

MMBFJ175LT1G

JFET Chopper

P-Channel – Depletion

Features

- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- 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 | V |
| Reverse Gate-Source Voltage | $V_{GS(r)}$ | -25 | V |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 225 1.8 | mW 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 | $^\circ\text{C}$ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. FR-5 = 1.0 x 0.75 x 0.062 in.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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

OFF CHARACTERISTICS

| | | | | |
|---|---------------|-----|-----|----|
| Gate-Source Breakdown Voltage ($V_{DS} = 0, I_D = 1.0 \mu\text{A}$) | $V_{(BR)GSS}$ | 30 | - | V |
| Gate Reverse Current ($V_{DS} = 0 \text{ V}, V_{GS} = 20 \text{ V}$) | I_{GSS} | - | 1.0 | nA |
| Gate-Source Cutoff Voltage ($V_{DS} = 15, I_D = 10 \text{ nA}$) | $V_{GS(OFF)}$ | 3.0 | 6.0 | V |

ON CHARACTERISTICS

| | | | | |
|---|--|-----------|-----|----------|
| Zero Gate-Voltage Drain Current (Note 2) ($V_{GS} = 0, V_{DS} = 15 \text{ V}$) | I_{DSS} | 7.0 | 60 | mA |
| Drain Cutoff Current ($V_{DS} = 15 \text{ V}, V_{GS} = 10 \text{ V}$) | $I_{D(off)}$ | - | 1.0 | nA |
| Drain Source On Resistance ($I_D = 500 \mu\text{A}$) | $r_{DS(on)}$ | - | 125 | Ω |
| Input Capacitance | $V_{DS} = 0, V_{GS} = 10 \text{ V}$ $f = 1.0 \text{ MHz}$ | C_{iss} | - | 11 |
| Reverse Transfer Capacitance | | C_{rss} | - | 5.5 |

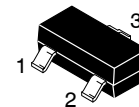
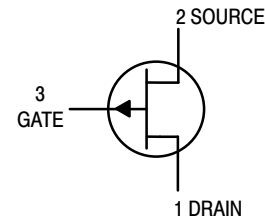
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.



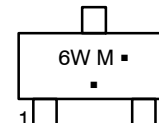
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SOT-23 (TO-236)
CASE 318
STYLE 10

MARKING DIAGRAM



6W = 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

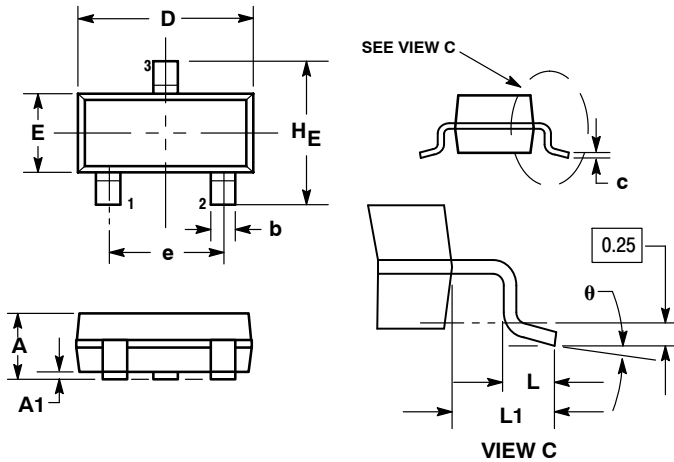
| Device | Package | Shipping† |
|---------------|---------------------|--------------------|
| MMBFJ175LT1G | SOT-23 (Pb-Free) | 3000 / Tape & Reel |
| SMMBFJ175LT1G | SOT-23 (Pb-Free) | 3000 / Tape & Reel |

†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.

MMBFJ175LT1G

PACKAGE DIMENSIONS

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

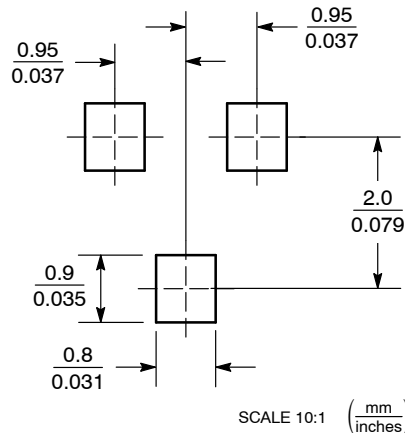


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| 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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