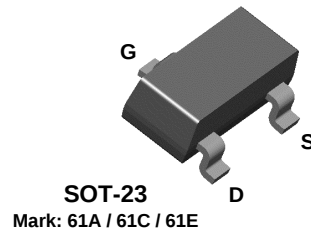
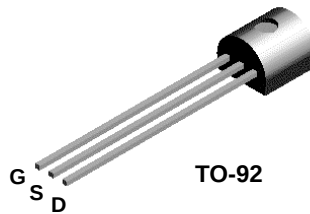


PN4117
PN4118
PN4119

MMBF4117
MMBF4118
MMBF4119



NOTE: Source & Drain
are interchangeable

N-Channel Switch

This device is designed for low current DC and audio applications. These devices provide excellent performance as input stages for sub-picoamp instrumentation or any high impedance signal sources. Sourced from Process 53.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{DG}	Drain-Gate Voltage	40	V
V _{GS}	Gate-Source Voltage	- 40	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
		PN4117-4119	*MMBF4117-4119	
P _D	Total Device Dissipation Derate above 25°C	350 2.8	225 1.8	mW 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

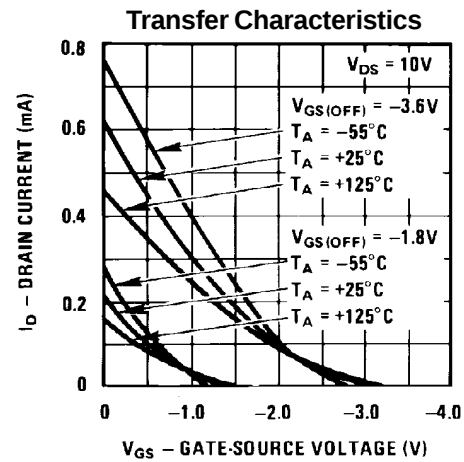
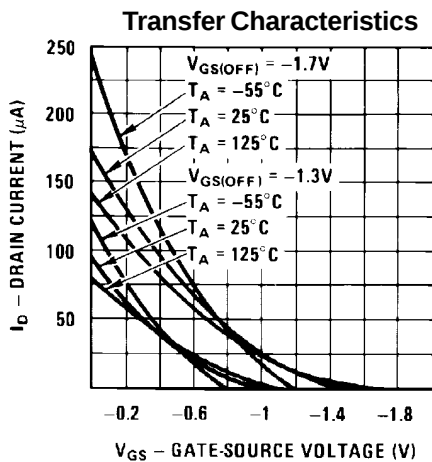
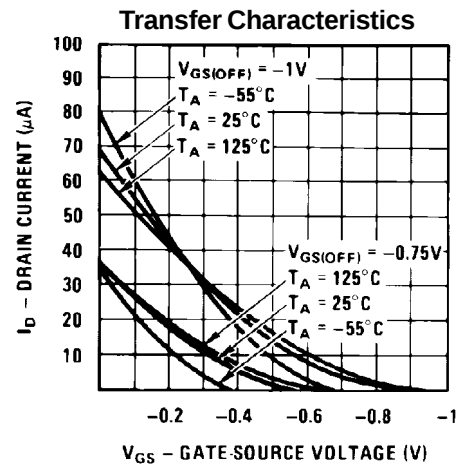
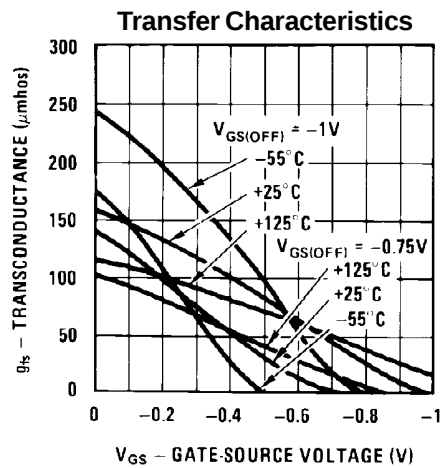
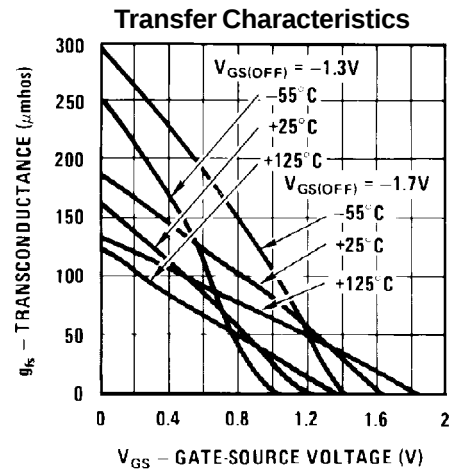
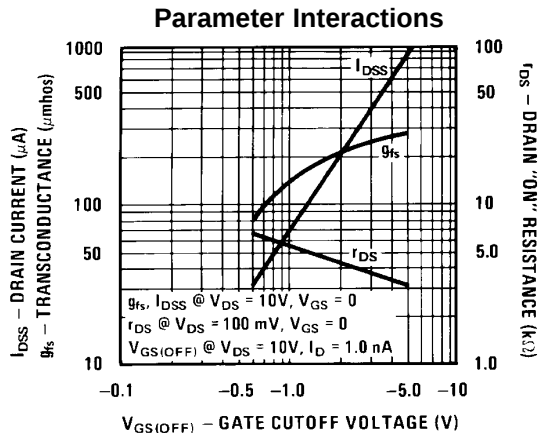
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = -1.0 \mu A, V_{DS} = 0$	-40		V
I_{GSS}	Gate Reverse Current	$V_{GS} = -20 V, V_{DS} = 0$ $V_{GS} = -20 V, V_{DS} = 0, T_A = 150^\circ C$		-10 -25	pA nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = -10 V, I_D = 1.0 nA$	-0.6 -1.0 -2.0	-1.8 -3.0 -6.0	V V V
ON CHARACTERISTICS					
I_{DSS}	Zero-Gate Voltage Drain Current*	$V_{DS} = 10 V, V_{GS} = 0$	30 80 200	90 240 600	μA μA μA
SMALL-SIGNAL CHARACTERISTICS					
g_{fs}	Common-Source Forward Transconductance	$V_{DS} = 10 V, V_{GS} = 0, f = 1.0 kHz$	70 80 100	210 250 330	$\mu mhos$ $\mu mhos$ $\mu mhos$
g_{oss}	Common-Source Output Conductance	$V_{DS} = 10 V, V_{GS} = 0, f = 1.0 kHz$		3.0 5.0 10	$\mu mhos$ $\mu mhos$ $\mu mhos$
$Re(y_{fs})$	Common-Source Forward Transconductance	$V_{DS} = 10 V, V_{GS} = 0, f = 30 MHz$	60 70 90		$\mu mhos$ $\mu mhos$ $\mu mhos$
C_{iss}	Input Capacitance	$V_{DS} = 10 V, V_{GS} = 0, f = 1.0 kHz$		3.0	pF
C_{rss}	Reverse Transfer Capacitance	$V_{DS} = 10 V, V_{GS} = 0, f = 1.0 MHz$		1.5	pF

*Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 1.0\%$

PN4117 / 4118 / 4119 / MMBF4117 / 4118 / 4119

Typical Characteristics

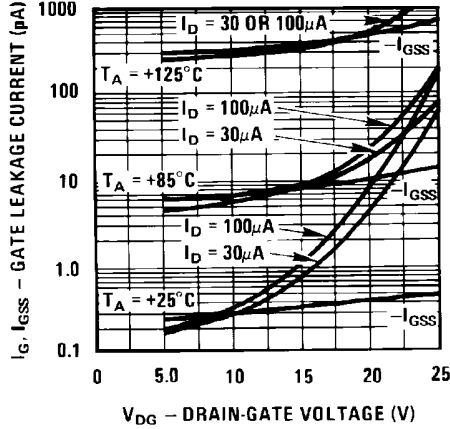


N-Channel Switch (continued)

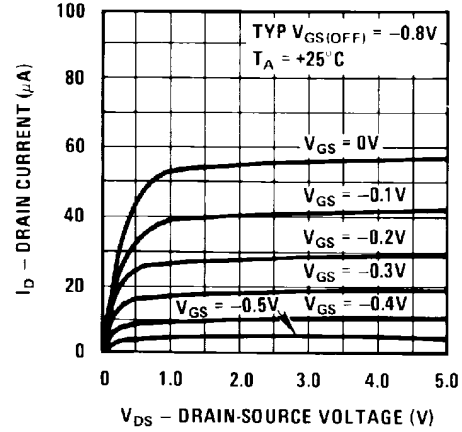
PN4117 / 4118 / 4119 / MMBF4117 / 4118 / 4119

Typical Characteristics (continued)

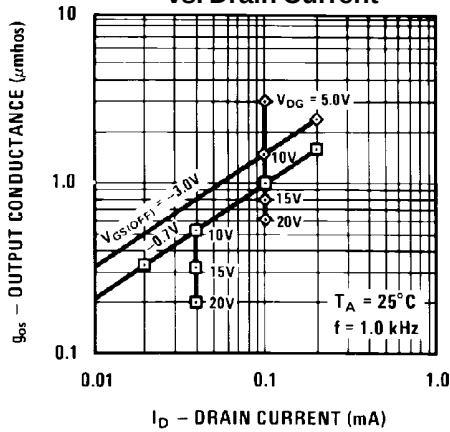
Leakage Current vs. Voltage



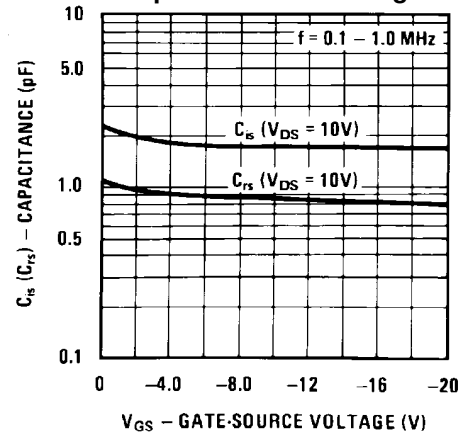
Common Drain-Source



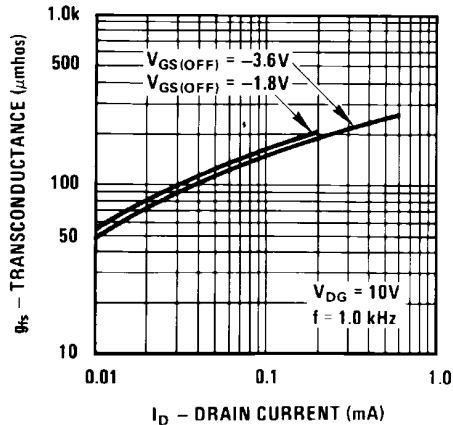
Output Conductance vs. Drain Current



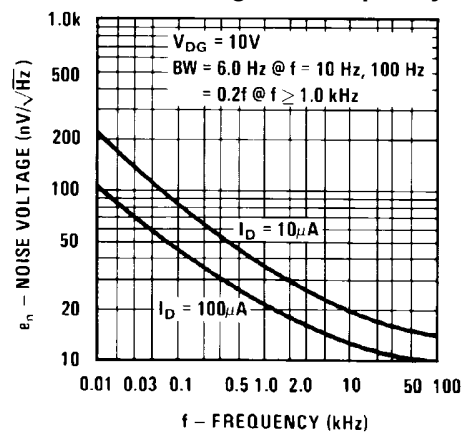
Capacitance vs. Voltage



Transconductance vs. Drain Current



Noise Voltage vs. Frequency



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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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