T-29-25

3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	25	Vdc
Drain-Gate Voltage	V_{DG}	25	Vdc
Reverse Gate-Source Voltage	$V_{GS(r)}$	25	Vdc
Gate Current	I_G	10	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	°C/mW
Total Device Dissipation Alumina Substrate,** T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/mW
Junction and Storage Temperature	T_J, T_{stg}	150	°C

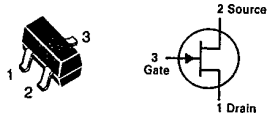
*FR-5 = 1.0 x 0.75 x 0.62 in.
**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

MMBF5457 = 6D

MMBF5457

CASE 318-02/03, STYLE 10
SOT-23 (TO-236AA/AB)



JFET
GENERAL PURPOSE TRANSISTOR

N-CHANNEL

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

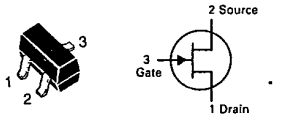
Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Gate-Source Breakdown Voltage (I_G = 10 μAdc, V_{DS} = 0)	$V_{(BR)GSS}$	25	—	—	Vdc
Gate Reverse Current (V_{GS} = 15 Vdc, V_{DS} = 0) (V_{GS} = 15 Vdc, V_{DS} = 0, T_A = 100°C)	I_{GSS}	— —	— —	1.0 200	nAdc
Gate Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 10 nAdc)	$V_{GS(off)}$	0.5	—	6.0	Vdc
Gate Source Voltage (V_{DS} = 15 Vdc, I_D = 100 μAdc)	V_{GS}	—	2.5	—	Vdc
ON CHARACTERISTICS					
Zero-Gate-Voltage Drain(1) (V_{DS} = 15 Vdc, V_{GS} = 0)	I_{DSS}	1.0	—	5.0	mAdc
SMALL-SIGNAL CHARACTERISTICS					
Forward Transfer Admittance(1) (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{fs}\|$	1000	—	5000	μmhos
Reverse Transfer Admittance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{rs}\|$	—	10	50	μmhos
Input Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	4.5	7.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	1.5	3.0	pF

(1) Pulse test: Pulse Width ≤ 630 ms; Duty Cycle ≤ 10%.

T-29-25

MMBF5459

CASE 318-02/03, STYLE 10
SOT-23 (TO-236AA/AB)



JFET TRANSISTOR

N-CHANNEL

3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Gate Voltage	V_{DG}	25	Vdc
Reverse Gate-Source Voltage	$V_{GS(r)}$	−25	Vdc
Gate Current	I_G	10	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	°C/mW
Total Device Dissipation Alumina Substrate,** T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/mW
Junction and Storage Temperature	T_J, T_{stg}	150	°C

*FR-5 = 1.0 x 0.75 x 0.62 in.
**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

MMBF5459 = 6L

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Gate-Source Breakdown Voltage (I_G = −10 μA, V_{DS} = 0)	$V_{(BR)GSS}$	25	—	Vdc
Gate 1 Leakage Current (V_{GS} = −15 V, V_{DS} = 0)	I_{G1SS}	—	1.0	nA
Gate 2 Leakage Current (V_{GS} = −15 V, V_{DS} = 0, T_A = 100°C)	I_{G2SS}	—	200	nA
Gate Source Cutoff Voltage (V_{DS} = 15 V, I_D = 10 nA)	$V_{GS(off)}$	2.0	8.0	Vdc
ON CHARACTERISTICS				
Zero-Gate-Voltage Drain (V_{DS} = 15 V, V_{GS} = 0)	I_{DSS}	4.0	16	mA
SMALL-SIGNAL CHARACTERISTICS				
Forward Transfer Admittance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{fs}\|$	2000	6000	μmhos
Output Admittance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{os}\|$	—	50	μmhos
Input Capacitance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	7.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	3.0	pF

3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Gate Voltage	V_{DG}	40	Vdc
Reverse Gate-Source Voltage	V_{GSR}	40	Vdc
Forward Gate Current	I_{GF}	10	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	°C/mW
Total Device Dissipation Alumina Substrate,** T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/mW
Junction and Storage Temperature	T_J, T_{stg}	150	°C

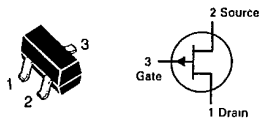
*FR-5 = 1.0 x 0.75 x 0.62 in.
**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

MMBF5460 = 6E

MMBF5460

CASE 318-02/03, STYLE 10
SOT-23 (TO-236AA/AB)



JFET
GENERAL PURPOSE
TRANSISTOR

P-CHANNEL

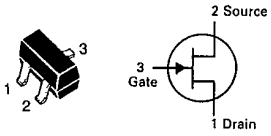
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Gate-Source Breakdown Voltage (I_G = 10 μAdc, V_{DS} = 0)	$V_{(BR)GSS}$	40	—	—	Vdc
Gate Reverse Current (V_{GS} = 20 Vdc, V_{DS} = 0) (V_{GS} = 20 Vdc, V_{DS} = 0, T_A = 100°C)	I_{GSS}	— —	— —	5.0 1.0	nAdc μAdc
Gate Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 1.0 μAdc)	$V_{GS(off)}$	0.75	—	6.0	Vdc
Gate Source Voltage (V_{DS} = 15 Vdc, I_D = 0.1 mAdc)	V_{GS}	0.5	—	4.0	Vdc
ON CHARACTERISTICS					
Zero-Gate-Voltage Drain (V_{DS} = 15 Vdc, V_{GS} = 0)	I_{DSS}	1.0	—	5.0	mAdc
SMALL-SIGNAL CHARACTERISTICS					
Forward Transfer Admittance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{fs}\|$	1000	—	4000	μmhos
Output Admittance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{os}\|$	—	—	75	μmhos
Input Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	5.0	7.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	1.0	2.0	pF
Equivalent Short-Circuit Input Noise Voltage (V_{DS} = 15 Vdc, V_{GS} = 0, R_G = 1.0 MΩ, f = 100 Hz, BW = 1.0 Hz)	$\bar{e}_n$	—	20	—	$nV/\sqrt{Hz}$

T-27-25

MMBF5484

CASE 318-02/03, STYLE 10
SOT-23 (TO-236AA/AB)



JFET TRANSISTOR

N-CHANNEL

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Gate Voltage	V_{DG}	25	Vdc
Reverse Gate-Source Voltage	$V_{GS(r)}$	25	Vdc
Forward Gate Current	$I_{G(f)}$	10	mAdc
Continuous Device Dissipation at or Below T_C = 25°C Linear Derating Factor	P_D	200 2.8	mW mW/°C
Storage Channel Temperature Range	T_{stg}	−65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	°C/mW
Total Device Dissipation Alumina Substrate,** T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/mW
Junction and Storage Temperature	T_J, T_{stg}	150	°C

*FR-5 = 1.0 x 0.75 x 0.62 in.
**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

MMBF5484 = 6B

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Gate-Source Breakdown Voltage (I_G = −1.0 μA, V_{DS} = 0)	$V_{(BR)GSS}$	−25	—	Vdc
Gate Reverse Current (V_{GS} = −20 V, V_{DS} = 0) (V_{GS} = −20 V, V_{DS} = 0, T_A = 100°C)	I_{GSS}	— —	−1.0 −0.2	nA μA
Gate Source Cutoff Voltage (V_{DS} = 15 V, I_D = 10 nA)	$V_{GS(off)}$	−0.3	−3.0	Vdc
ON CHARACTERISTICS				
Zero-Gate-Voltage Drain (V_{DS} = 15 V, V_{GS} = 0)	I_{DSS}	1.0	5.0	mAdc
SMALL-SIGNAL CHARACTERISTICS				
Forward Transfer Admittance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{fs}\|$	3000	6000	μmhos
Output Admittance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz)	$\|Y_{os}\|$	—	50	μmhos
Input Capacitance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	5.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	1.0	pF
Output Capacitance (V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz)	C_{oss}	—	2.0	pF
FUNCTIONAL CHARACTERISTICS				
Noise Figure (V_{DS} = 15 V, I_D = 1.0 mA, YG' = 1.0 mmhos) (R_G = 1.0 kΩ, f = 100 MHz) (V_{DS} = 15 V, V_{GS} = 0, YG' = 1.0 μmho) (R_G = 1.0 MΩ, f = 1.0 kHz)	NF	 — —	 3.0 2.5	dB
Common Source Power Gain (V_{DS} = 15 Vdc, I_D = 1.0 mAdc, f = 100 MHz)	G_{ps}	16	25	dB

3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Gate Voltage	V_{DG}	25	Vdc
Reverse Gate-Source Voltage	$V_{GS(r)}$	25	Vdc
Forward Gate Current	$I_{G(f)}$	10	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	°C/mW
Total Device Dissipation Alumina Substrate,** T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/mW
Junction and Storage Temperature	T_J, T_{stg}	150	°C

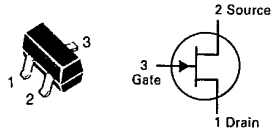
*FR-5 = 1.0 x 0.75 x 0.62 in.
**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

MMBF5486 = 6H

MMBF5486

CASE 318-02/03, STYLE 10
SOT-23 (TO-236AA/AB)



JFET TRANSISTOR

N-CHANNEL

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Gate-Source Breakdown Voltage (V_{DS} = 0, I_G = −1.0 μA)	$V_{(BR)GSS}$	−25	—	Vdc
Gate 1 Leakage Current (V_{GS} = −20 V, V_{DS} = 0)	I_{G1SS}	—	−1.0	nA
Gate 2 Leakage Current (V_{GS} = −20 V, V_{DS} = 0, T_A = 100°C)	I_{G2SS}	—	−0.2	μA
Gate Source Cutoff Voltage (V_{DS} = 15 V, I_D = 10 nA)	$V_{GS(off)}$	−2.0	−6.0	Vdc
ON CHARACTERISTICS				
Zero-Gate-Voltage Drain (V_{GS} = 0, V_{DS} = 15 V)	I_{DSS}	8.0	20	mA
SMALL-SIGNAL CHARACTERISTICS				
Forward Transfer Admittance (V_{GS} = 0, V_{DS} = 15 V, f = 1.0 kHz)	$\lvert y_{fs} \rvert$	4000	8000	μmhos
Input Admittance (V_{GS} = 0, V_{DS} = 15 V, f = 400 MHz)	$Re(y_{is})$	—	1000	μmhos
Output Admittance (V_{GS} = 0, V_{DS} = 15 V, f = 1.0 kHz)	$\lvert y_{os} \rvert$	—	75	μmhos
Output Conductance (V_{GS} = 0, V_{DS} = 15 V, f = 400 MHz)	$Re(y_{os})$	—	100	μmhos
Forward Transconductance (V_{GS} = 0, V_{DS} = 15 V, f = 400 MHz)	$Re(y_{fs})$	3500	—	μmhos
Input Capacitance (V_{GS} = 0, V_{DS} = 15 V, f = 1.0 MHz)	C_{iss}	—	5.0	pF
Reverse Transfer Capacitance (V_{GS} = 0, V_{DS} = 15 V, f = 1.0 MHz)	C_{rss}	—	1.0	pF
Output Capacitance (V_{GS} = 0, V_{DS} = 15 V, f = 1.0 MHz)	C_{oss}	—	2.0	pF
FUNCTIONAL CHARACTERISTICS				
Noise Figure (V_{DS} = 15 V, I_D = 4.0 mA, f = 100 MHz, Y_G = 1.0 μmhos) (V_{DS} = 15 V, I_D = 4.0 mA, R_G = 1.0 kΩ, f = 400 MHz, Y_G = 1.0 μmhos) (V_{GS} = 0, V_{DS} = 15 V, R_G = 1.0 mΩ, f = 1.0 kHz, Y_G = 1.0 μmhos)	NF	 — — —	 2.0 4.0 2.5	dB
Common Source Power Gain (V_{DS} = 15 V, I_D = 4.0 mA, f = 100 MHz) (V_{DS} = 15 V, I_D = 4.0 mA, f = 400 MHz)	G_{ps}	 18 10	 30 20	dB