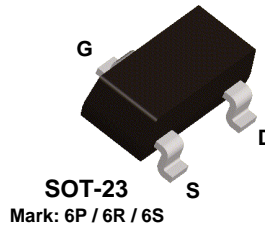
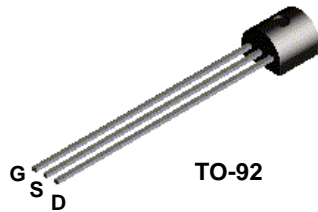


**J111
J112
J113**

**MMBFJ111
MMBFJ112
MMBFJ113**



N-Channel Switch

This device is designed for low level analog switching, sample and hold circuits and chopper stabilized amplifiers. Sourced from Process 51.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{DG}	Drain-Gate Voltage	35	V
V _{GS}	Gate-Source Voltage	- 35	V
I _{GF}	Forward Gate Current	50	mA
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		J111- J113	*MMBFJ111	
P _D	Total Device Dissipation Derate above 25°C	350	225	mW
		2.8	1.8	mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	125		°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	357	556	°C/W

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

J111 / J112 / J113 / MMBFJ111 / MMBFJ112 / MMBFJ113

N-Channel Switch

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units	
OFF CHARACTERISTICS						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = -1.0 \mu A, V_{DS} = 0$	-35		V	
I_{GSS}	Gate Reverse Current	$V_{GS} = -15 V, V_{DS} = 0$		-1.0	nA	
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 5.0 V, I_D = 1.0 \mu A$	J111 J112 J113	-3.0 -1.0 -0.5	-10 -5.0 -3.0	V
$I_{D(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 5.0 V, V_{GS} = -10 V$		1.0	nA	

ON CHARACTERISTICS

I_{DSS}	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, I_{GS} = 0$	J111 J112 J113	20 5.0 2.0		mA mA mA
$r_{DS(on)}$	Drain-Source On Resistance	$V_{DS} \leq 0.1 V, V_{GS} = 0$	J111 J112 J113		30 50 100	Ω Ω Ω

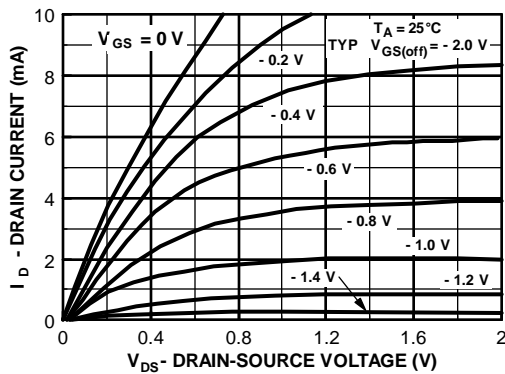
SMALL-SIGNAL CHARACTERISTICS

$C_{dg(on)}$	Drain Gate & Source Gate On Capacitance	$V_{DS} = 0, V_{GS} = 0, f = 1.0 \text{ MHz}$		28	pF
$C_{sg(on)}$	Drain-Source On Capacitance	$V_{DS} = 0, V_{GS} = 0, f = 1.0 \text{ MHz}$		28	pF
$C_{dg(off)}$	Drain-Gate Off Capacitance	$V_{DS} = 0, V_{GS} = -10 V, f = 1.0 \text{ MHz}$		5.0	pF
$C_{sg(off)}$	Source-Gate Off Capacitance	$V_{DS} = 0, V_{GS} = -10 V, f = 1.0 \text{ MHz}$		5.0	pF

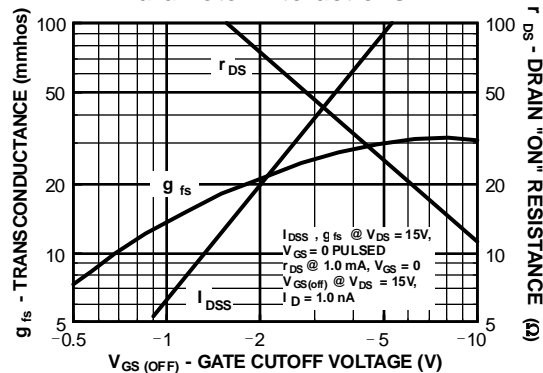
*Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 3.0\%$

Typical Characteristics

Common Drain-Source



Parameter Interactions



J111 / J112 / J113 / MMBFJ111 / MMBFJ112 / MMBFJ113

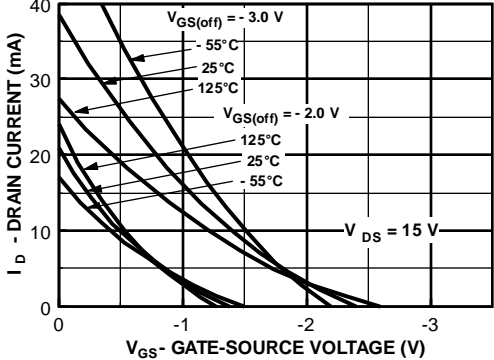
N-Channel Switch

(continued)

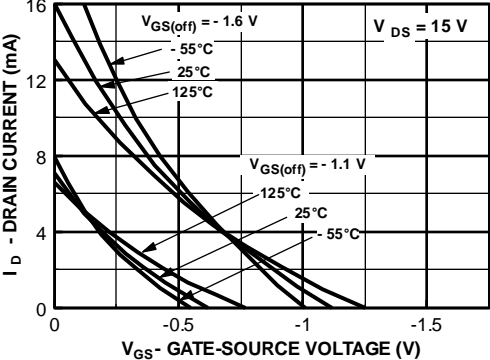
J111 / J112 / J113 / MMBFJ111 / MMBFJ112 / MMBFJ113

Typical Characteristics (continued)

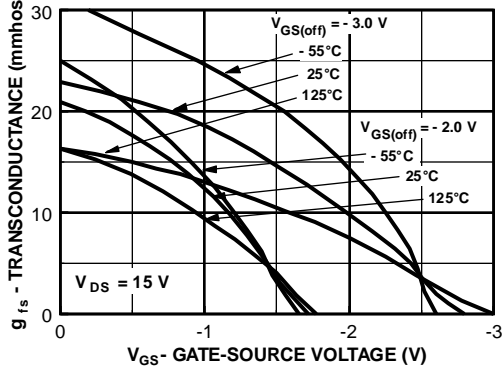
Transfer Characteristics



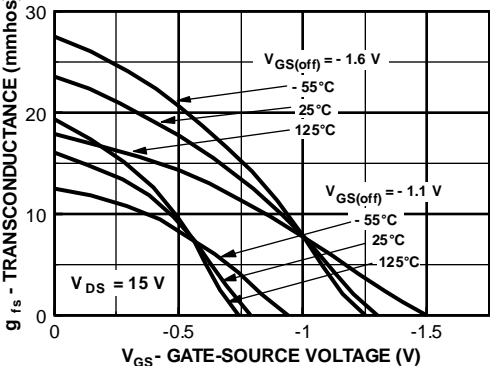
Transfer Characteristics



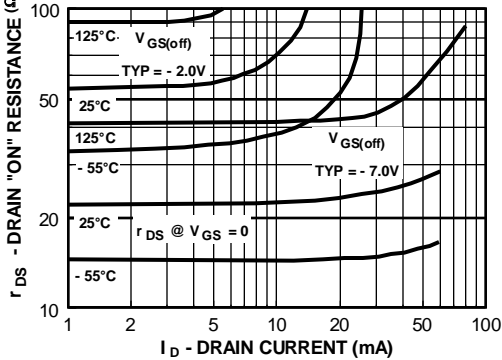
Transfer Characteristics



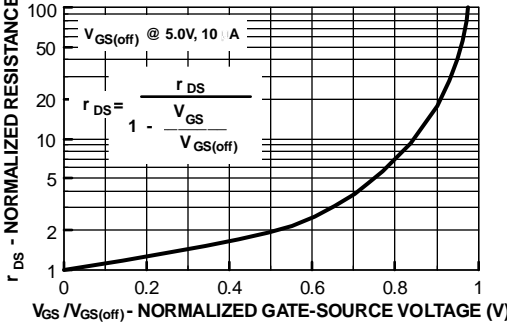
Transfer Characteristics



On Resistance vs Drain Current



Normalized Drain Resistance vs Bias Voltage

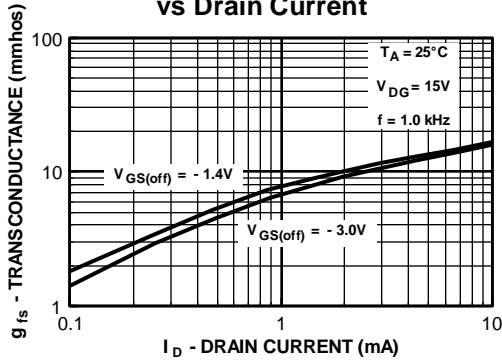


N-Channel Switch

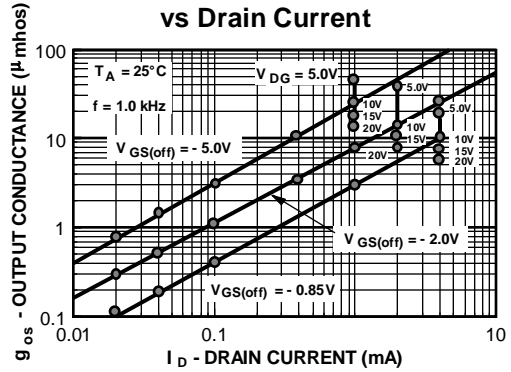
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Typical Characteristics (continued)

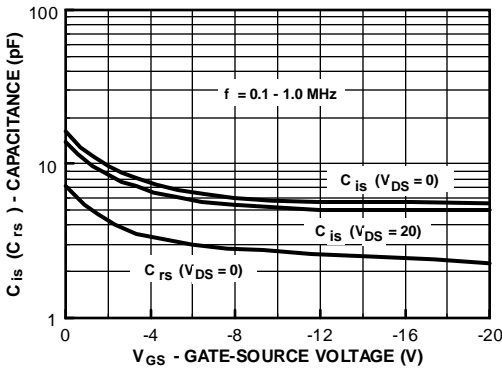
Transconductance vs Drain Current



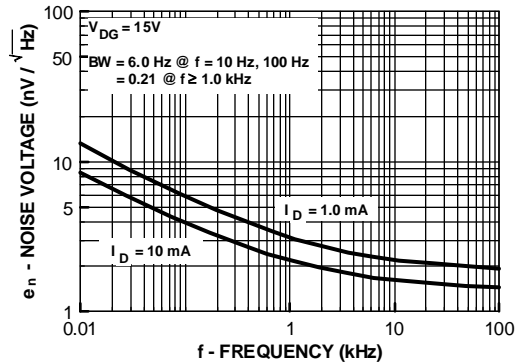
Output Conductance vs Drain Current



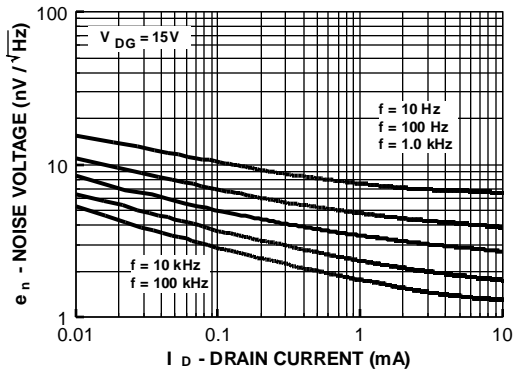
Capacitance vs Voltage



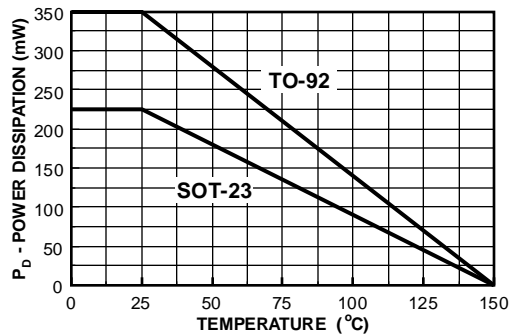
Noise Voltage vs Frequency



Noise Voltage vs Current



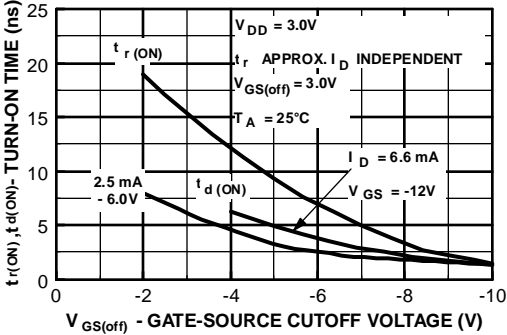
Power Dissipation vs Ambient Temperature



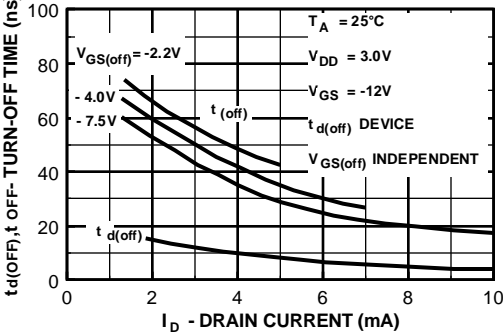
J111 / J112 / J113 / MMBFJ111 / MMBFJ112 / MMBFJ113

Typical Characteristics (continued)

Switching Turn-On Time vs Gate-Source Voltage



Switching Turn-Off Time vs Drain Current



J111 / J112 / J113 / MMBFJ111 / MMBFJ112 / MMBFJ113