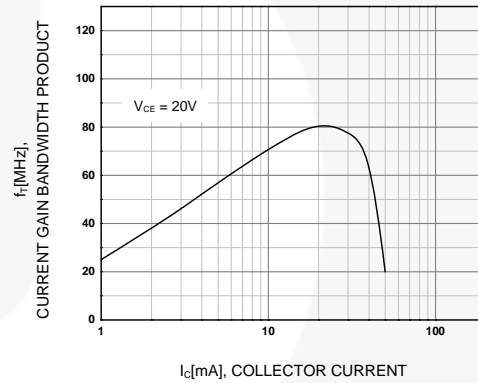
**Figure 1. DC Current Gain**



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



**Figure 3. Collector-Base Capacitance**



**Figure 4. Current Gain Bandwidth Product**



LAND PATTERN  
RECOMMENDATION



SEE DETAIL A



**DETAIL A**  
SCALE: 2X

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