# MMBFU310LT1

**Preferred Device**

# JFET Transistor

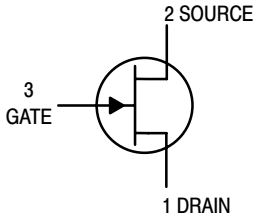
## N−Channel

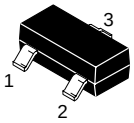
**Features**

- Pb−Free Package is Available

ON Semiconductor®

http://onsemi.com




**SOT−23 (TO−236AB)**
**CASE 318−08**
**STYLE 10**

### MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Drain−Source Voltage | $V_{DS}$ | 25 | Vdc |
| Gate−Source Voltage | $V_{GS}$ | 25 | Vdc |
| Gate Current | $I_G$ | 10 | mAdc |

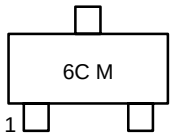
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| Total Device Dissipation FR−5 Board (Note 1)<br>$T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 225<br><br>1.8 | mW<br><br>mW/°C |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 556 | °C/W |
| Junction and Storage Temperature | $T_J$, $T_{stg}$ | −55 to +150 | °C |

1. FR−5 = 1.0 × 0.75 × 0.062 in.

### MARKING DIAGRAM




6C = Specific Device Code
M = Date Code
▪ = Pb−Free Package

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| MMBFU310LT1 | SOT−23 | 3000 Tape & Reel |
| MMBFU310LT1G | SOT−23 (Pb−Free) | 3000 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.

**Preferred** devices are recommended choices for future use and best overall value.

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

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | |
| Gate−Source Breakdown Voltage − ($I_G$ = −1.0 μAdc, $V_{DS}$ = 0) | $V_{(BR)GSS}$ | −25 | − | Vdc |
| Gate 1 Leakage Current − ($V_{GS}$ = −15 Vdc, $V_{DS}$ = 0) | $I_{G1SS}$ | − | −150 | pA |
| Gate 2 Leakage Current − ($V_{GS}$ = −15 Vdc, $V_{DS}$ = 0, $T_A$ = 125°C) | $I_{G2SS}$ | − | −150 | nAdc |
| Gate Source Cutoff Voltage − ($V_{DS}$ = 10 Vdc, $I_D$ = 1.0 nAdc) | $V_{GS(off)}$ | −2.5 | −6.0 | Vdc |
| **ON CHARACTERISTICS** | | | | |
| Zero−Gate−Voltage Drain Current − ($V_{DS}$ = 10 Vdc, $V_{GS}$ = 0) | $I_{DSS}$ | 24 | 60 | mAdc |
| Gate−Source Forward Voltage − ($I_G$ = 10 mAdc, $V_{DS}$ = 0) | $V_{GS(f)}$ | − | 1.0 | Vdc |
| **SMALL−SIGNAL CHARACTERISTICS** | | | | |
| Forward Transfer Admittance − ($V_{DS}$ = 10 Vdc, $I_D$ = 10 mAdc, f = 1.0 kHz) | $\|Y_{fs}\|$ | 10 | 18 | mmhos |
| Output Admittance − ($V_{DS}$ = 10 Vdc, $I_D$ = 10 mAdc, f = 1.0 kHz) | $\|y_{os}\|$ | − | 250 | μmhos |
| Input Capacitance − ($V_{GS}$ = −10 Vdc, $V_{DS}$ = 0 Vdc, f = 1.0 MHz) | $C_{iss}$ | − | 5.0 | pF |
| Reverse Transfer Capacitance − ($V_{GS}$ = −10 Vdc, $V_{DS}$ = 0 Vdc, f = 1.0 MHz) | $C_{rss}$ | − | 2.5 | pF |

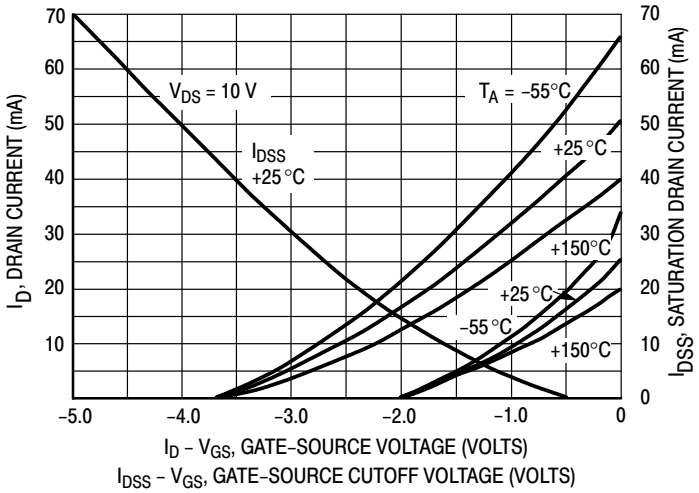



**Figure 1. Drain Current and Transfer Characteristics vs Gate−Source Voltage**

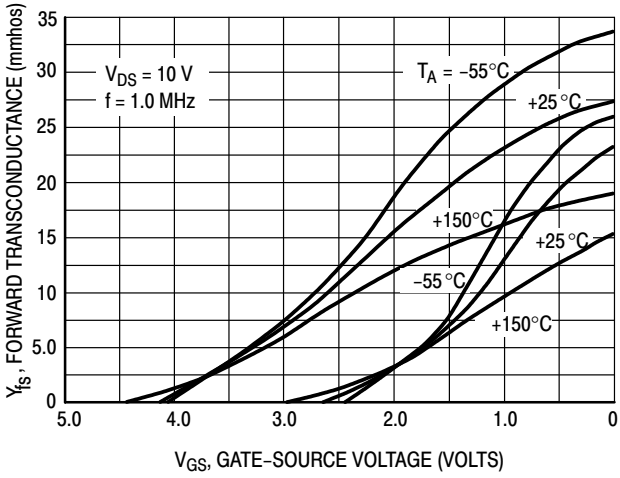



**Figure 2. Forward Transconductance vs Gate−Source Voltage**

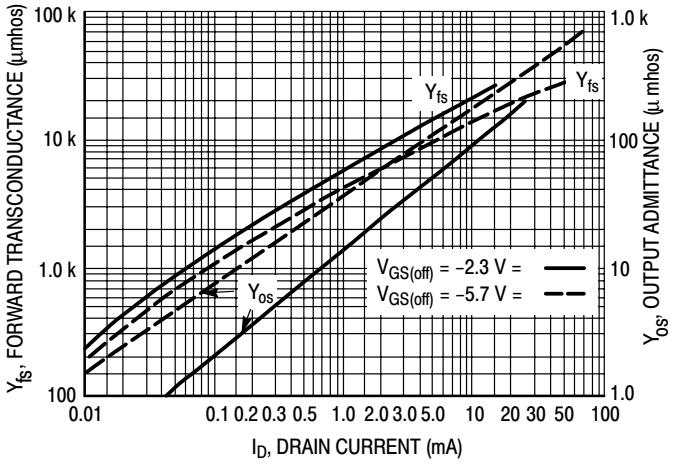



**Figure 3. Common−Source Output Admittance and Forward Transconductance vs Drain Current**

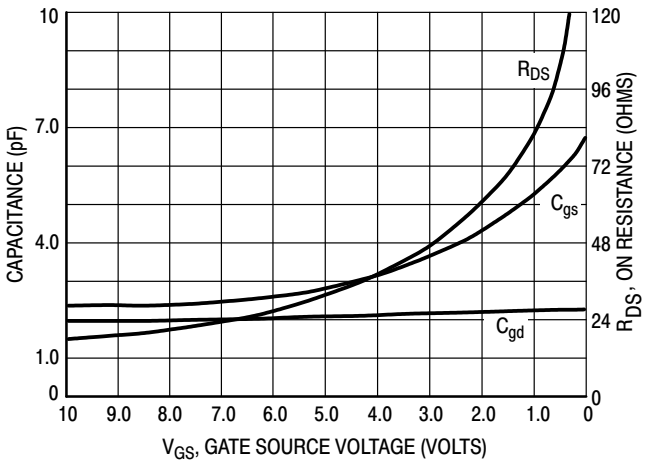



**Figure 4. On Resistance and Junction Capacitance vs Gate−Source Voltage**

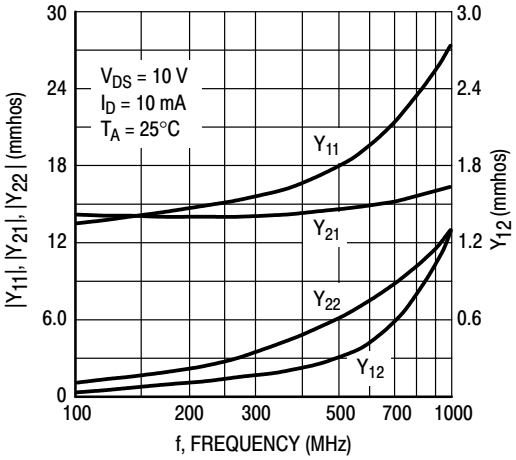



**Figure 5. Common−Gate Y Parameter Magnitude vs Frequency**

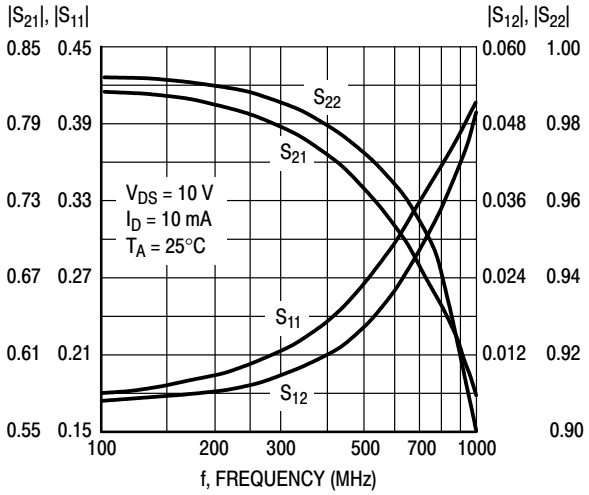



**Figure 6. Common−Gate S Parameter Magnitude vs Frequency**

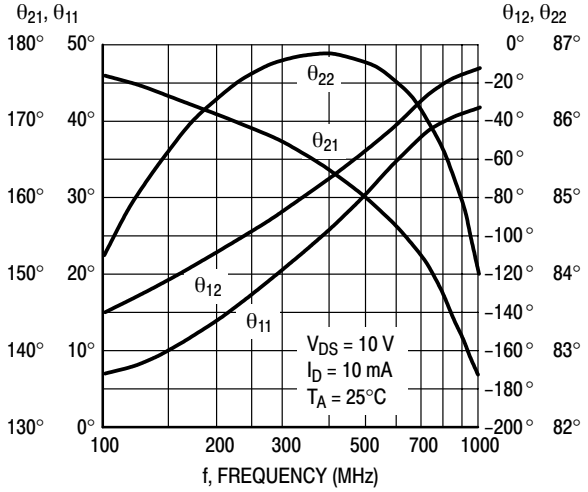



**Figure 7. Common−Gate Y Parameter Phase−Angle vs Frequency**

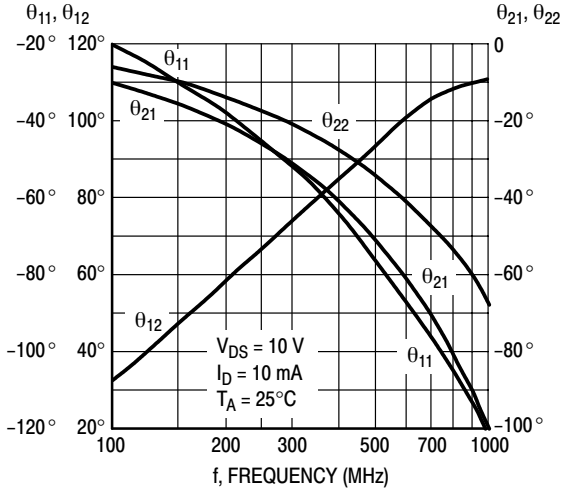
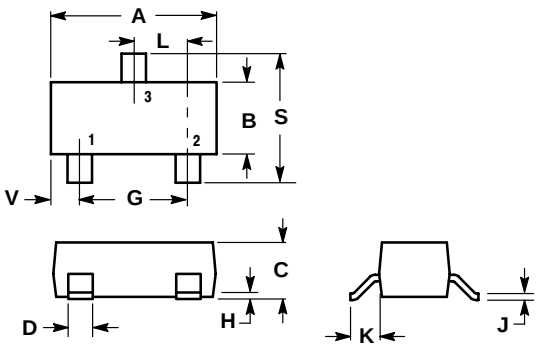



**Figure 8. S Parameter Phase−Angle vs Frequency**

# MMBFU310LT1

## PACKAGE DIMENSIONS

**SOT−23 (TO−236AB)**
CASE 318−08
ISSUE AH

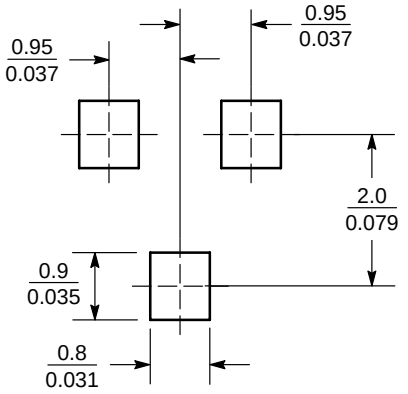



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318−01 THRU −07 AND −09 OBSOLETE, NEW STANDARD 318−08.

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | MIN | MAX | MIN | MAX |
| A | 0.1102 | 0.1197 | 2.80 | 3.04 |
| B | 0.0472 | 0.0551 | 1.20 | 1.40 |
| C | 0.0350 | 0.0440 | 0.89 | 1.11 |
| D | 0.0150 | 0.0200 | 0.37 | 0.50 |
| G | 0.0701 | 0.0807 | 1.78 | 2.04 |
| H | 0.0005 | 0.0040 | 0.013 | 0.100 |
| J | 0.0034 | 0.0070 | 0.085 | 0.177 |
| K | 0.0140 | 0.0285 | 0.35 | 0.69 |
| L | 0.0350 | 0.0401 | 0.89 | 1.02 |
| S | 0.0830 | 0.1039 | 2.10 | 2.64 |
| V | 0.0177 | 0.0236 | 0.45 | 0.60 |

STYLE 10:
PIN 1. DRAIN
2. SOURCE
3. GATE

### SOLDERING FOOTPRINT*




SCALE 10:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



### PUBLICATION ORDERING INFORMATION

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