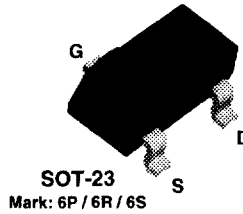
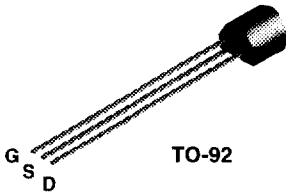


J111
J112
J113

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 _{sig}	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."

N-Channel Switch

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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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	-3.0	-10	V
			J112	-1.0	-5.0	V
			J113	-0.5	-3.0	V
$I_{D(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 5.0 V, V_{GS} = -10 V$		1.0	nA	

ON CHARACTERISTICS

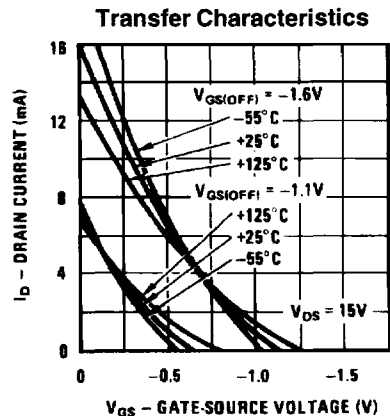
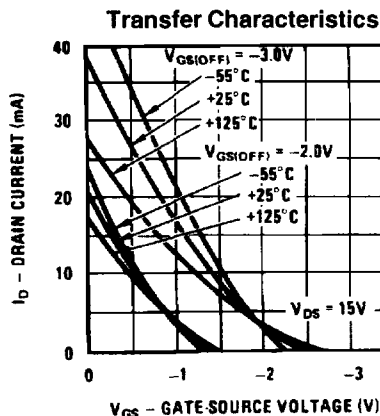
I_{DSS}	Zero-Gate Voltage Drain Current*	$V_{DS} = 15 V, I_{GS} = 0$	J111	20		mA
			J112	5.0		mA
			J113	2.0		mA
$r_{DS(on)}$	Drain-Source On Resistance	$V_{DS} \leq 0.1 V, V_{GS} = 0$	J111		30	Ω
			J112		50	Ω
			J113		100	Ω

SMALL-SIGNAL CHARACTERISTICS

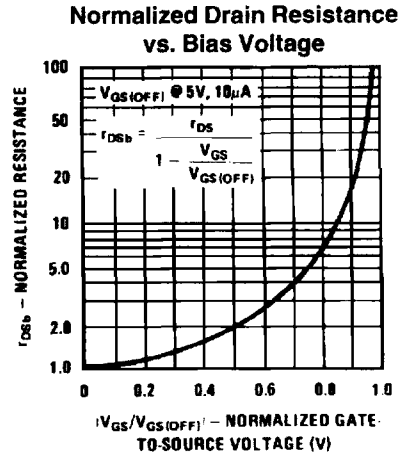
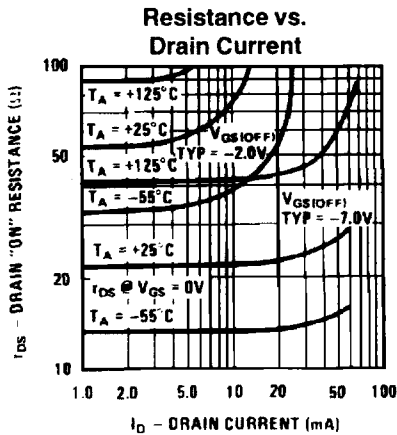
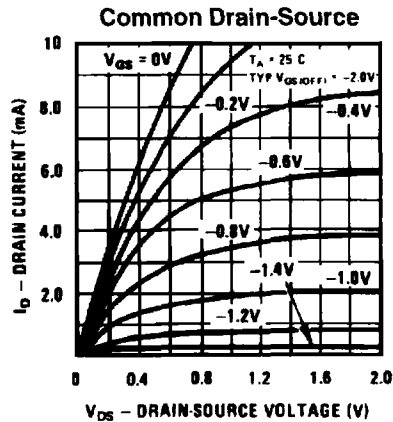
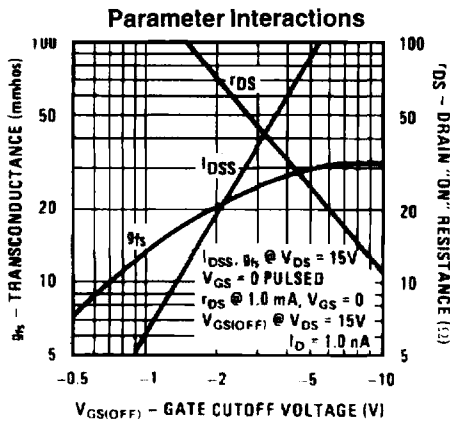
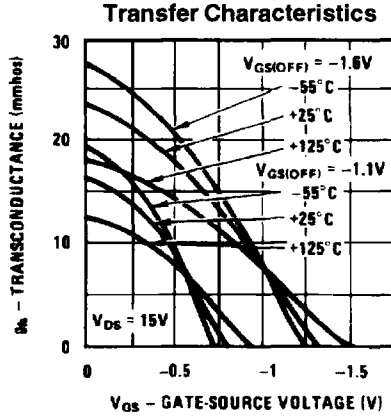
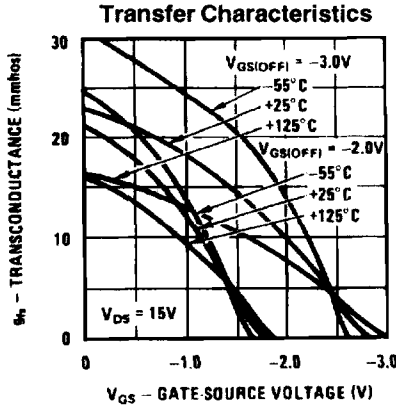
$C_{dg(on)}$	Drain Gate & Source Gate On Capacitance	$V_{DS} = 0, V_{GS} = 0, f = 1.0 \text{ MHz}$		28	pF
$C_{sg(on)}$					
$C_{dg(off)}$	Drain-Gate Off Capacitance	$V_{DS} = 0, V_{GS} = -10 V, f = 1.0 \text{ MHz}$		5.0	pF
$C_{sg(off)}$	Source-Gate Off Capacitance	$V_{DS} = 0, V_{GS} = -10 V, f = 1.0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

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

Typical Characteristics



Typical Characteristics (continued)

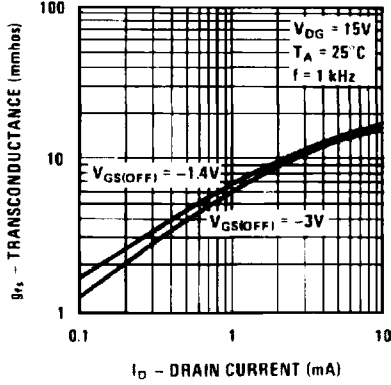


N-Channel Switch

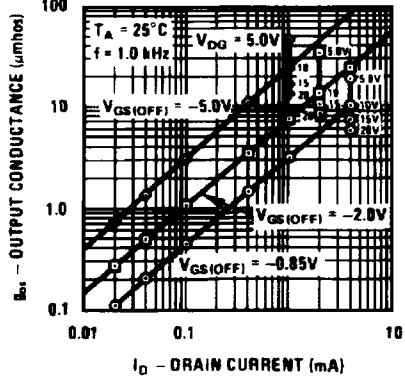
(continued)

Typical Characteristics (continued)

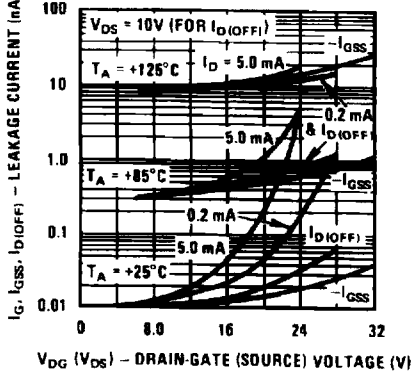
Transconductance vs. Drain Current



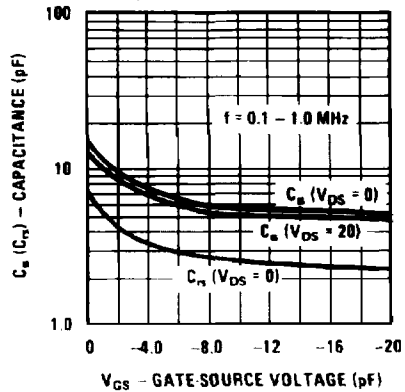
Output Conductance vs. Drain Current



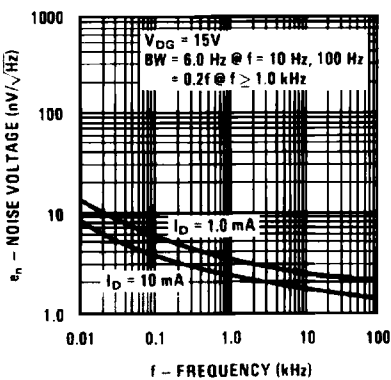
Leakage Current vs. Voltage



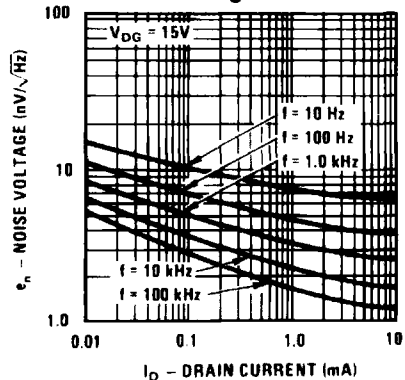
Capacitance vs. Voltage



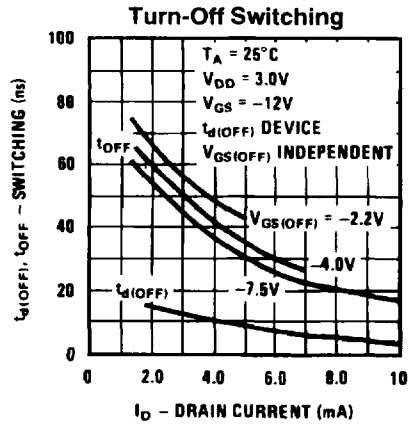
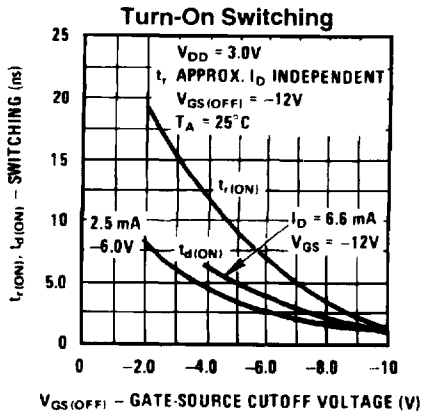
Noise Voltage vs. Frequency



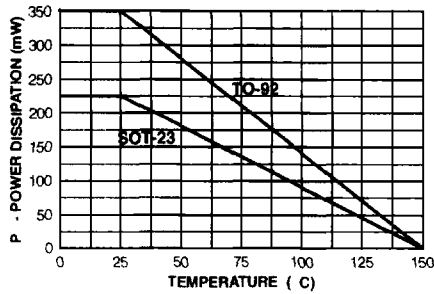
Noise Voltage vs. Current



Typical Characteristics (continued)



POWER DISSIPATION vs AMBIENT TEMPERATURE



J111 / J112 / J113 / MMBFJ111 / MMBFJ112 / MMBFJ113