MMBFJ177LT1G, SMMBFJ177LT1G

JFET Chopper

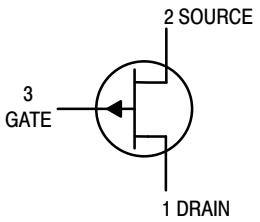
P−Channel − Depletion

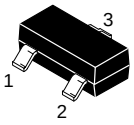
ON Semiconductor®

www.onsemi.com

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





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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain−Gate Voltage	V_{DG}	−25	Vdc
Gate−Source Voltage	V_{GS}	25	Vdc

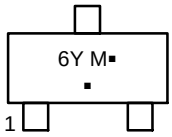
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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



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 (Pb−Free)	3000 / Tape & Reel
SMMBFJ177LT1G	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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Gate−Source Breakdown Voltage (V_{DS} = 0, I_D = 1.0 μAdc)		$V_{(BR)GSS}$	30	−	Vdc
Gate Reverse Current (V_{DS} = 0 Vdc, V_{GS} = 20 Vdc)		I_{GSS}	−	1.0	nAdc
Gate Source Cutoff Voltage (V_{DS} = −15 Vdc, I_D = −10 nAdc)		$V_{GS(off)}$	0.8	2.5	Vdc
ON CHARACTERISTICS					
Zero−Gate−Voltage Drain Current (V_{GS} = 0, V_{DS} = −15 Vdc) (Note 2)		I_{DSS}	−1.5	−20	mAdc
Drain Cutoff Current (V_{DS} = −15 Vdc, V_{GS} = 10 Vdc)		$I_{D(off)}$	−	−1.0	nAdc
Drain Source On Resistance (I_D = −500 μAdc)		$r_{DS(on)}$	−	300	Ω
Input Capacitance	V_{DS} = 0, V_{GS} = 10 Vdc f = 1.0 MHz	C_{iss}	−	11	pF
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 < 300 μs, Duty Cycle ≤ 2%.

TYPICAL CHARACTERISTICS

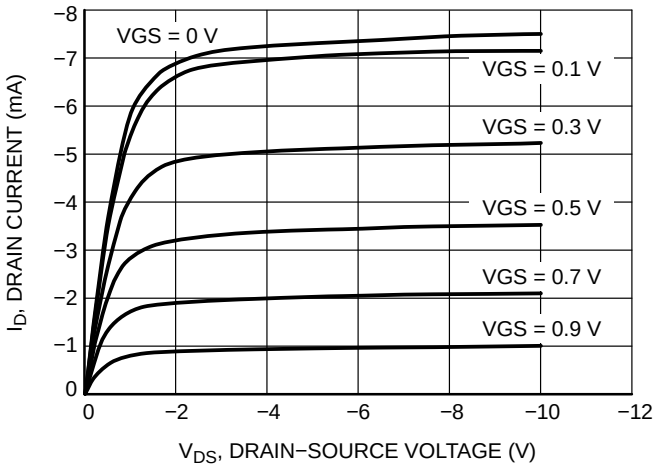


Figure 1. Drain Current vs. Drain−Source Voltage

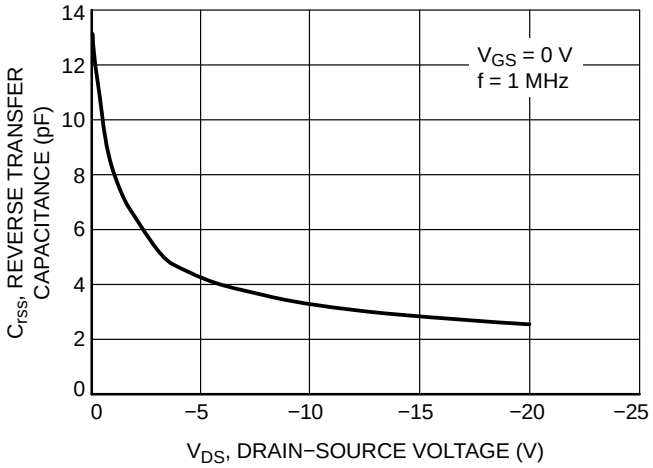


Figure 2. Reverse Transfer Capacitance

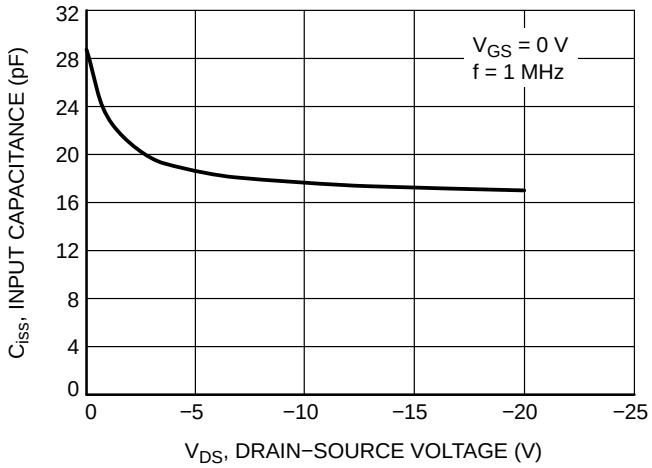
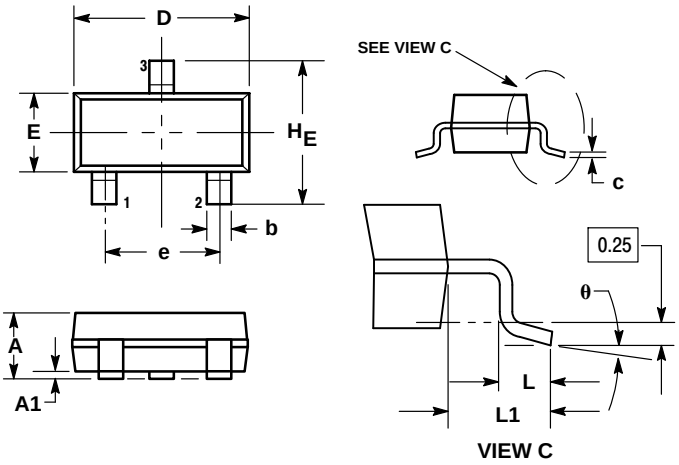


Figure 3. Input Capacitance

PACKAGE DIMENSIONS

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

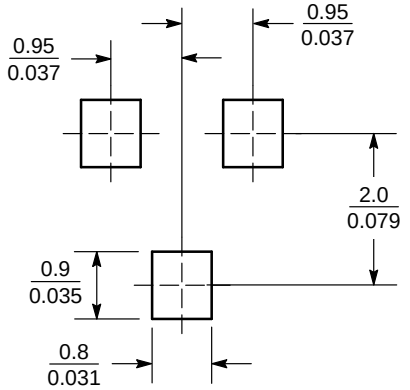


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	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
H_E	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*



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 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
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For additional information, please contact your local Sales Representative

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