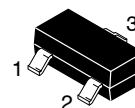


NPN High-Voltage Transistor

FJV42



SOT-23 (TO-236)
CASE 318

ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emmitter 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	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

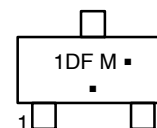
THERMAL CHARACTERISTICS (Note 1)

($T_A = 25^\circ\text{C}$ unless otherwise noted)

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

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.

MARKING DIAGRAM



1DF = Specific Device Code

M = Date Code

▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping [†]
FJV42MTF	SOT-23 (Pb-Free)	3,000 Units / Tape & Reel

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

ELECTRICAL CHARACTERISTICS(T_A = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Max	Unit
V _{(BR)CEO}	Collector–Emitter Breakdown Voltage (Note 2)	I _C = 5.0 mA, I _B = 0	350		V
V _{(BR)CBO}	Collector–Base Breakdown Voltage	I _C = 100 µA, I _E = 0	350		V
V _{(BR)EBO}	Emitter–Base Breakdown Voltage	I _E = 100 µA, I _C = 0	6		V
I _{CBO}	Collector Cut–Off Current	V _{CB} = 200 V, I _E = 0		0.1	µA
I _{EBO}	Emitter Cut–Off Current	V _{EB} = 5.0 V, I _C = 0		0.1	µA
h _{FE}	DC Current Gain (Note 2)	I _C = 1.0 mA, V _{CE} = 10 V	25		
		I _C = 10 mA, V _{CE} = 10 V	40		
		I _C = 30 mA, V _{CE} = 10 V	40		
V _{CE(sat)}	Collector–Emitter Saturation Voltage (Note 2)	I _C = 20 mA, I _B = 2.0 mA		0.5	V
V _{BE(sat)}	Base–Emitter Saturation Voltage (Note 2)	I _C = 20 mA, I _B = 2.0 mA		0.9	V
f _T	Current Gain – Bandwidth Product	I _C = 10 mA, V _{CE} = 20 V, f = 100 MHz	50		MHz
C _{cb}	Output Capacitance	V _{CB} = 20 V, I _E = 0, f = 1.0 MHz		3	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse test: Pulse width ≤ 300 µs, duty cycle ≤ 2%

TYPICAL PERFORMANCE CHARACTERISTICS

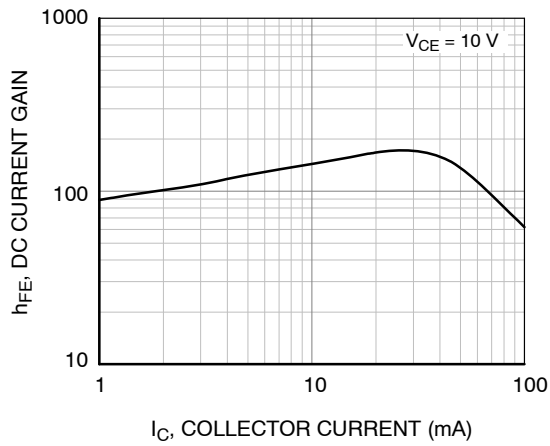


Figure 1. DC Current Gain

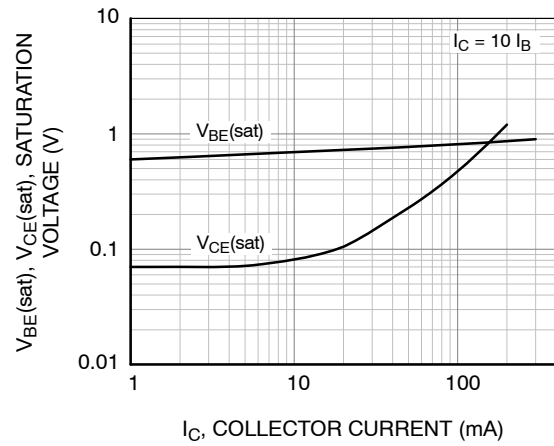


Figure 2. Collector–Emitter Saturation Voltage and Base–Emitter Saturation Voltage

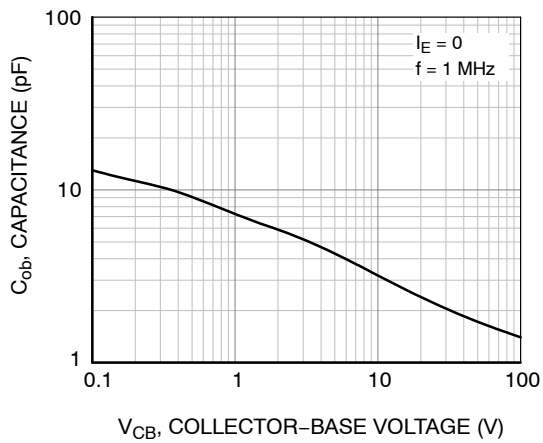


Figure 3. Collector–Base Capacitance

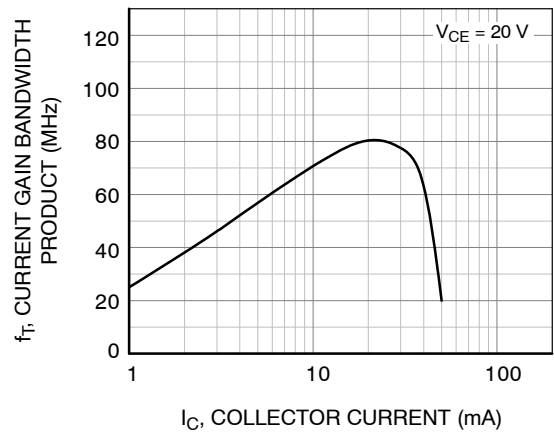


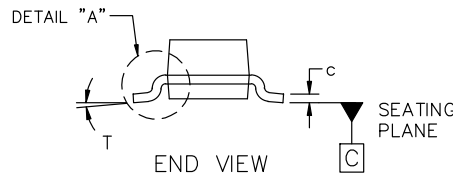
Figure 4. Current Gain Bandwidth Product



SCALE 4:1

SOT-23 (TO-236) 2.90x1.30x1.00 1.90P
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MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.89	1.00	1.11
A1	0.01	0.06	0.10
b	0.37	0.44	0.50
c	0.08	0.14	0.20
D	2.80	2.90	3.04
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.43	0.55
L1	0.35	0.54	0.69
HE	2.10	2.40	2.64
T	0°	---	10°

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

GENERIC
MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



RECOMMENDED
MOUNTING FOOTPRINT

* For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

STYLES ON PAGE 2

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STYLE 1 THRU 5: CANCELLED	STYLE 6: PIN 1. BASE 2. EMITTER 3. COLLECTOR	STYLE 7: PIN 1. EMITTER 2. BASE 3. COLLECTOR	STYLE 8: PIN 1. ANODE 2. NO CONNECTION 3. CATHODE		
STYLE 9: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 10: PIN 1. DRAIN 2. SOURCE 3. GATE	STYLE 11: PIN 1. ANODE 2. CATHODE 3. CATHODE-ANODE	STYLE 12: PIN 1. CATHODE 2. CATHODE 3. ANODE	STYLE 13: PIN 1. SOURCE 2. DRAIN 3. GATE	STYLE 14: PIN 1. CATHODE 2. GATE 3. ANODE
STYLE 15: PIN 1. GATE 2. CATHODE 3. ANODE	STYLE 16: PIN 1. ANODE 2. CATHODE 3. CATHODE	STYLE 17: PIN 1. NO CONNECTION 2. ANODE 3. CATHODE	STYLE 18: PIN 1. NO CONNECTION 2. CATHODE 3. ANODE	STYLE 19: PIN 1. CATHODE 2. ANODE 3. CATHODE-ANODE	STYLE 20: PIN 1. CATHODE 2. ANODE 3. GATE
STYLE 21: PIN 1. GATE 2. SOURCE 3. DRAIN	STYLE 22: PIN 1. RETURN 2. OUTPUT 3. INPUT	STYLE 23: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 24: PIN 1. GATE 2. DRAIN 3. SOURCE	STYLE 25: PIN 1. ANODE 2. CATHODE 3. GATE	STYLE 26: PIN 1. CATHODE 2. ANODE 3. NO CONNECTION
STYLE 27: PIN 1. CATHODE 2. CATHODE 3. CATHODE	STYLE 28: PIN 1. ANODE 2. ANODE 3. ANODE				

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