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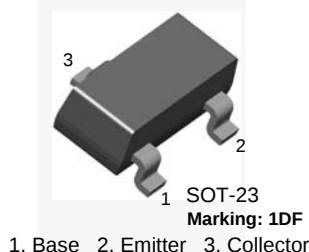


October 2014

FJV42 — NPN High-Voltage Transistor

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⁽¹⁾

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

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 ⁽²⁾	$I_C = 5.0\text{ mA}, I_B = 0$	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	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 5.0\text{ V}, I_C = 0$		0.1	μA
h_{FE}	DC Current Gain ⁽²⁾	$I_C = 1.0\text{ mA}, V_{CE} = 10\text{ V}$	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 ⁽²⁾	$I_C = 20\text{ mA}, I_B = 2.0\text{ mA}$		0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ⁽²⁾	$I_C = 20\text{ mA}, I_B = 2.0\text{ mA}$		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

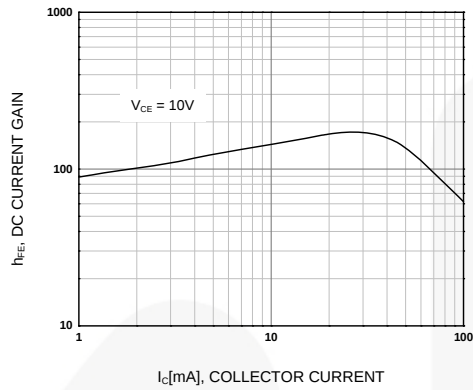


Figure 1. DC Current Gain

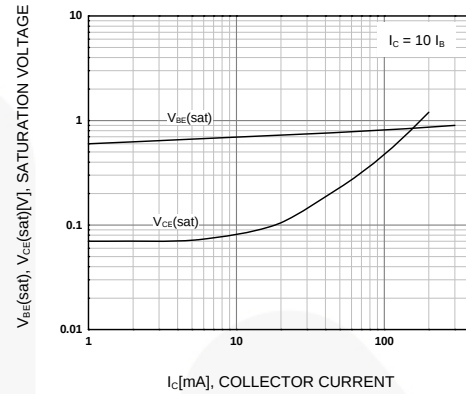


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

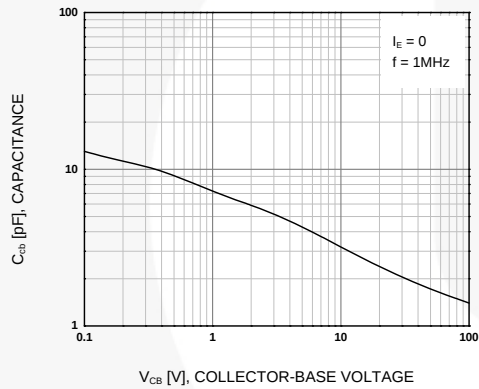


Figure 3. Collector-Base Capacitance

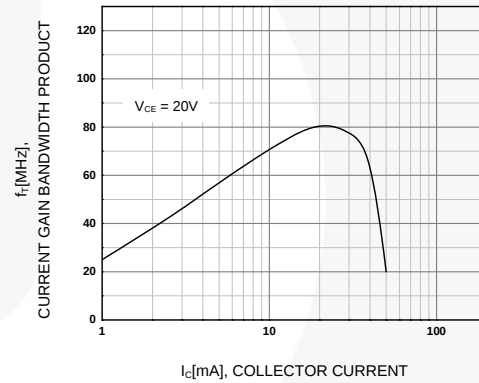


Figure 4. Current Gain Bandwidth Product

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