

TL/G/10035-1

Gate is also backside contact

DESCRIPTION

Process 50 is designed primarily for RF amplifier and mixer applications. It will operate up to 450 MHz with low noise figure and good power gain. These devices offer outstanding performance at VHF aircraft and communications frequencies. Their major advantage is low crossmodulation and intermodulation, low noise figure and good power gain. The device is also a good choice for analog switching where low capacitance is very important.

Electrical Characteristics ($T_A = 25^\circ\text{C}$)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{GSS}	Gate-Source Breakdown Voltage	$V_{DS} = 0V, I_G = -1 \mu A$	-25	-40		V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 15V, V_{GS} = 0V$	1.0	10	20	mA
g_{fs}	Forward Transconductance	$V_{DS} = 15V, V_{GS} = 0V$	3.0	5.5	7.0	mmhos
g_{fs}	Forward Transconductance	$V_{DG} = 15V, I_D = 200 \mu A$		1.1		mmhos
I_{GSS}	Reverse Gate Leakage	$V_{GS} = -20V, V_{DS} = 0V$		-5.0	-100	pA
$r_{DS(ON)}$	ON Resistance	$V_{DS} = 100 \text{ mV}, V_{GS} = 0V$	100	175	500	Ω
$V_{GS(OFF)}$	Pinch Off Voltage	$V_{DS} = 15V, I_D = 1 \text{ nA}$	-0.7	-3.5	-6.0	V
g_{os}	Output Conductance	$V_{DG} = 15V, I_D = 1 \text{ mA}, f = 1 \text{ kHz}$		10		μmhos
C_{rss}	Feedback Capacitance	$V_{DG} = 15V, V_{GS} = 0V$		0.7	0.9	pF
C_{iss}	Input Capacitance	$V_{DS} = 15V, V_{GS} = 0V$		3.5	4.0	pF
e_n	Noise Voltage	$V_{DG} = 15V, I_D = 1 \text{ mA}, f = 100 \text{ Hz}$		8.0		$\text{nV}/\sqrt{\text{Hz}}$
NF	Noise Figure	$V_{DG} = 15V, I_D = 5 \text{ mA}, R_G = 1 \text{ k}\Omega, f = 400 \text{ MHz}$		2.2	4.0	dB
G_{PS}	Power Gain	$V_{DG} = 15V, I_D = 5 \text{ mA}, f = 400 \text{ MHz}$		12		dB

Process 50

This process is available in the following device types. *Denotes preferred parts.

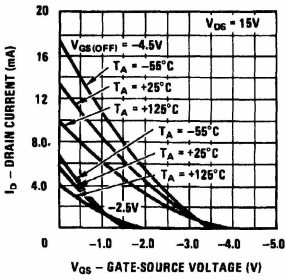
TO-72 (NS Package 29)	TO-92 (NS Package 92)	TO-92 (NS Package 94)	TO-92 (NS Package 97)
2N3823	*2N5484	2N3819	2N5949
2N3966	*2N5485	2N5248	2N5950
2N4223	*2N5486	BF244A	2N5951
2N4224	2N5555	BF244B	2N5952
*2N4416	2N5668	BF244C	2N5953
*2N4416A	2N5669	TIS58	BF245A
2N5078	2N5670	TIS59	BF245B
2N5103	*J304		BF245C
2N5104	*J305		BF256A
2N5105	PN4223		BF256B
2N5556	PN4224		BF256C
2N5557	*PN4416		
2N5558	PN5163		
	MPF102		
	MPF106		
	MPF107		
	MPF110		
	MPF111		

TO-236/SOT23 (NS Package 48/49)

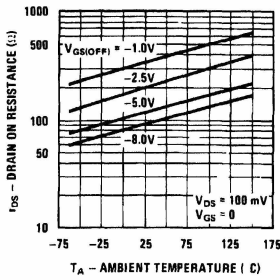
- MMBFJ304
- MMBFJ305
- MMBF4416
- MMBF5484
- MMBF5485
- MMBF5486

Process 50

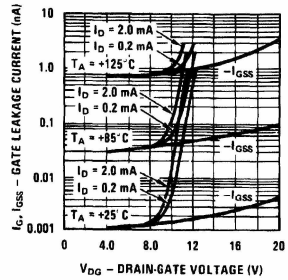
Transfer Characteristics



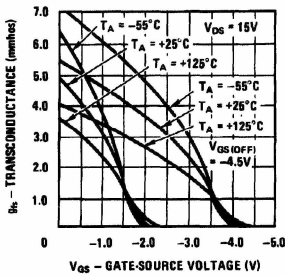
Channel Resistance vs Temperature



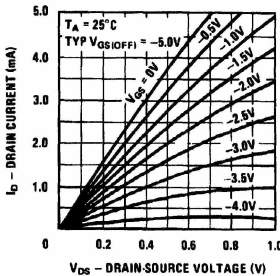
Leakage Current vs Voltage



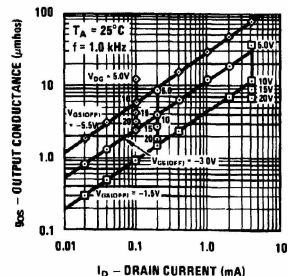
Transconductance Characteristics



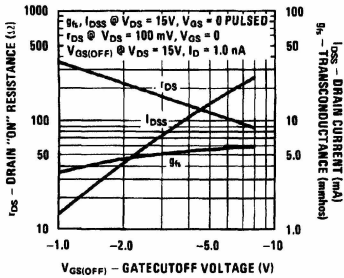
Common Drain-Source Characteristics



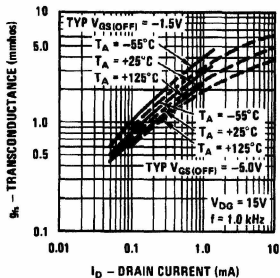
Output Conductance vs Drain Current



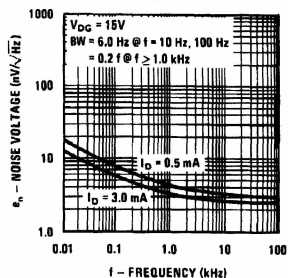
Parameter Interactions



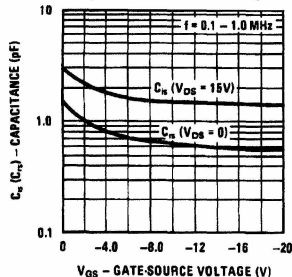
Transconductance vs Drain Current



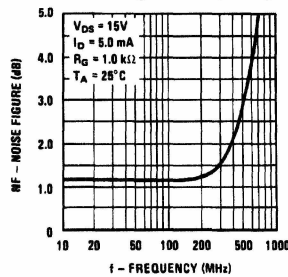
Noise Voltage vs Frequency



Capacitance vs Voltage



Noise Figure Frequency



COMMON SOURCE

COMMON GATE

