

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

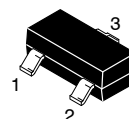
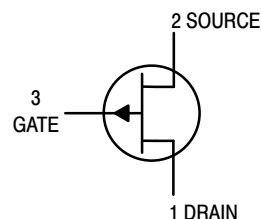
Total Device Dissipation FR–5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

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



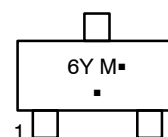
ON Semiconductor®

<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 (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.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Gate-Source Breakdown Voltage ($V_{DS} = 0$, $I_D = 1.0\ \mu\text{Adc}$)	$V_{(BR)GSS}$	30	–	Vdc
Gate Reverse Current ($V_{DS} = 0\ \text{Vdc}$, $V_{GS} = 20\ \text{Vdc}$)	I_{GSS}	–	1.0	nAdc
Gate Source Cutoff Voltage ($V_{DS} = 15\ \text{Vdc}$, $I_D = 10\ \text{nAdc}$)	$V_{GS(off)}$	0.8	2.5	Vdc

ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current ($V_{GS} = 0, V_{DS} = 15 \text{ Vdc}$) (Note 2)		I_{DSS}	1.5	20	mAdc
Drain Cutoff Current ($V_{DS} = 15 \text{ Vdc}, V_{GS} = 10 \text{ Vdc}$)		$I_{D(off)}$	–	1.0	nAdc
Drain Source On Resistance ($I_D = 500 \mu\text{Adc}$)		$r_{DS(on)}$	–	300	Ω
Input Capacitance	$V_{DS} = 0, V_{GS} = 10 \text{ Vdc}$ $f = 1.0 \text{ MHz}$	C_{iss}	–	11	pF
Reverse Transfer Capacitance		C_{rss}	–	5.5	

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

TYPICAL CHARACTERISTICS

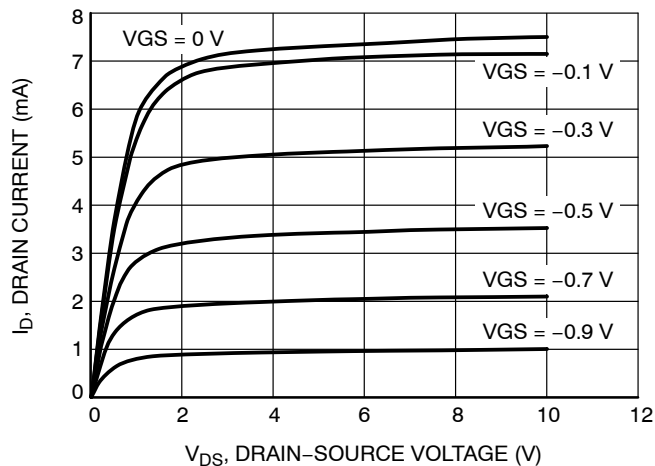


Figure 1. Drain Current vs. Drain-Source Voltage

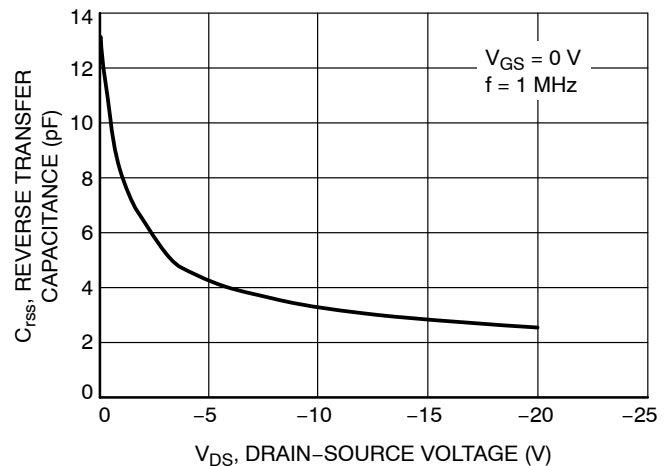


Figure 2. Reverse Transfer Capacitance

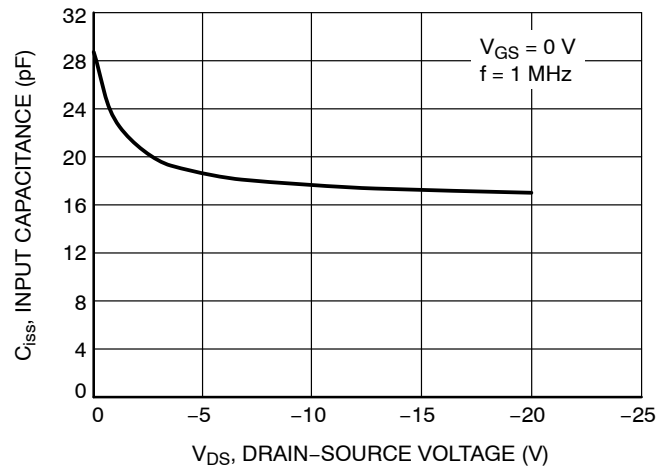
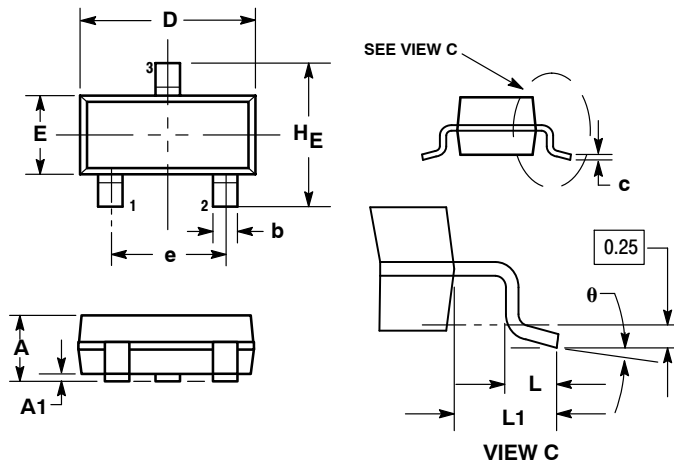


Figure 3. Input Capacitance

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PACKAGE DIMENSIONS

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



NOTES:

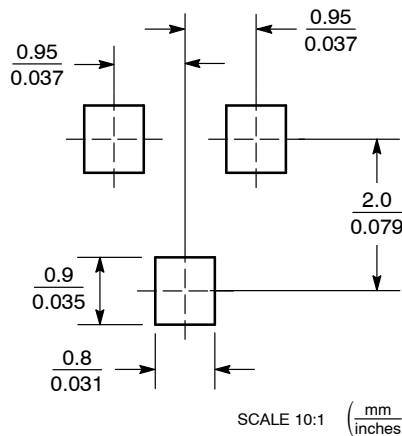
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

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
- SOURCE
- 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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