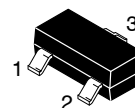


NPN High-Voltage Transistor

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–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 | $^\circ\text{C}$ |

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.

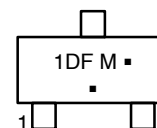
THERMAL CHARACTERISTICS (Note 1)

($T_A = 25^\circ\text{C}$ 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.

FJV42

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

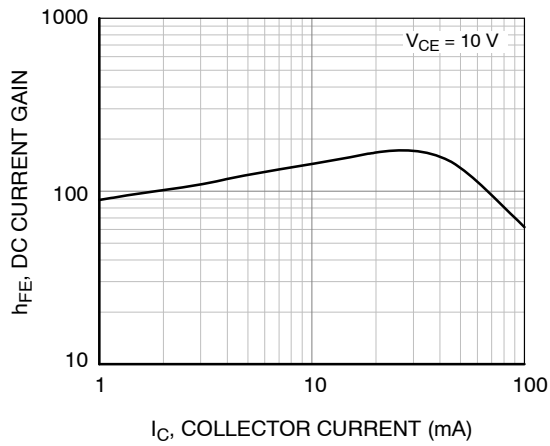


Figure 1. DC Current Gain

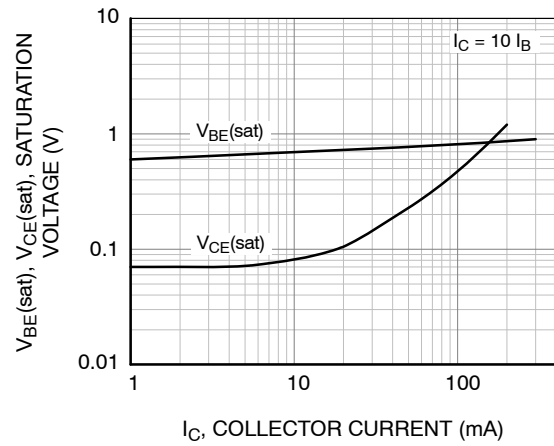


Figure 2. Collector–Emitter Saturation Voltage and Base–Emitter Saturation Voltage

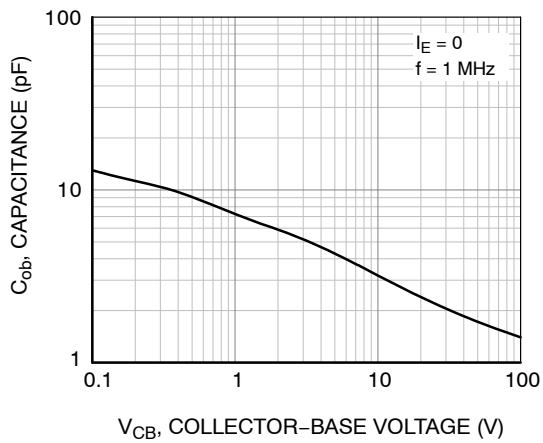


Figure 3. Collector–Base Capacitance

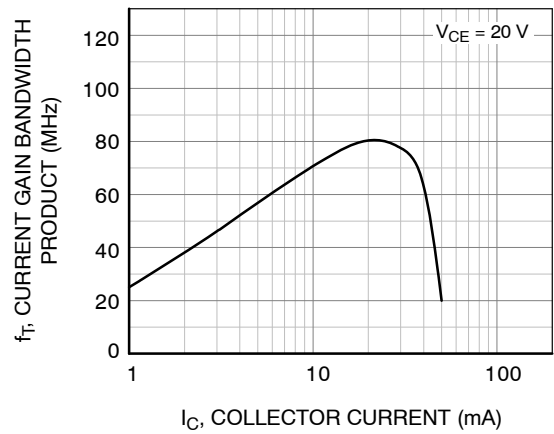


Figure 4. Current Gain Bandwidth Product



SCALE 4:1

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CASE 318
ISSUE AU

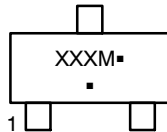
DATE 14 AUG 2024



| 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, SOLDERRM/D.

STYLES ON PAGE 2

| | | |
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CASE 318
ISSUE AU

DATE 14 AUG 2024

| | | | | | |
|---|---|---|---|---|---|
| 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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