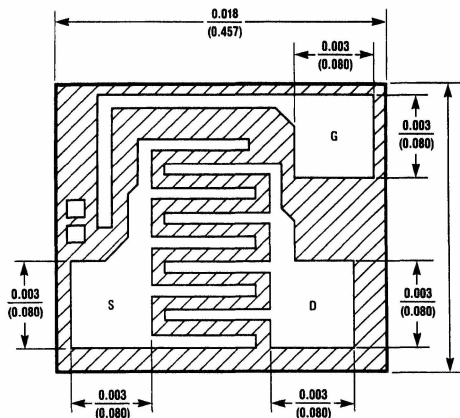




TL/G/10035-12

Gate is also backside contact

DESCRIPTION

Process 55 is a general purpose low level audio amplifier and switching transistor. Wafer processing is similar to process 52 but process 55 uses a larger geometry. This results in higher Y_{fs} , I_{DSS} , and capacitance and lower $R_{DS(ON)}$. It is useful for audio and video frequency amplifiers and RF amplifiers under 50 MHz. It may also be used for analog switching applications.

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{GSS}	Gate-Source Breakdown Voltage	$V_{DS} = 0V, I_G = -1 \mu A$	-40	-70		V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 20V, V_{GS} = 0V$	0.5	5.0	20	mA
g_{fs}	Forward Transconductance	$V_{DS} = 20V, V_{GS} = 0V$	2.0	4.5	7.0	mmho
g_{rs}	Reverse Transconductance	$V_{DG} = 15V, I_D = 200 \mu A$		1200		μmhos
I_{GSS}	Reverse Gate Leakage	$V_{GS} = -30V, V_{DS} = 0V$		-10	-100	pA
$r_{DS(ON)}$	ON Resistance	$V_{DS} = 100 \text{ mV}, V_{GS} = 0$	140	250	600	Ω
$V_{GS(OFF)}$	Pinch Off Voltage	$V_{DS} = 20V, I_D = 1 \text{ nA}$	-0.5	-2.0	-8.0	V
C_{rss}	Feedback Capacitance	$V_{DG} = 15V, V_{GS} = 0V, f = 1 \text{ MHz}$		1.5	2.0	pF
C_{iss}	Input Capacitance	$V_{DS} = 15V, V_{GS} = 0V, f = 1 \text{ MHz}$		6.0	7.0	pF
g_{os}	Output Conductance	$V_{DG} = 15V, I_D = 200 \mu A$		2		μmhos
e_n	Noise Voltage	$V_{DG} = 15V, I_D = 200 \mu A, f = 100 \text{ Hz}$		10		$\text{nV}/\sqrt{\text{Hz}}$

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

TO-72 (NS Package 25)

2N3821	2N4221A
2N3822	2N4222
2N3824	2N4222A
2N3967	*2N5358
2N3967A	*2N5359
2N3968	*2N5360
2N3968A	*2N5361
2N3969	*2N5362
2N3969A	*2N5363
2N4220	*2N5364
2N4220A	
2N4221	

TO-92 (NS Package 92)

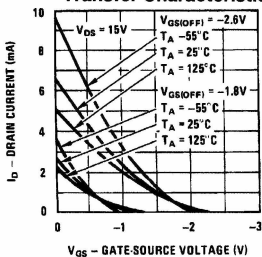
*2N5457
*2N5458
*2N5459
MPF103
MPF104
MPF105
MPF108
MPF109
MPF112
PN4220
PN4221
PN4222

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

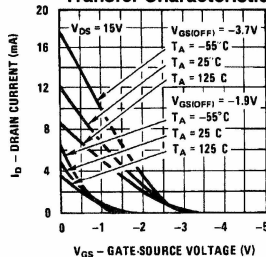
MMBF5457
MMBF5458
MMBF5459

Source and drain interchangeable.

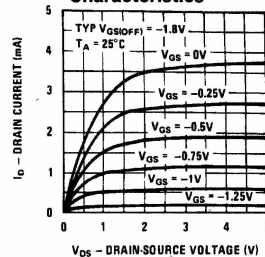
Transfer Characteristics



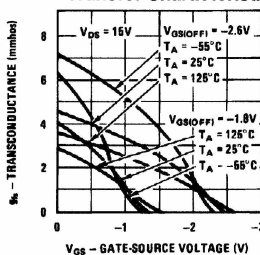
Transfer Characteristics



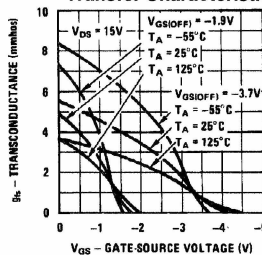
Common Drain-Source Characteristics



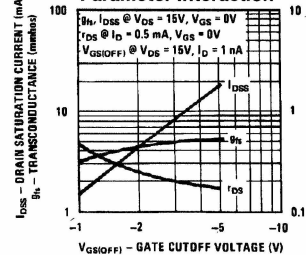
Transfer Characteristics



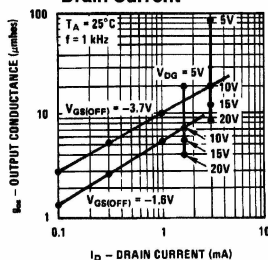
Transfer Characteristics



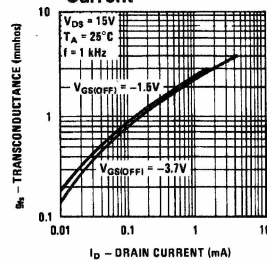
Parameter Interaction



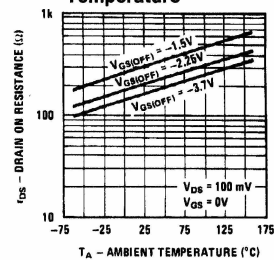
Output Conductance vs Drain Current



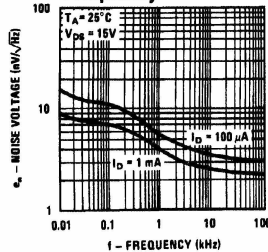
Transconductance vs Drain Current



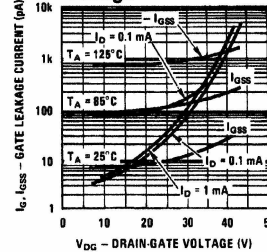
Channel Resistance vs Temperature



Noise Voltage vs Frequency



Leakage Current vs Voltage



Capacitance vs Voltage

