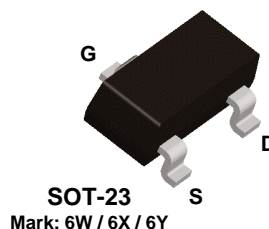
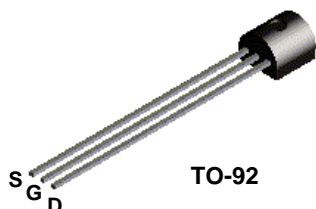


**J174**  
**J175**  
**J176**  
**J177**

**MMBFJ175**  
**MMBFJ176**  
**MMBFJ177**



## P-Channel Switch

This device is designed for low level analog switching sample and hold circuits and chopper stabilized amplifiers. Sourced from Process 88.

### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>DG</sub>	Drain-Gate Voltage	- 30	V
V <sub>GS</sub>	Gate-Source Voltage	30	V
I <sub>GF</sub>	Forward Gate Current	50	mA
T <sub>J</sub> , T <sub>stg</sub>	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
		J174 - J177	*MMBFJ175	
P <sub>D</sub>	Total Device Dissipation	350	225	mW
	Derate above 25°C	2.8	1.8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	125		°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	357	556	°C/W

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

# P-Channel Switch

(continued)

## Electrical Characteristics

TA = 25°C unless otherwise noted

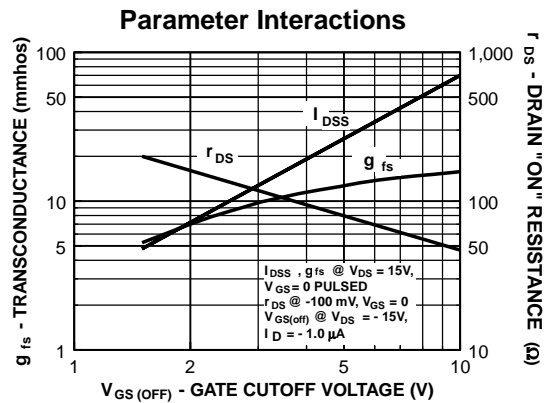
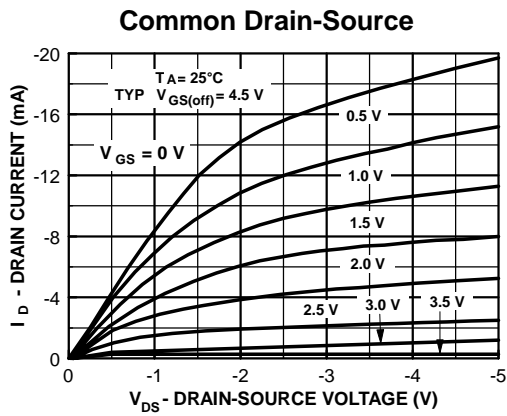
Symbol	Parameter	Test Conditions	Min	Max	Units	
<b>OFF CHARACTERISTICS</b>						
$B_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 1.0 \mu A, V_{DS} = 0$	30		V	
$I_{GSS}$	Gate Reverse Current	$V_{GS} = 20 V, V_{DS} = 0$		1.0	nA	
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = -15 V, I_D = -10 nA$	<b>J174</b>	5.0	10	V
			<b>J175</b>	3.0	6.0	V
			<b>J176</b>	1.0	4.0	V
			<b>J177</b>	0.8	2.5	V

## ON CHARACTERISTICS

$I_{DSS}$	Zero-Gate Voltage Drain Current*	$V_{DS} = -15 V, I_{GS} = 0$	<b>J174</b>	-20	-100	mA
			<b>J175</b>	-7.0	-60	mA
			<b>J176</b>	-2.0	-25	mA
			<b>J177</b>	-1.5	-20	mA
$r_{DS(on)}$	Drain-Source On Resistance	$V_{DS} \leq 0.1 V, V_{GS} = 0$	<b>J174</b>		85	$\Omega$
			<b>J175</b>		125	$\Omega$
			<b>J176</b>		250	$\Omega$
			<b>J177</b>		300	$\Omega$

\*Pulse Test: Pulse Width  $\leq 300 \mu s$ , Duty Cycle  $\leq 2.0\%$

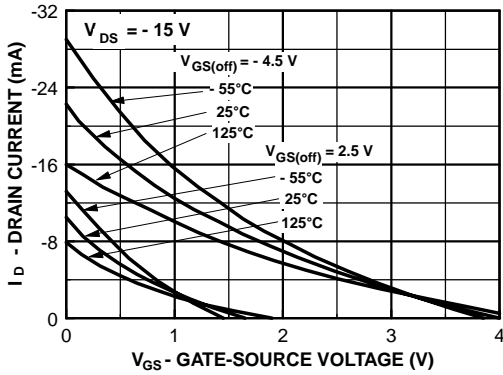
## Typical Characteristics



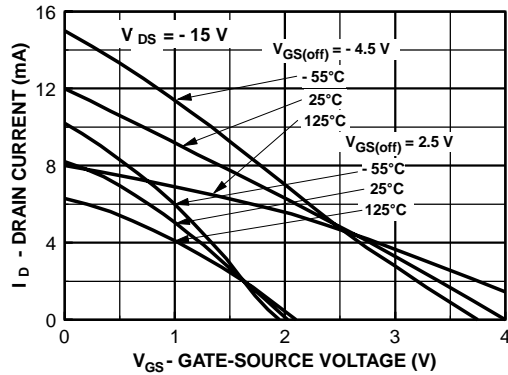
J174 / J175 / J176 / J177 / MMBFJ175 / MMBFJ176 / MMBFJ177

Typical Characteristics (continued)

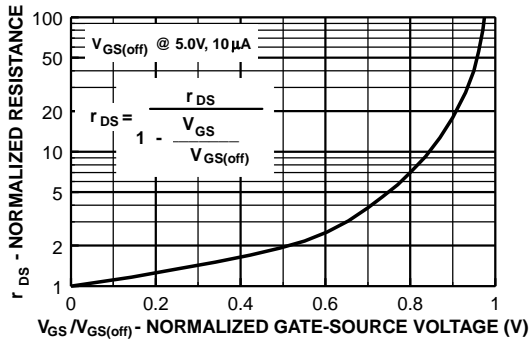
Transfer Characteristics



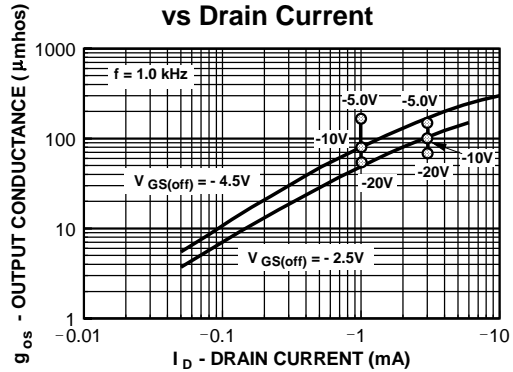
Transfer Characteristics



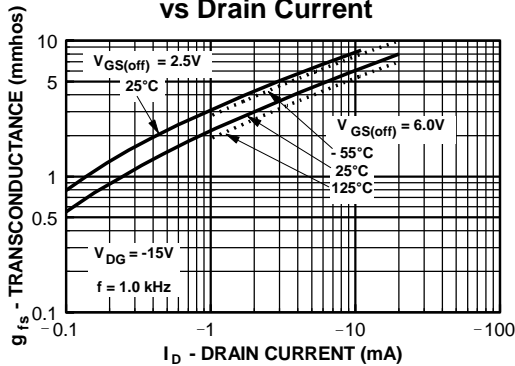
Normalized Drain Resistance vs Bias Voltage



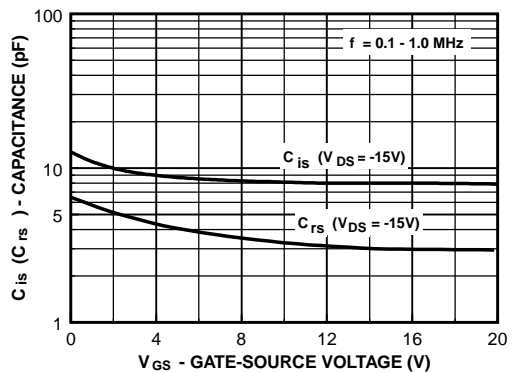
Output Conductance vs Drain Current



Transconductance vs Drain Current

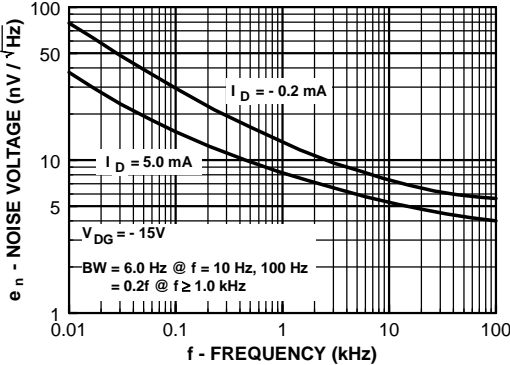


Capacitance vs Voltage

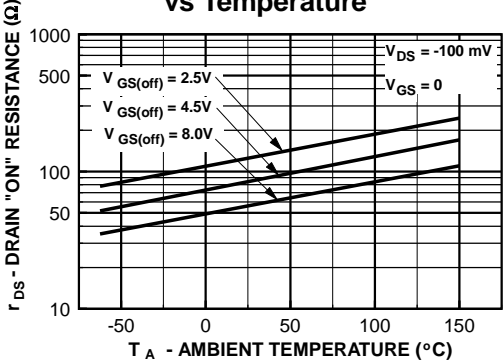


Typical Characteristics (continued)

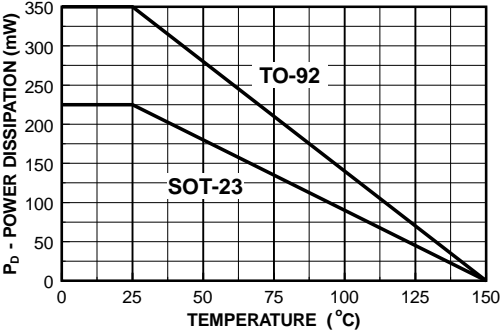
Noise Voltage vs Frequency



Channel Resistance vs Temperature



Power Dissipation vs Ambient Temperature



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