JFET - General Purpose Transistor

P-Channel

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

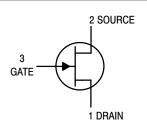
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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



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

MARKING DIAGRAM



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

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS	·		-		
Gate–Source Breakdown Voltage $(I_G = 10 \mu Adc, V_{DS} = 0)$	V _(BR) GSS	40	_	_	Vdc
Gate Reverse Current $(V_{GS} = 20 \text{ Vdc}, V_{DS} = 0)$ $(V_{GS} = 20 \text{ Vdc}, V_{DS} = 0, T_A = 100^{\circ}\text{C})$	I _{GSS}	- -	- -	5.0 1.0	nAdc μAdc
Gate Source Cutoff Voltage (V_{DS} = 15 Vdc, I_{D} = 1.0 μ Adc)	$V_{GS(off)}$	0.75	_	6.0	Vdc
Gate Source Voltage $(V_{DS} = 15 \text{ Vdc}, I_D = 0.1 \text{ mAdc})$	V _{GS}	0.5	-	4.0	Vdc
ON CHARACTERISTICS	<u>.</u>				
Zero-Gate-Voltage Drain Current $(V_{DS} = 15 \text{ Vdc}, V_{GS} = 0)$	I _{DSS}	-1.0	_	-5.0	mAdc
SMALL-SIGNAL CHARACTERISTICS	<u>.</u>				
Forward Transfer Admittance (V _{DS} = 15 Vdc, V _{GS} = 0, f = 1.0 kHz)	Y _{fs}	1000	_	4000	μmhos
Output Admittance $(V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ kHz})$	y _{os}	_	_	75	μmhos
Input Capacitance $(V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz})$	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

4.0 V_{DS} = 15 V 3.5 ID, DRAIN CURRENT (mA) 3.0 2.5 = -55°C 2.0 25°C 1.5 125°C 1.0 0.5 0 0.2 0.6 8.0 1.0 1.2 1.6 1.8 2.0 VGS, GATE-SOURCE VOLTAGE (VOLTS)

Figure 1. V_{GS(off)} = 2.0 Volts

FORWARD TRANSFER ADMITTANCE versus DRAIN CURRENT

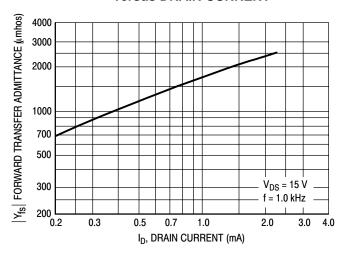


Figure 4. V_{GS(off)} = 2.0 Volts

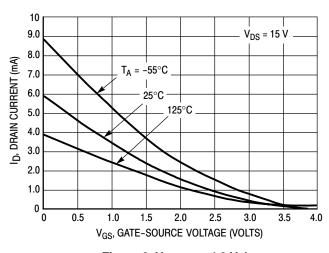


Figure 2. V_{GS(off)} = 4.0 Volts

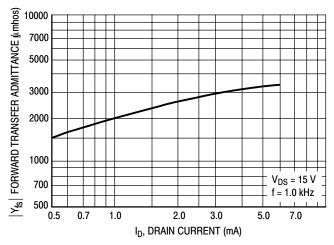


Figure 5. V_{GS(off)} = 4.0 Volts

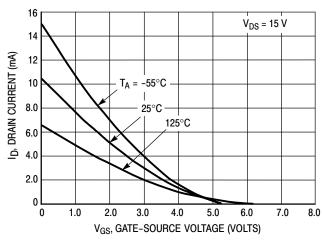


Figure 3. $V_{GS(off)} = 5.0 \text{ Volts}$

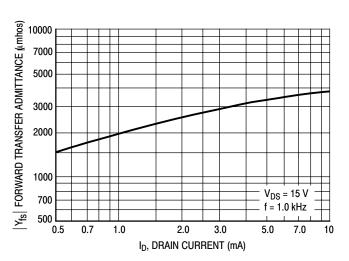


Figure 6. $V_{GS(off)} = 5.0 \text{ Volts}$

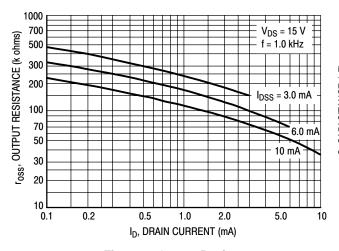


Figure 7. Output Resistance versus Drain Current

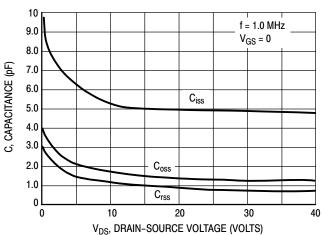


Figure 8. Capacitance versus Drain-Source Voltage

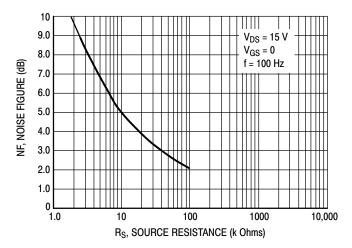
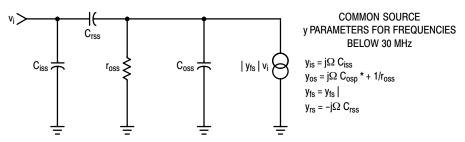


Figure 9. Noise Figure versus Source Resistance



*Cosp is Coss in parallel with Series Combination of Ciss and Crss.

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

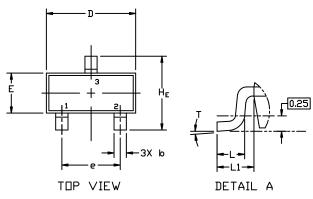


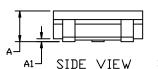


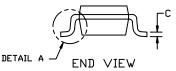
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DATE 01 MAR 2023









NOTES:

- 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.

	MILLIMETERS		INCHES			
DIM	MIN.	N□M.	MAX.	MIN.	N□M.	MAX.
Α	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
С	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
Ε	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
HE	2.10	2.40	2.64	0.083	0.094	0.104
Т	0*		10°	0*		10°

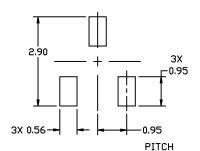
GENERIC MARKING DIAGRAM*



XXX = Specific Device Code

M = Date Code

■ = Pb-Free Package



RECOMMENDED MOUNTING FOOTPRINT

For additional information on our Pb-Free strategy and soldering details, please download the DN Semiconductor Soldering and Mounting Techniques Reference Manual, SDLDERRM/D.

STYLES ON PAGE 2

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^{*}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.

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



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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	1	
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: N 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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