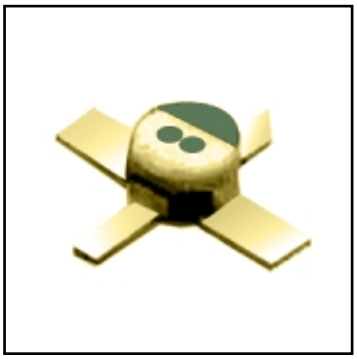
FSU02LG

General Purpose GaAs FET

FEATURES



- High Output Power: P_{1dB} = 23.0dBm (Typ.)@2GHz
- High Associated Gain: G_{1dB} = 17.0dB (Typ.)@2GHz
- Low Noise Figure: NF=1.5dB (Typ.)@f=2GHz
- Low Bias Conditions: V_{DS}=3V, 20mA
- Cost Effective Hermetic Microstrip Package
- Tape and Reel Available

DESCRIPTION

The FSU02LG is a high performance, low noise, GaAs FET designed for PCS/PCN applications as a driver in the 2GHz band.

Fujitsu's stringent Quality Assurance Program assures the highest reliability and consistent performance.

ABSOLUTE MAXIMUM RATING (Ambient Temperature Ta=25°C)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		12	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_{tot}	Note	750	mW
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		175	°C

Note: Mounted on Al_2O_3 board (30 x 30 x 0.65mm)

Fujitsu recommends the following conditions for the reliable operation of GaAs FETs:

1. The drain-source operating voltage (V_{DS}) should not exceed 6 volts.
2. The forward and reverse gate currents should not exceed 1.4 and -0.2 mA respectively with gate resistance of 2000Ω.
3. The operating channel temperature (T_{ch}) should not exceed 145°C.

ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

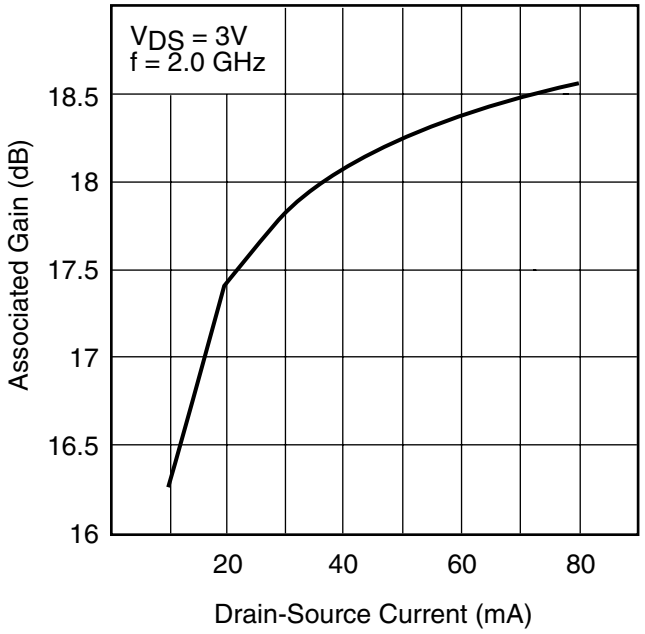
Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 3V, V_{GS} = 0V	80	110	150	mA
Transconductance	gm	V_{DS} = 3V, I_{DS} =54mA	-	100	-	mS
Pinch-off Voltage	V_p	V_{DS} = 3V, I_{DS} = 5.4mA	-0.7	-1.2	-1.7	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -5.4μA	-5	-	-	V
Output Power at 1dB Gain Compression Point	P_{1dB}	V_{DS} = 6V $I_{DS(DC)}$ = 80mA f = 2GHz	22.0	23.0	-	dBm
Power Gain at 1dB Gain Compression Point	G_{1dB}		16.0	17.0	-	dB
Noise Figure	NF	V_{DS} = 3V I_{DS} = 20mA f = 2GHz	-	1.5	-	dB
Associated Gain	Gas		-	17.5	-	dB
Thermal Resistance	R_{th}	Channel to Case	-	150	200	°C/W

AVAILABLE CASE STYLES: LG

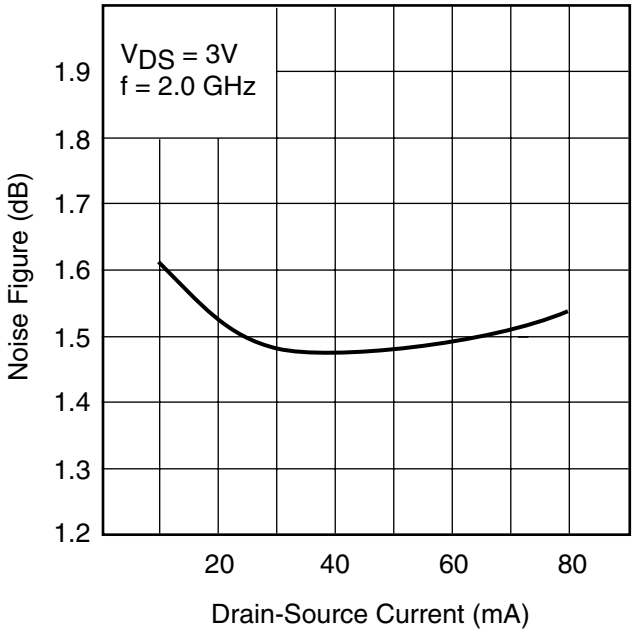
G.C.P.: Gain Compression Point

Note: The RF parameters are measured on a lot basis by sample testing at an AQL = 0.1%, Level-II inspection. Any lot failure shall be 100% retested.

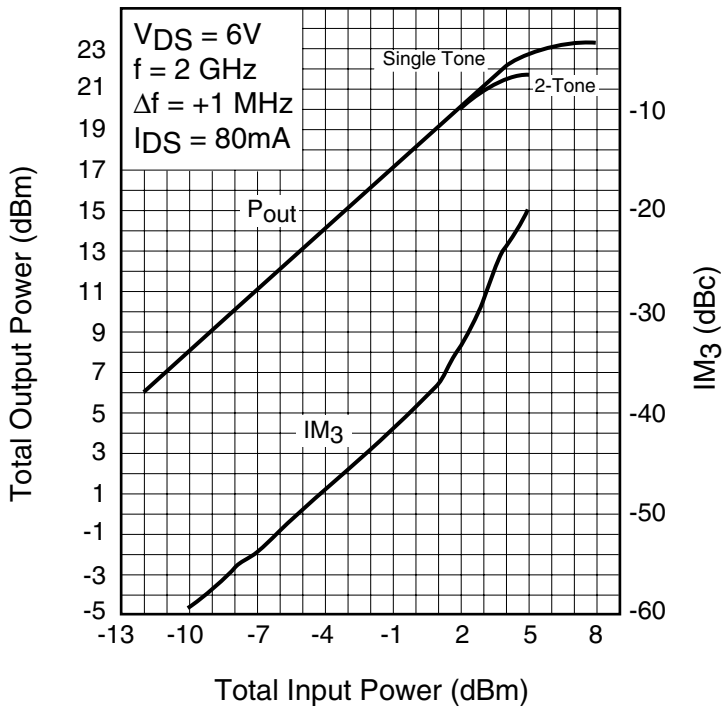
ASSOCIATED GAIN vs. DRAIN-SOURCE CURRENT



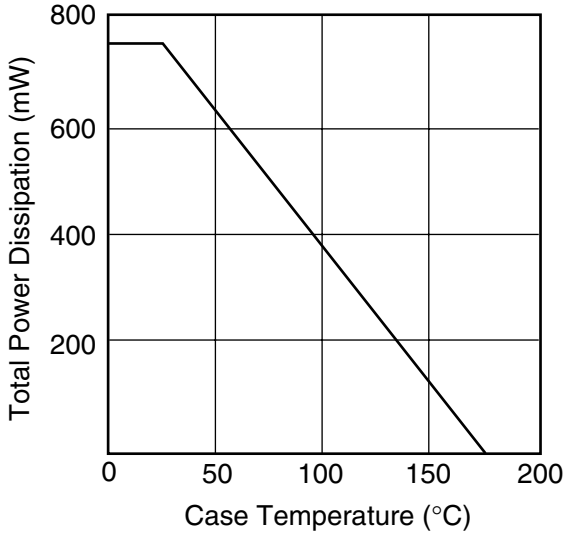
NOISE FIGURE vs. DRAIN-SOURCE CURRENT

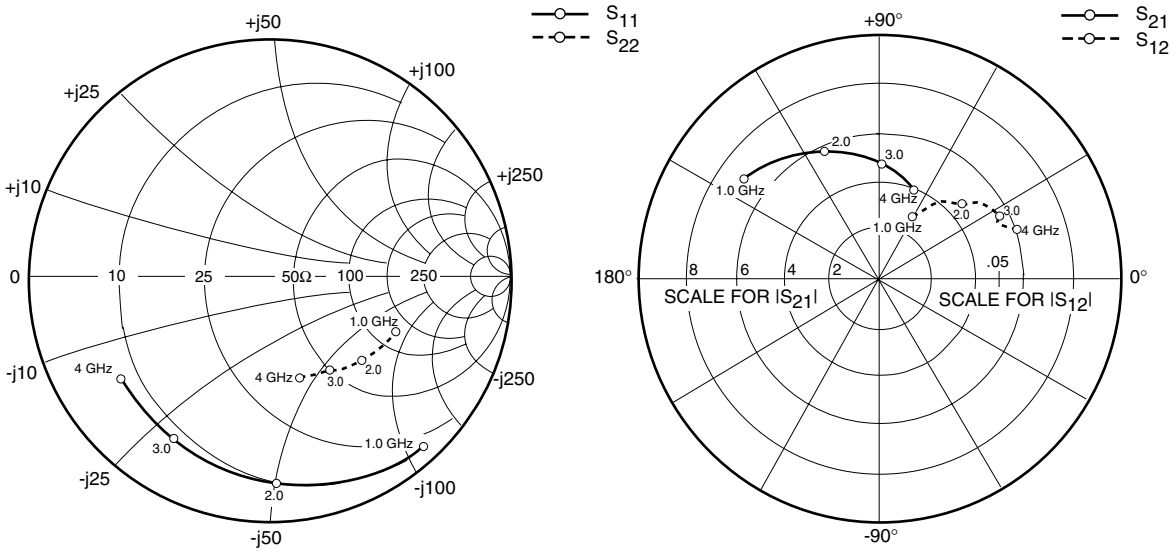


OUTPUT POWER & IM_3 vs. INPUT POWER



POWER DERATING CURVE





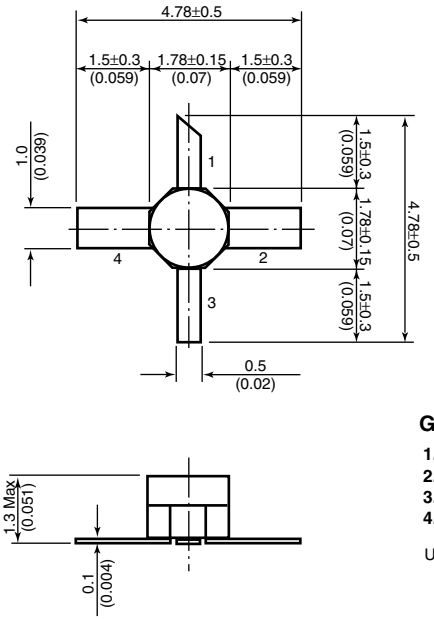
S-PARAMETERS

V_{DS} =6V, I_{DS} = 80mA

FREQUENCY	S11		S21		S12		S22	
(GHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
400	.993	-19.6	7.407	165.2	.012	76.3	.593	-9.4
600	.982	-29.3	7.259	157.9	.018	74.8	.589	-14.4
800	.971	-38.8	7.115	150.8	.023	68.3	.580	-19.2
1000	.952	-47.9	6.925	144.0	.029	62.7	.570	-23.6
1200	.938	-56.5	6.704	137.3	.032	59.1	.560	-27.8
1400	.921	-65.0	6.450	130.9	.037	54.8	.547	-31.7
1600	.899	-73.0	6.198	125.0	.041	51.3	.536	-36.5
1800	.880	-80.7	5.954	119.2	.043	47.6	.524	-39.3
2000	.836	-88.2	5.722	113.6	.046	42.2	.513	-42.9
2200	.843	-95.1	5.503	108.4	.048	40.1	.500	-46.3
2400	.829	-101.7	5.270	103.2	.051	38.2	.490	-49.7
2600	.818	-108.1	5.054	98.3	.053	34.5	.480	-53.3
2800	.802	-114.5	4.836	93.5	.055	30.0	.465	-56.5
3000	.781	-120.2	4.608	89.4	.054	27.1	.453	-58.2
3200	.774	-125.1	4.449	85.2	.055	27.6	.452	-60.8
3400	.766	-130.5	4.292	81.0	.055	23.5	.448	-64.0
3600	.758	-135.5	4.135	77.0	.056	23.0	.443	-66.8
3800	.753	-140.5	3.985	73.0	.057	21.5	.438	-70.0
4000	.747	-145.0	3.849	69.0	.059	20.4	.433	-73.2

Case Style "LG"

Metal-Ceramic Package



Gold Plated Leads

1. **Gate**
2. **Source**
3. **Drain**
4. **Source**

Unit: mm(inches)

For further information please contact:

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