MMBFU310LT1

Preferred Device

JFET Transistor

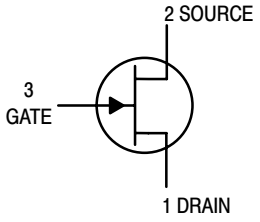
N−Channel

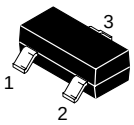
ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Package is Available





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

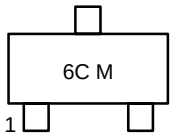
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur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

THERMAL CHARACTERISTICS

Total Device Dissipation FR−5 Board (Note 1) T_A = 25°C Derate above 25°C	P_D	225 1.8	mW 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

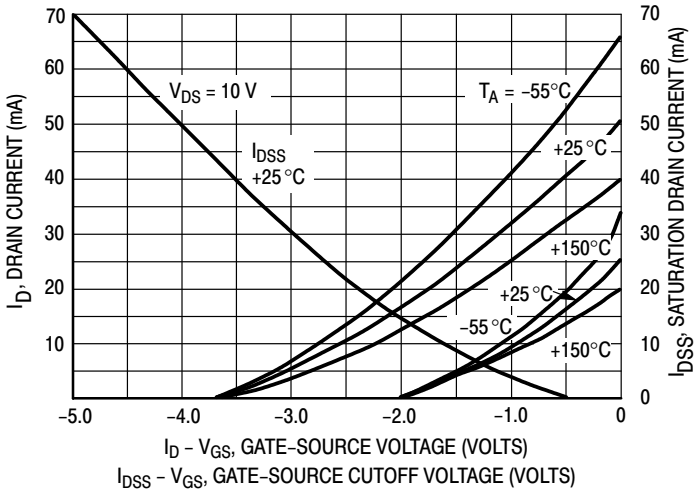


Figure 1. Drain Current and Transfer Characteristics vs Gate−Source Voltage

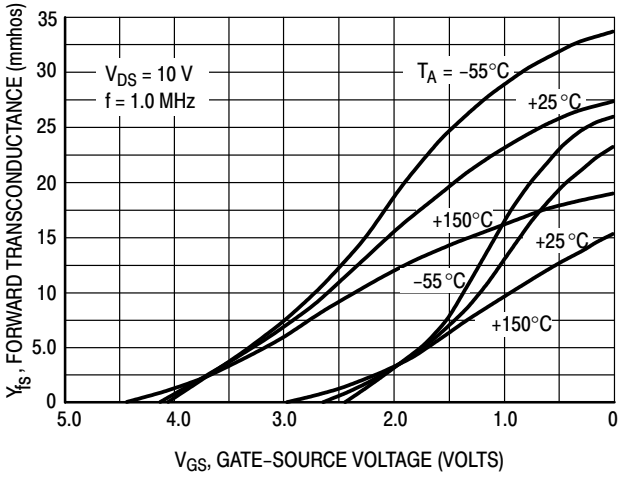


Figure 2. Forward Transconductance vs Gate−Source Voltage

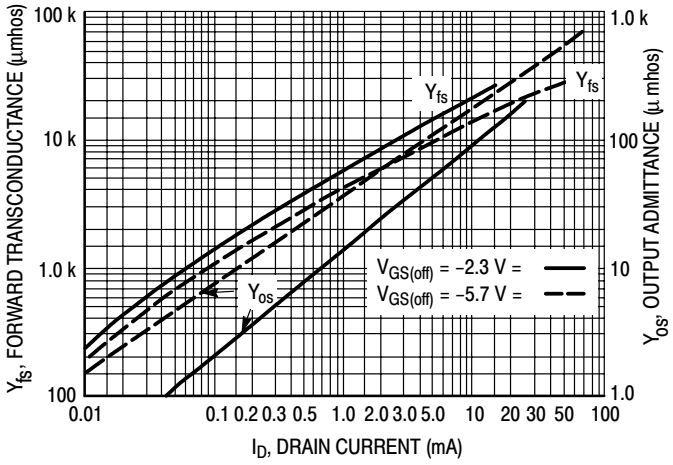


Figure 3. Common−Source Output Admittance and Forward Transconductance vs Drain Current

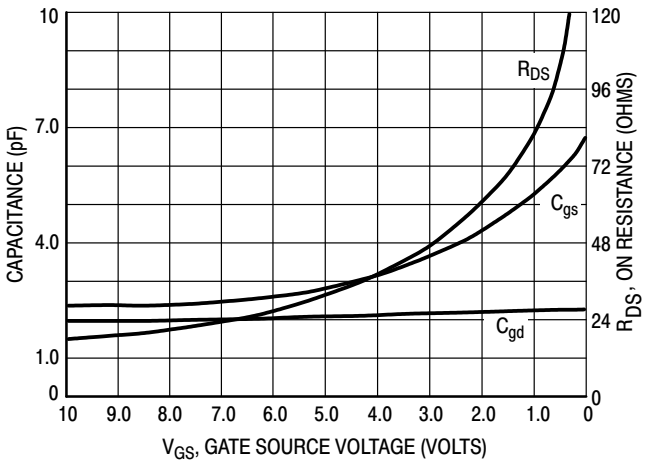


Figure 4. On Resistance and Junction Capacitance vs Gate−Source Voltage

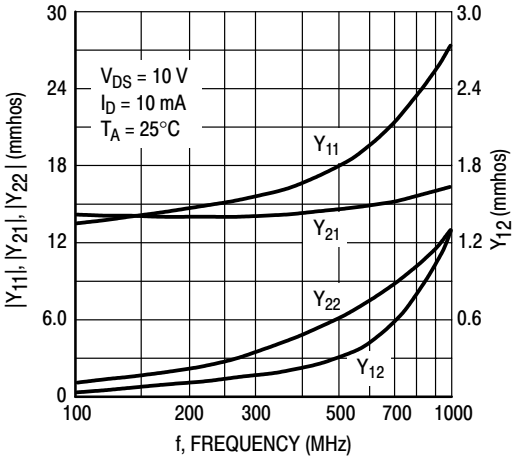


Figure 5. Common−Gate Y Parameter Magnitude vs Frequency

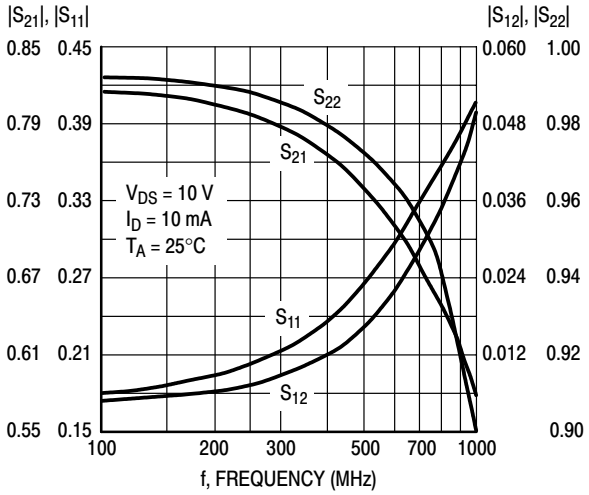


Figure 6. Common−Gate S Parameter Magnitude vs Frequency

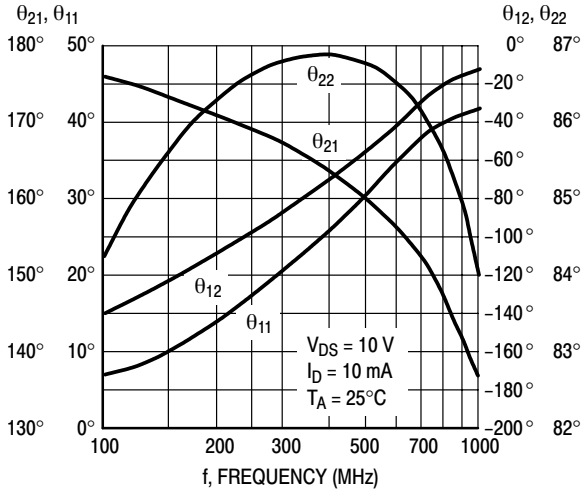


Figure 7. Common−Gate Y Parameter Phase−Angle vs Frequency

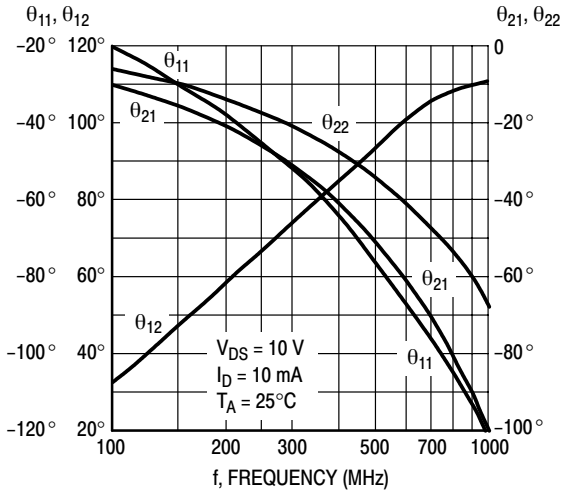
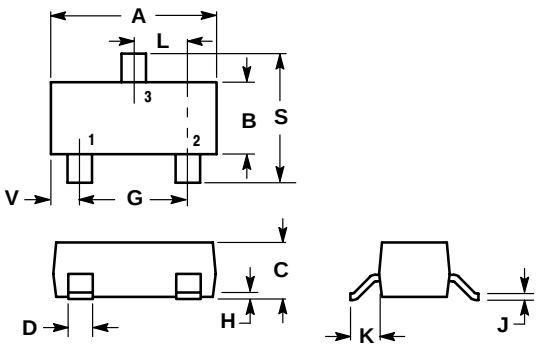


Figure 8. S Parameter Phase−Angle vs Frequency

MMBFU310LT1

PACKAGE DIMENSIONS

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

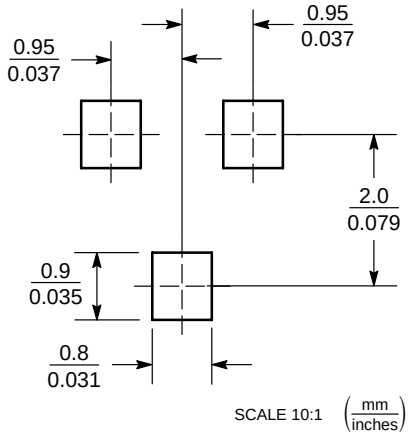


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318−01 THRU −07 AND −09 OBSOLETE, NEW STANDARD 318−08.

	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

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.