

# MMBFJ177LT1G

## JFET Chopper

### P-Channel – Depletion

#### Features

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

#### MAXIMUM RATINGS

| Rating                      | Symbol      | Value | Unit |
|-----------------------------|-------------|-------|------|
| Drain–Gate Voltage          | $V_{DG}$    | 25    | Vdc  |
| Reverse Gate–Source Voltage | $V_{GS(r)}$ | –25   | Vdc  |

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

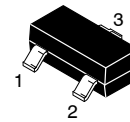
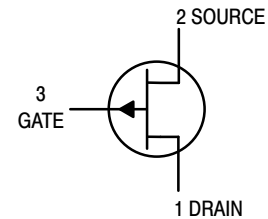
|  |                 |             |                           |
|--|-----------------|-------------|---------------------------|
| Total Device Dissipation FR–5 Board<br>(Note 1)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 225         | mW                        |
| Thermal Resistance,<br>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.



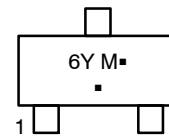
ON Semiconductor®

<http://onsemi.com>



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

#### MARKING DIAGRAM



6Y = Specific 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†        |
|--------------|---------------------|------------------|
| MMBFJ177LT1G | SOT-23<br>(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.

# MMBFJ177LT1G

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

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

### OFF CHARACTERISTICS

|   |                      |     |     |      |
|---|----------------------|-----|-----|------|
| Gate-Source Breakdown Voltage (V <sub>DS</sub> = 0, I <sub>D</sub> = 1.0 μAdc)  | V <sub>(BR)GSS</sub> | 30  | -   | Vdc  |
| Gate Reverse Current (V <sub>DS</sub> = 0 Vdc, V <sub>GS</sub> = 20 Vdc)        | I <sub>GSS</sub>     | -   | 1.0 | nAdc |
| Gate Source Cutoff Voltage (V <sub>DS</sub> = 15 Vdc, I <sub>D</sub> = 10 nAdc) | V <sub>GS(off)</sub> | 0.8 | 2.5 | Vdc  |

### ON CHARACTERISTICS

|  |  |                  |     |      |
|--|--|------------------|-----|------|
| Zero-Gate-Voltage Drain Current (V <sub>GS</sub> = 0, V <sub>DS</sub> = 15 Vdc) (Note 2) | I <sub>DSS</sub>   | 1.5              | 20  | mAdc |
| Drain Cutoff Current (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 10 Vdc)                | I <sub>D(off)</sub>  | -                | 1.0 | nAdc |
| Drain Source On Resistance (I <sub>D</sub> = 500 μAdc)                                   | r <sub>DS(on)</sub>  | -                | 300 | Ω    |
| Input Capacitance  | V <sub>DS</sub> = 0, V <sub>GS</sub> = 10 Vdc<br>f = 1.0 MHz | C <sub>iss</sub> | 11  | pF   |
| Reverse Transfer Capacitance   |  | C <sub>rss</sub> | 5.5 |      |

2. Pulse Test: Pulse Width < 300 μs, Duty Cycle ≤ 2%.

## TYPICAL CHARACTERISTICS

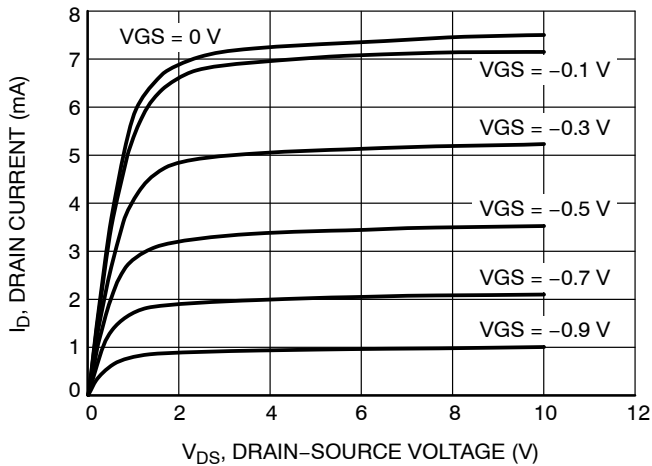


Figure 1. Drain Current vs. Drain-Source Voltage

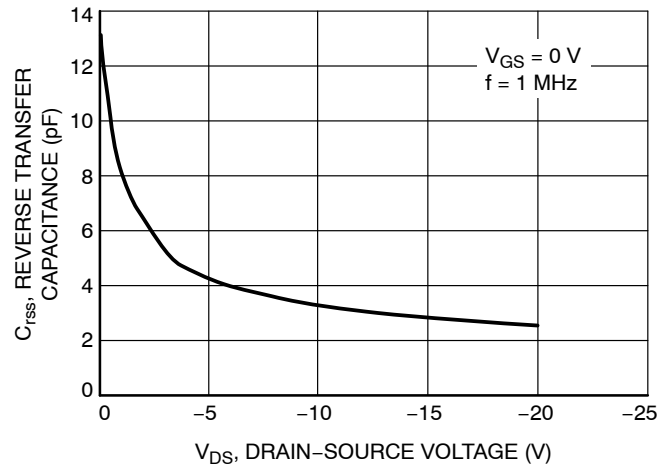


Figure 2. Reverse Transfer Capacitance

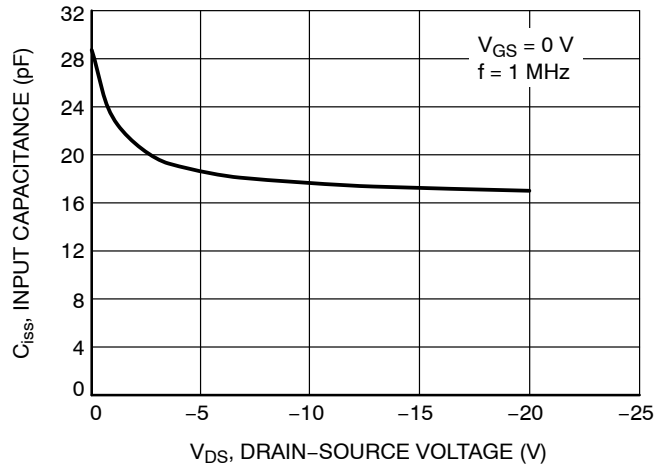
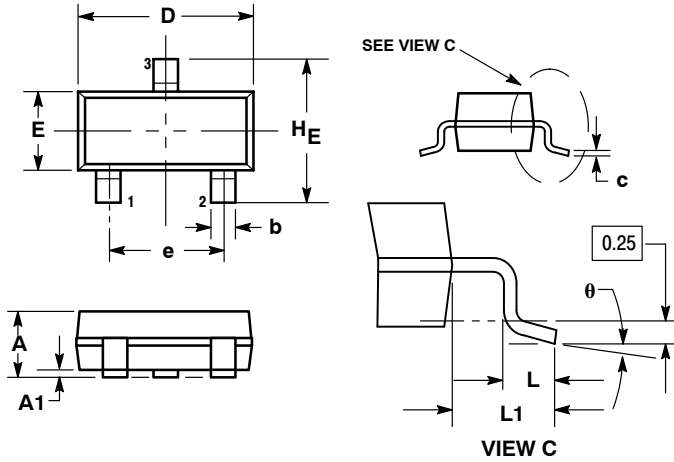


Figure 3. Input Capacitance

# MMBFJ177LT1G

## PACKAGE DIMENSIONS

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

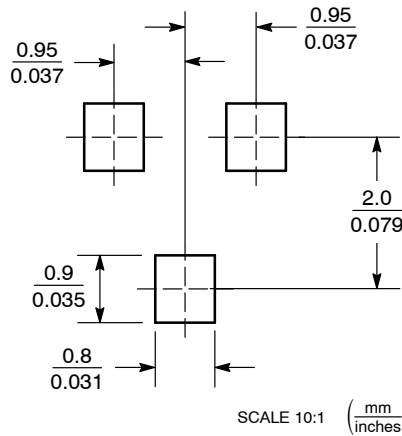


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
  4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| 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 |
| θ   | 0°          | ---  | 10°  | 0°     | ---   | 10°   |

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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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А