MMBF5460LT1

JFET - General Purpose Transistor

P–Channel

ON Semiconductor®

Features

- Pb–Free Package is Available

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Gate Voltage	V_{DG}	40	Vdc
Reverse Gate–Source Voltage	V_{GSR}	40	Vdc
Forward Gate Current	I_{GF}	10	mAdc

THERMAL CHARACTERISTICS

| Characteristic	Symbol	Max	Unit
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

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.
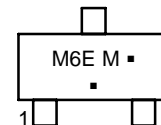1. FR–5 = 1.0 x 0.75 x 0.062 in.

2 SOURCE

3 GATE

1 DRAIN
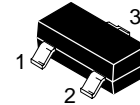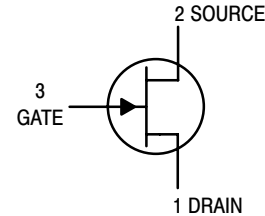
SOT–23 (TO–236)
CASE 318
STYLE 10

MARKING DIAGRAM

M6E M ■

1

M6E = 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†
MMBF5460LT1	SOT–23	3,000 / Tape & Reel
MMBF5460LT1G	SOT–23 (Pb–Free)	3,000 / 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	Typ	Max	Unit
OFF CHARACTERISTICS					
Gate−Source Breakdown Voltage ($I_G = 10$ μAdc, $V_{DS} = 0$)	$V_{(BR)GSS}$	40	–	–	Vdc
Gate Reverse Current ($V_{GS} = 20$ Vdc, $V_{DS} = 0$) ($V_{GS} = 20$ Vdc, $V_{DS} = 0$, $T_A = 100°C$)	I_{GSS}	– –	– –	5.0 1.0	nAdc μAdc
Gate Source Cutoff Voltage ($V_{DS} = 15$ Vdc, $I_D = 1.0$ μAdc)	$V_{GS(off)}$	0.75	–	6.0	Vdc
Gate Source Voltage ($V_{DS} = 15$ Vdc, $I_D = 0.1$ mAdc)	V_{GS}	0.5	–	4.0	Vdc
ON CHARACTERISTICS					
Zero−Gate−Voltage Drain Current ($V_{DS} = 15$ Vdc, $V_{GS} = 0$)	I_{DSS}	−1.0	–	−5.0	mAdc
SMALL−SIGNAL CHARACTERISTICS					
Forward Transfer Admittance ($V_{DS} = 15$ Vdc, $V_{GS} = 0$, f = 1.0 kHz)	$|Y_{fs}|$	1000	–	4000	μmhos
Output Admittance ($V_{DS} = 15$ Vdc, $V_{GS} = 0$, f = 1.0 kHz)	$|y_{os}|$	–	–	75	μmhos
Input Capacitance ($V_{DS} = 15$ Vdc, $V_{GS} = 0$, f = 1.0 MHz)	C_{iss}	–	5.0	7.0	pF
Reverse Transfer Capacitance ($V_{DS} = 15$ Vdc, $V_{GS} = 0$, f = 1.0 MHz)	C_{rss}	–	1.0	2.0	pF

DRAIN CURRENT versus GATE SOURCE VOLTAGE

Figure 1. V$_{GS(off)}$ = 2.0 Volts

Figure 2. V$_{GS(off)}$ = 4.0 Volts
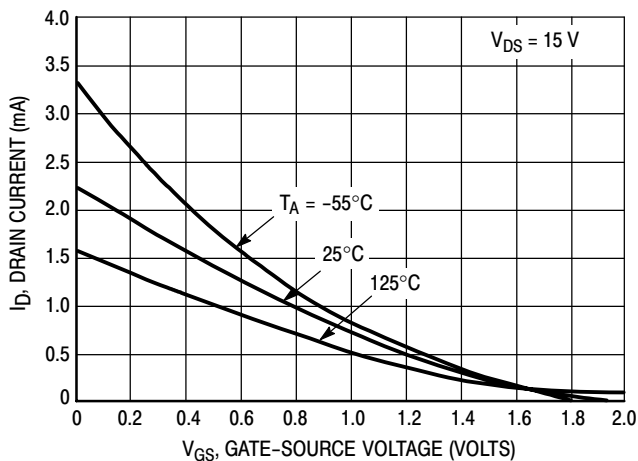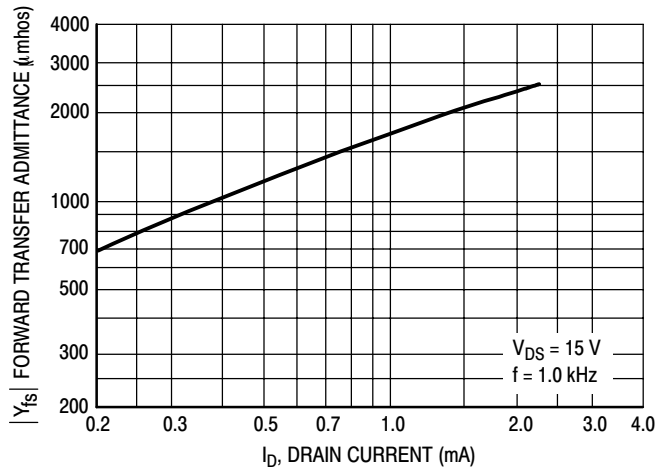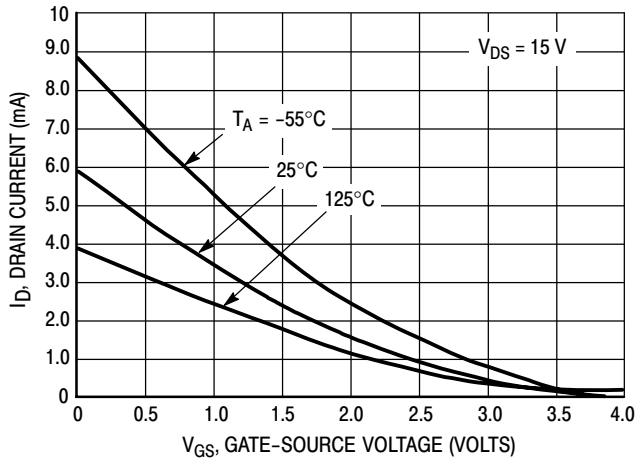

Figure 3. V$_{GS(off)}$ = 5.0 Volts

FORWARD TRANSFER ADMITTANCE versus DRAIN CURRENT

Figure 4. V$_{GS(off)}$ = 2.0 Volts
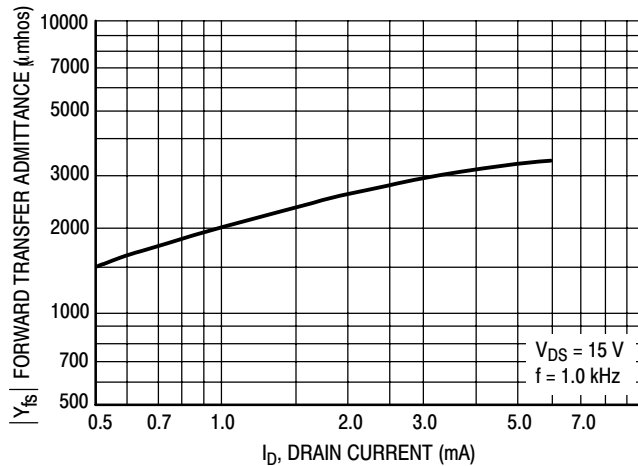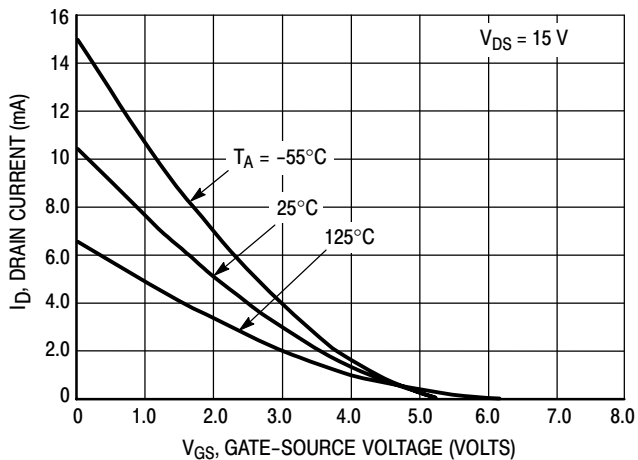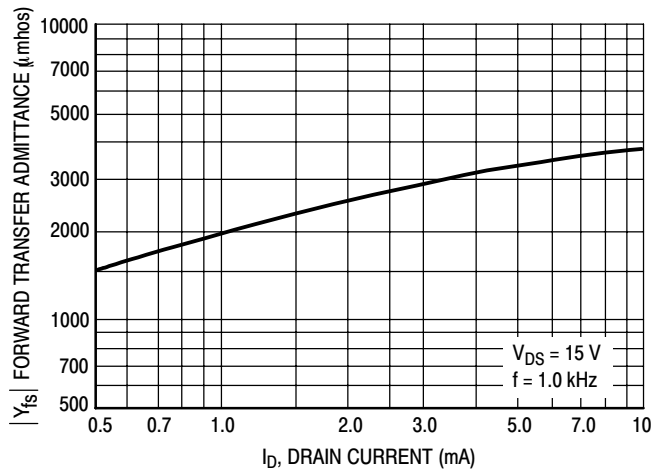

Figure 5. V$_{GS(off)}$ = 4.0 Volts
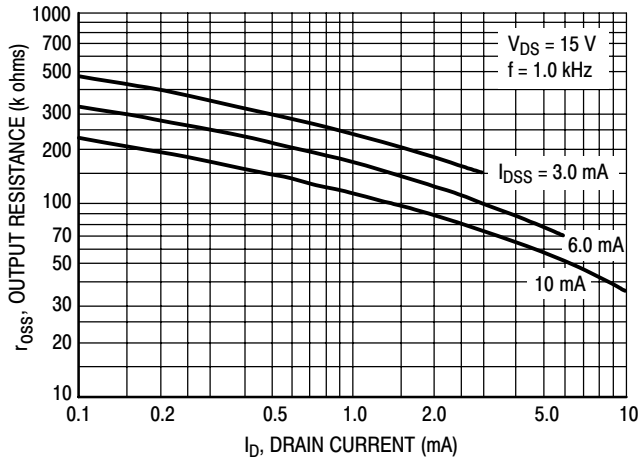

Figure 6. V$_{GS(off)}$ = 5.0 Volts

**Figure 7. Output Resistance
versus Drain Current**
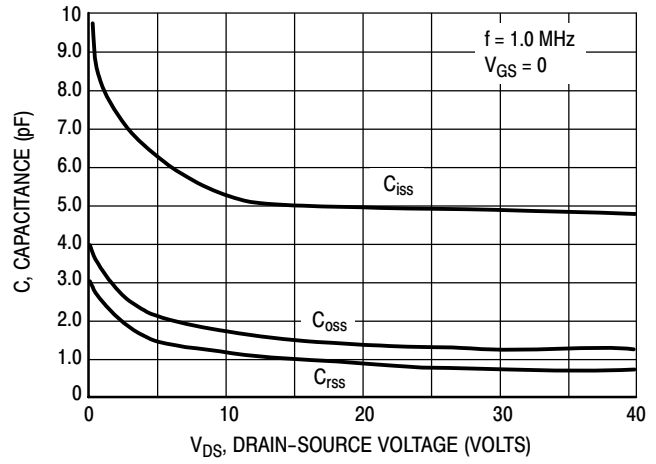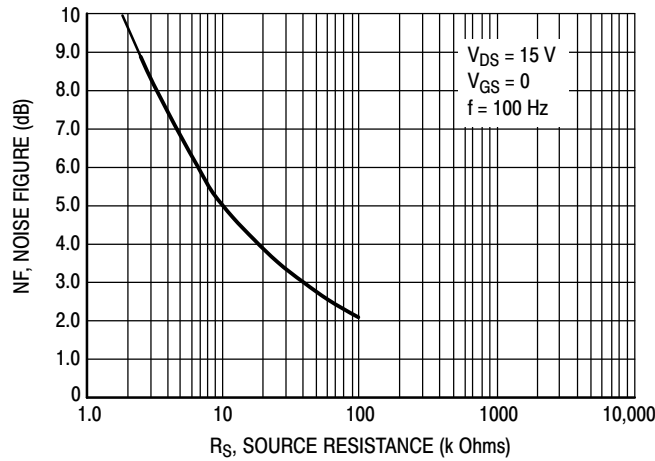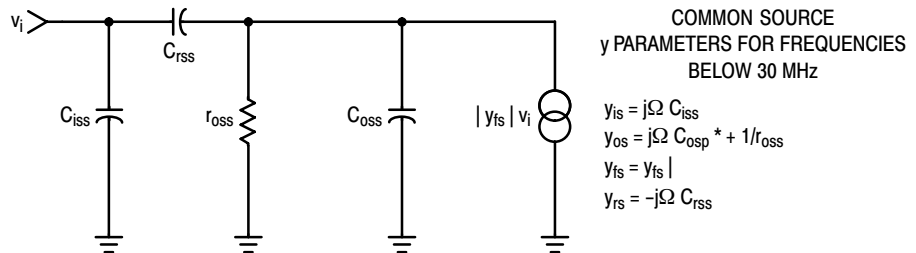
**Figure 8. Capacitance versus
Drain–Source Voltage**

**Figure 9. Noise Figure versus
Source Resistance**

COMMON SOURCE
y PARAMETERS FOR FREQUENCIES
BELOW 30 MHz

$y_{is} = j\Omega\ C_{iss}$

$y_{os} = j\Omega\ C_{osp}\ * + 1/r_{oss}$

$y_{fs} = y_{fs} \mid$

$y_{rs} = -j\Omega\ C_{rss}$

*C_{osp} is C_{oss} in parallel with Series Combination of C_{iss} and C_{rss}.

NOTE:
1. Graphical data is presented for dc conditions. Tabular data is given
   for pulsed conditions (Pulse Width = 630 ms, Duty Cycle = 10%).

Figure 10. Equivalent Low Frequency Circuit

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SCALE 4:1

TOP VIEW

DETAIL A

SIDE VIEW

DETAIL A   END VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.

2. CONTROLLING DIMENSION: MILLIMETERS

3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE 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	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
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	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H$_E$	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	---	10°	0°	---	10°

**GENERIC
MARKING DIAGRAM***

XXXM▪

1

XXX = Specific Device Code
M   = Date Code
▪   = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

RECOMMENDED
MOUNTING FOOTPRINT

2.90   3X 0.95

3X 0.56   0.95 PITCH

✳ For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

STYLES ON PAGE 2

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onsemi

SOT−23 (TO−236)
CASE 318
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DATE 01 MAR 2023

STYLE 1 THRU 5:
CANCELLED

STYLE 6:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

STYLE 7:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

STYLE 8:
PIN 1. ANODE
2. NO CONNECTION
3. CATHODE

STYLE 9:
PIN 1. ANODE
2. ANODE
3. CATHODE

STYLE 10:
PIN 1. DRAIN
2. SOURCE
3. GATE

STYLE 11:
PIN 1. ANODE
2. CATHODE
3. CATHODE−ANODE

STYLE 12:
PIN 1. CATHODE
2. CATHODE
3. ANODE

STYLE 13:
PIN 1. SOURCE
2. DRAIN
3. GATE

STYLE 14:
PIN 1. CATHODE
2. GATE
3. ANODE

STYLE 15:
PIN 1. GATE
2. CATHODE
3. ANODE

STYLE 16:
PIN 1. ANODE
2. CATHODE
3. CATHODE

STYLE 17:
PIN 1. NO CONNECTION
2. ANODE
3. CATHODE

STYLE 18:
PIN 1. NO CONNECTION
2. CATHODE
3. ANODE

STYLE 19:
PIN 1. CATHODE
2. ANODE
3. CATHODE−ANODE

STYLE 20:
PIN 1. CATHODE
2. ANODE
3. GATE

STYLE 21:
PIN 1. GATE
2. SOURCE
3. DRAIN

STYLE 22:
PIN 1. RETURN
2. OUTPUT
3. INPUT

STYLE 23:
PIN 1. ANODE
2. ANODE
3. CATHODE

STYLE 24:
PIN 1. GATE
2. DRAIN
3. SOURCE

STYLE 25:
PIN 1. ANODE
2. CATHODE
3. GATE

STYLE 26:
PIN 1. CATHODE
2. ANODE
3. NO CONNECTION

STYLE 27:
PIN 1. CATHODE
2. CATHODE
3. CATHODE

STYLE 28:
PIN 1. ANODE
2. ANODE
3. ANODE

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