

# MMBFU310LT1

Preferred Device

## JFET Transistor

### N-Channel

#### Features

- Pb-Free Package is Available

#### 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

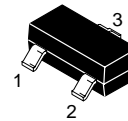
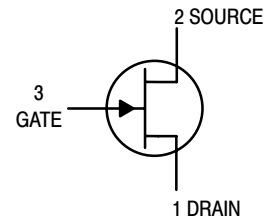
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

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



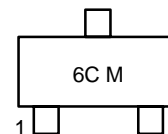
ON Semiconductor®

<http://onsemi.com>



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

#### MARKING DIAGRAM



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

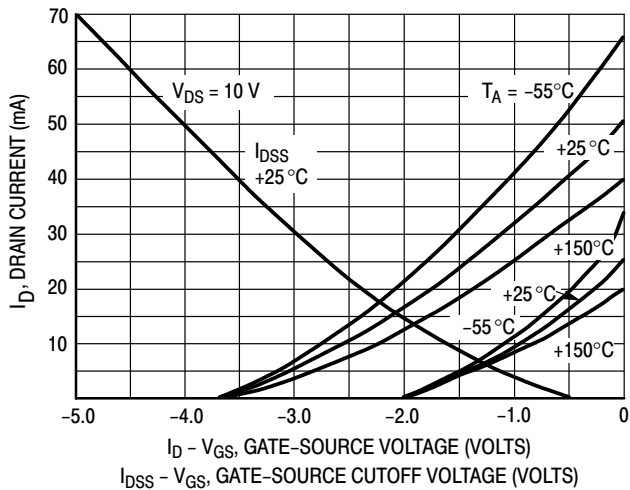
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

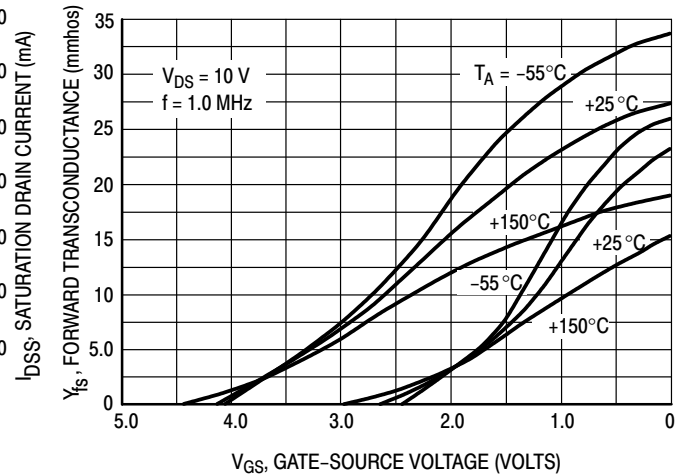
# MMBFU310LT1

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Gate-Source Breakdown Voltage - (I <sub>G</sub> = -1.0 μAdc, V <sub>DS</sub> = 0)	V <sub>(BR)GSS</sub>	-25	-	Vdc
Gate 1 Leakage Current - (V <sub>GS</sub> = -15 Vdc, V <sub>DS</sub> = 0)	I <sub>G1SS</sub>	-	-150	pA
Gate 2 Leakage Current - (V <sub>GS</sub> = -15 Vdc, V <sub>DS</sub> = 0, T <sub>A</sub> = 125°C)	I <sub>G2SS</sub>	-	-150	nAdc
Gate Source Cutoff Voltage - (V <sub>DS</sub> = 10 Vdc, I <sub>D</sub> = 1.0 nAdc)	V <sub>GS(off)</sub>	-2.5	-6.0	Vdc
<b>ON CHARACTERISTICS</b>				
Zero-Gate-Voltage Drain Current - (V <sub>DS</sub> = 10 Vdc, V <sub>GS</sub> = 0)	I <sub>DSS</sub>	24	60	mAdc
Gate-Source Forward Voltage - (I <sub>G</sub> = 10 mAdc, V <sub>DS</sub> = 0)	V <sub>GS(f)</sub>	-	1.0	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>				
Forward Transfer Admittance - (V <sub>DS</sub> = 10 Vdc, I <sub>D</sub> = 10 mAdc, f = 1.0 kHz)	Y <sub>fs</sub>	10	18	mmhos
Output Admittance - (V <sub>DS</sub> = 10 Vdc, I <sub>D</sub> = 10 mAdc, f = 1.0 kHz)	y <sub>os</sub>	-	250	μmhos
Input Capacitance - (V <sub>GS</sub> = -10 Vdc, V <sub>DS</sub> = 0 Vdc, f = 1.0 MHz)	C <sub>iss</sub>	-	5.0	pF
Reverse Transfer Capacitance - (V <sub>GS</sub> = -10 Vdc, V <sub>DS</sub> = 0 Vdc, f = 1.0 MHz)	C <sub>rss</sub>	-	2.5	pF

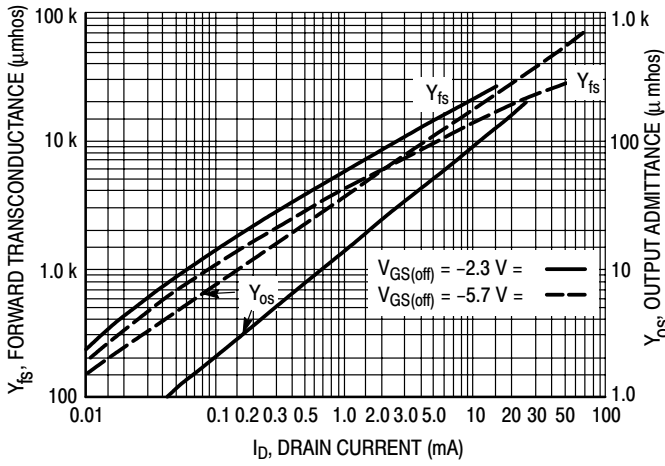


**Figure 1. Drain Current and Transfer Characteristics vs Gate-Source Voltage**

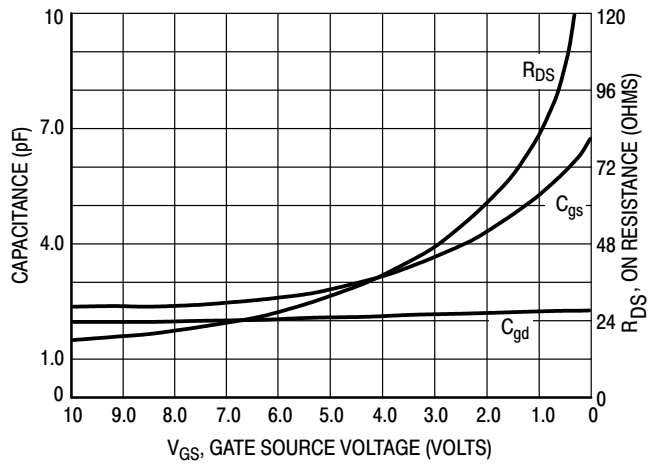


**Figure 2. Forward Transconductance vs Gate-Source Voltage**

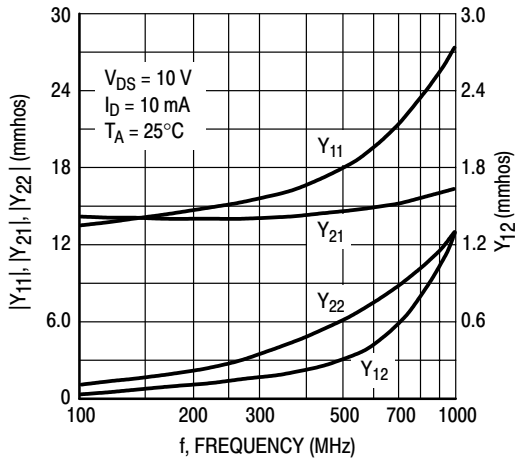
# MMBFU310LT1



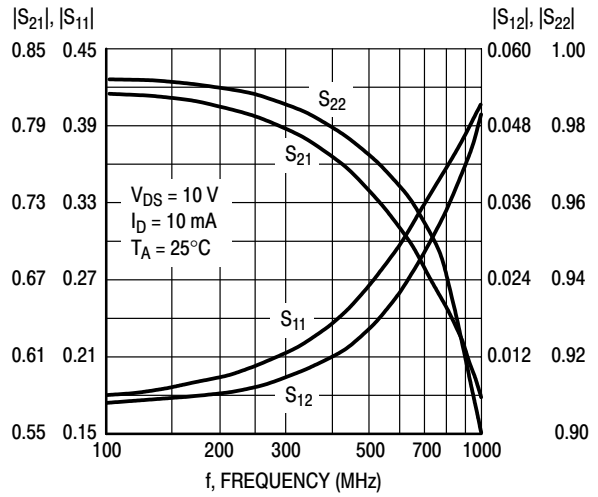
**Figure 3. Common-Source Output Admittance and Forward Transconductance vs Drain Current**



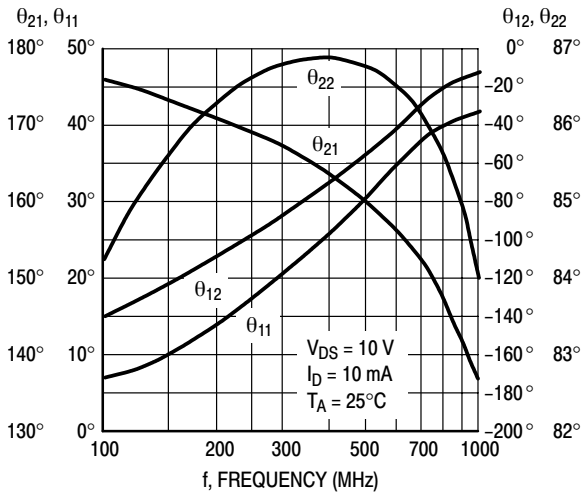
**Figure 4. On Resistance and Junction Capacitance vs Gate-Source Voltage**



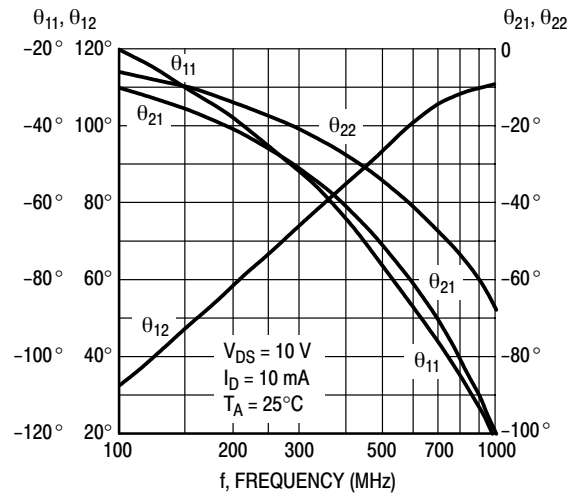
**Figure 5. Common-Gate Y Parameter Magnitude vs Frequency**



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



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

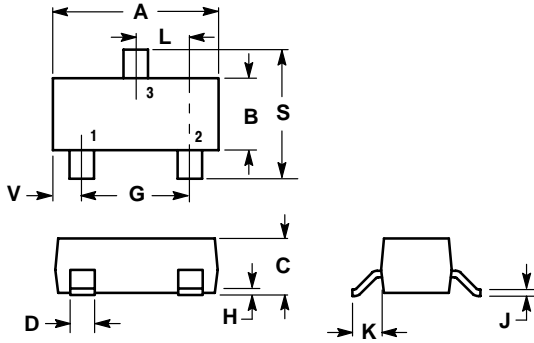


**Figure 8. S Parameter Phase-Angle vs Frequency**

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## PACKAGE DIMENSIONS

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



**NOTES:**

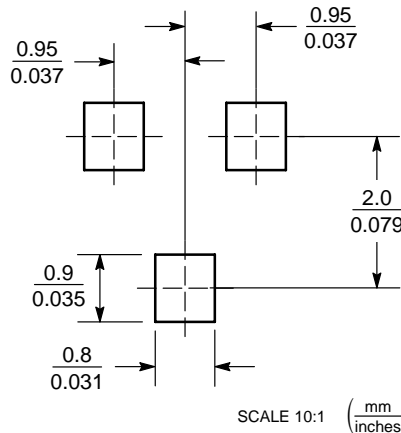
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

DIM	INCHES		MILLIMETERS	
	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:**

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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