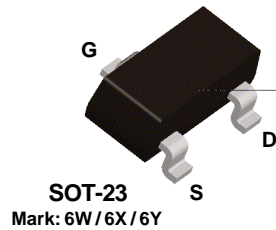
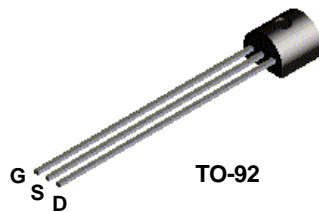


N

**Discrete POWER & Signal
Technologies**

**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 _{DG}	Drain-Gate Voltage	- 30	V
V _{GS}	Gate-Source Voltage	30	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
		J174 - J177	*MMBFJ175	
P _D	Total Device Dissipation	350	225	mW
	Derate above 25°C	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."

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

P-Channel Switch

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

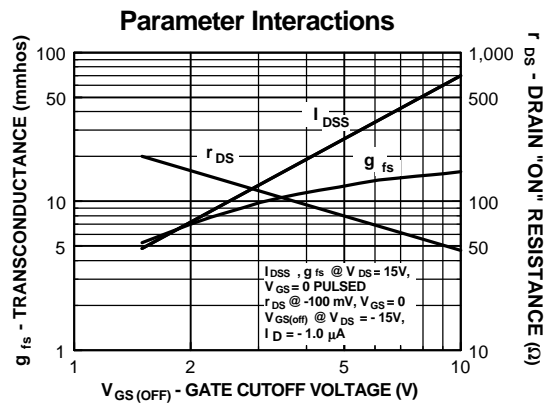
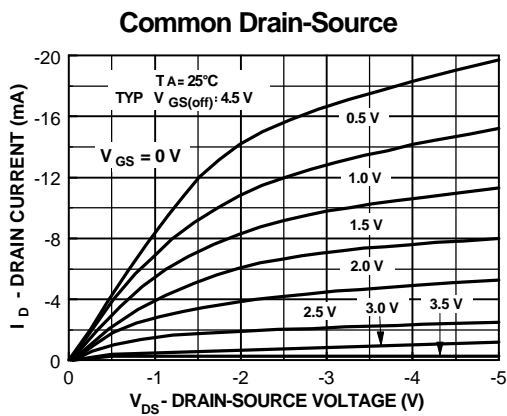
Symbol	Parameter	Test Conditions	Min	Max	Units	
OFF CHARACTERISTICS						
$B_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 1.0 \mu A, V_{DS} = 0$	30		V	
I_{GSS}	Gate Reverse Current	$V_{GS} = 20 V, V_{DS} = 0$		1.0	nA	
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = -15 V, I_D = -10 nA$	J174	5.0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

ON CHARACTERISTICS

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

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

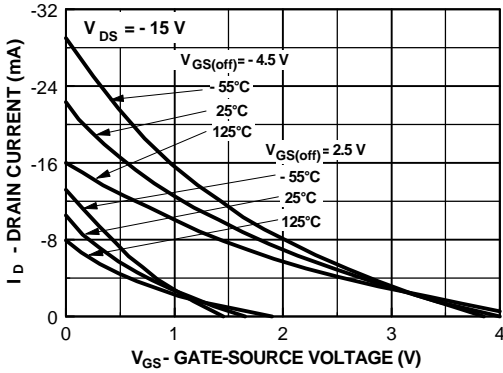
Typical Characteristics



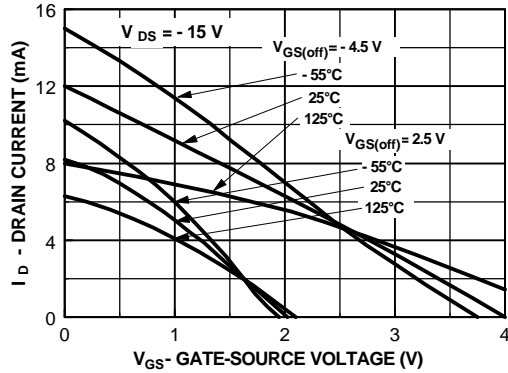
J174 / J175 / J176 / J177 / MMBF-J175 / MMBF-J176 / MMBF-J177

Typical Characteristics (continued)

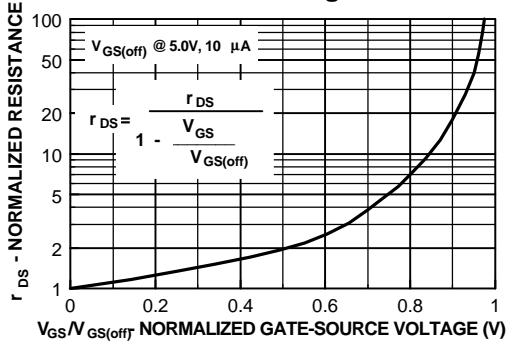
Transfer Characteristics



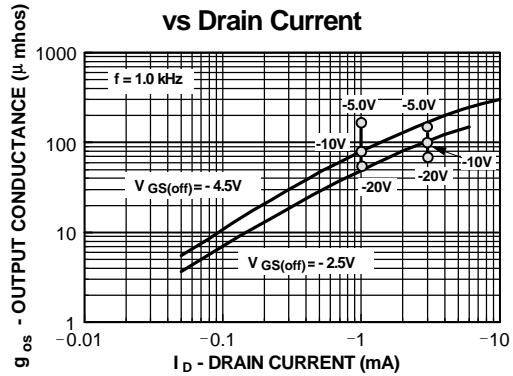
Transfer Characteristics



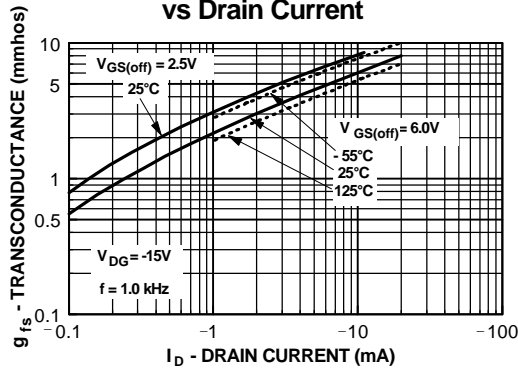
Normalized Drain Resistance vs Bias Voltage



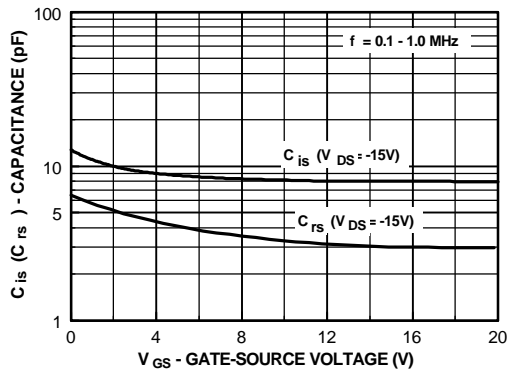
Output Conductance vs Drain Current



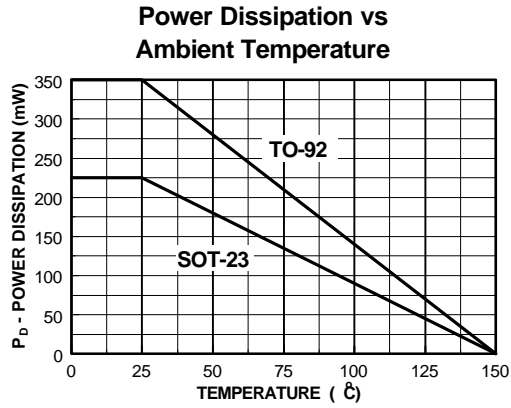
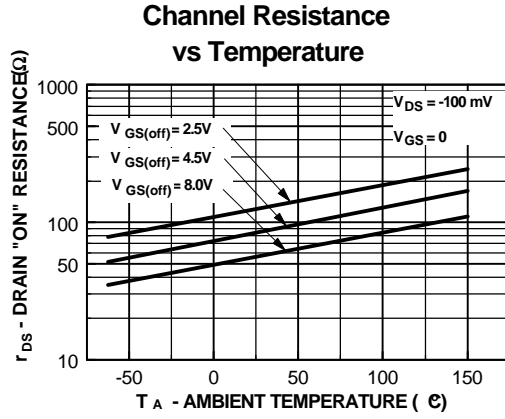
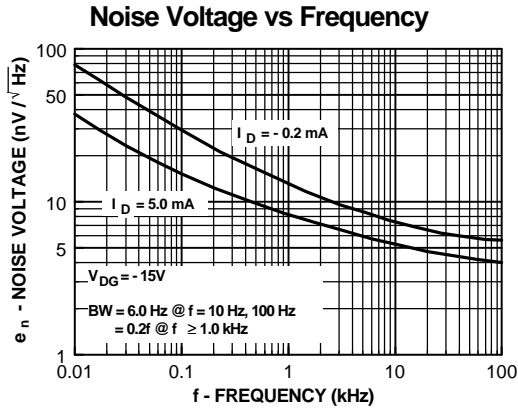
Transconductance vs Drain Current



Capacitance vs Voltage



Typical Characteristics (continued)



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