

MMBFU310LT1G

JFET Transistor

N-Channel

Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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 |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

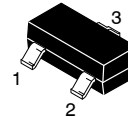
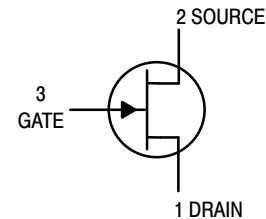
| | | | |
|--|-----------------|-------------|---------------------------|
| Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 225 | mW |
| | | 1.8 | mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 556 | $^\circ\text{C}/\text{W}$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

1. FR-5 = $1.0 \times 0.75 \times 0.062$ in.



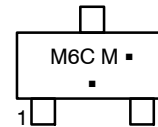
ON Semiconductor®

<http://onsemi.com>



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

MARKING DIAGRAM



M6C = Device Code
M = Date Code*
■ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

| Device | Package | Shipping† |
|--------------|---------------------|------------------|
| 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.

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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 |

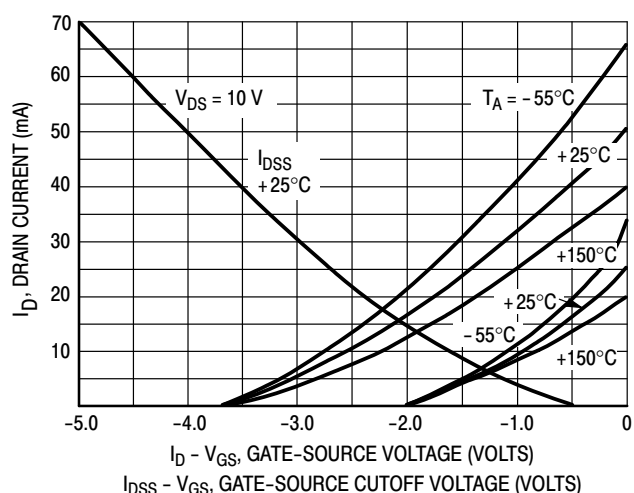


Figure 1. Drain Current and Transfer Characteristics vs Gate-Source Voltage

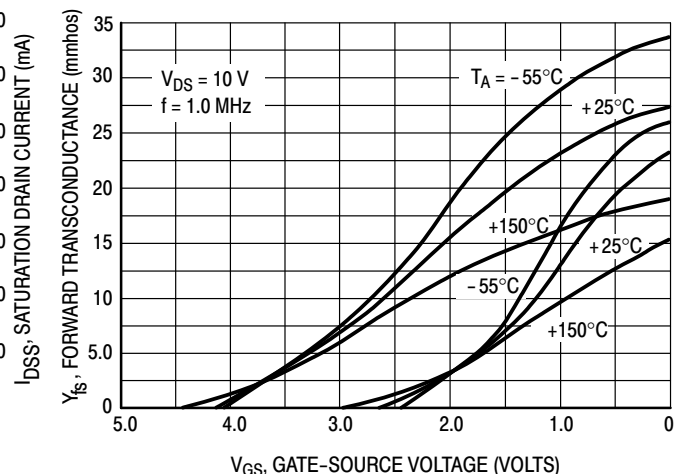


Figure 2. Forward Transconductance vs Gate-Source Voltage

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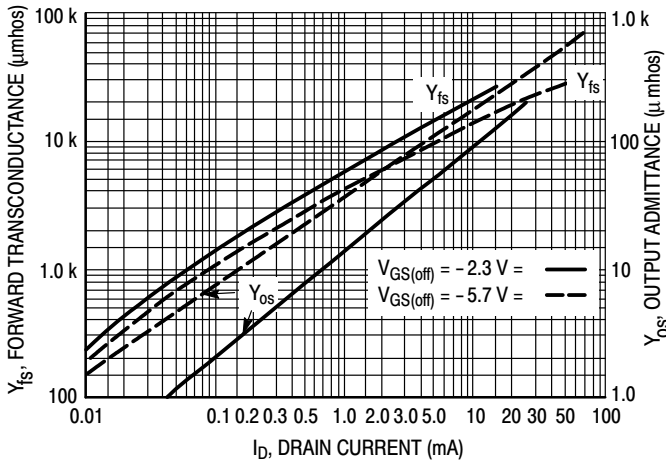


Figure 3. Common-Source Output Admittance and Forward Transconductance vs Drain Current

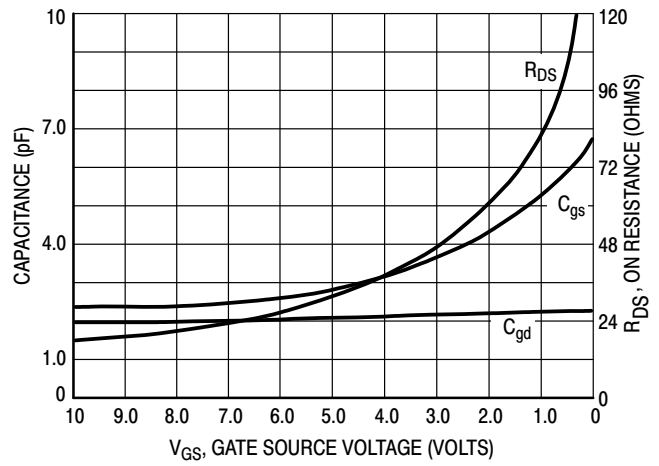


Figure 4. On Resistance and Junction Capacitance vs Gate-Source Voltage

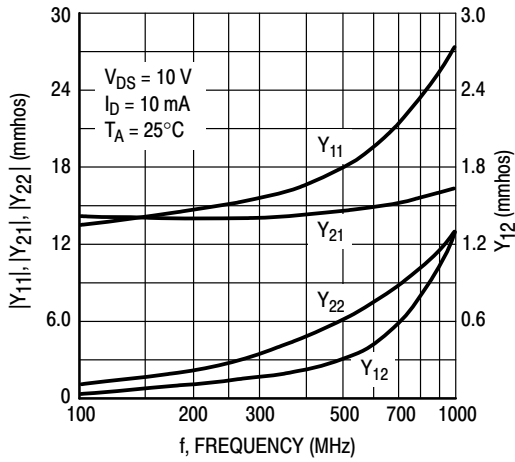


Figure 5. Common-Gate Y Parameter Magnitude vs Frequency

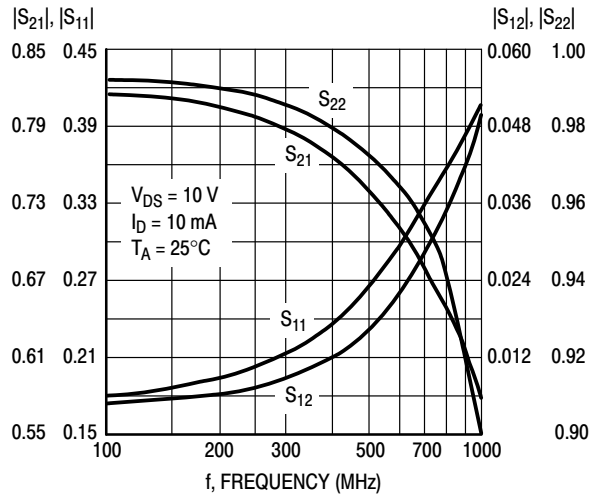


Figure 6. Common-Gate S Parameter Magnitude vs Frequency

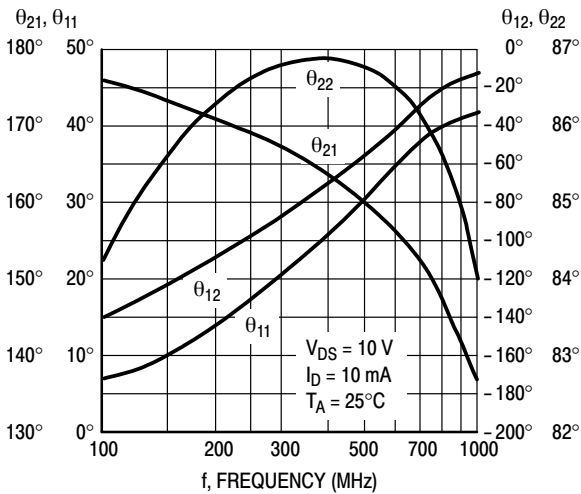


Figure 7. Common-Gate Y Parameter Phase-Angle vs Frequency

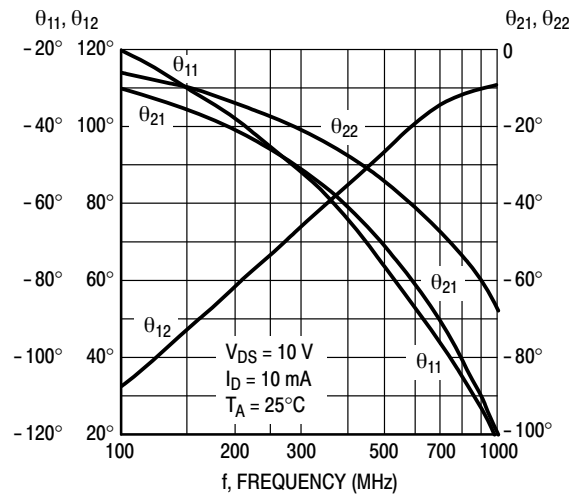


Figure 8. S Parameter Phase-Angle vs Frequency

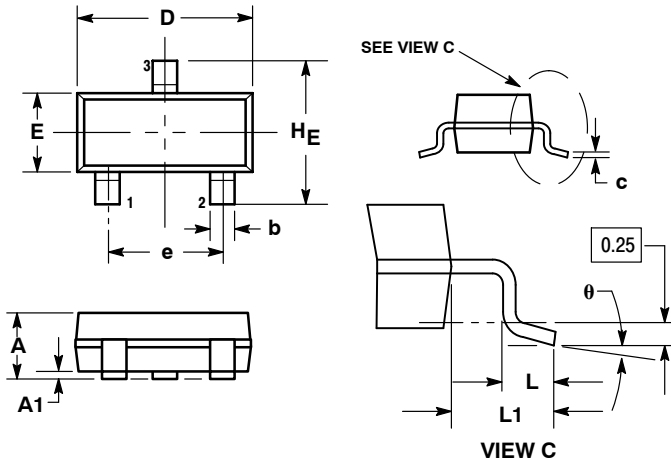
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PACKAGE DIMENSIONS

SOT-23 (TO-236AB)

CASE 318-08

ISSUE AN



NOTES:

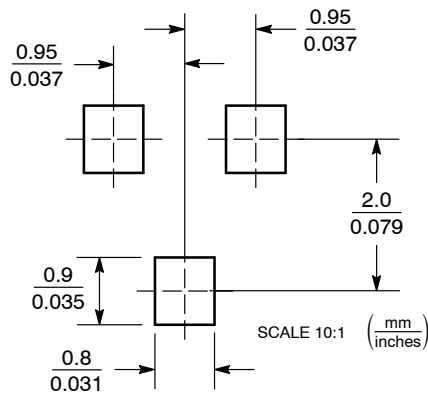
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.040 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.018 | 0.020 |
| c | 0.09 | 0.13 | 0.18 | 0.003 | 0.005 | 0.007 |
| D | 2.80 | 2.90 | 3.04 | 0.110 | 0.114 | 0.120 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e | 1.78 | 1.90 | 2.04 | 0.070 | 0.075 | 0.081 |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.029 |
| HE | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |

STYLE 10:

- PIN 1. DRAIN
2. SOURCE
3. GATE

SOLDERING FOOTPRINT*



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

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