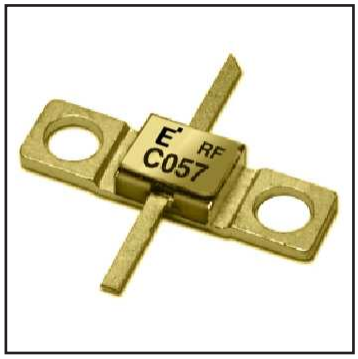
FLC057WG

C-Band Power GaAs FET

FEATURES

- High Output Power: P_{1dB} = 27.0dBm(Typ.)
- High Gain: G_{1dB} = 9.0dB(Typ.)
- High PAE: η_{add} = 38%(Typ.)
- Proven Reliability
- Hermetic Metal/Ceramic Package



DESCRIPTION

The FLC057WG is a power GaAs FET that is designed for general purpose applications in the C-Band frequency range as it provides superior power, gain, and efficiency.

Eudyna 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}		15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	T_C = 25°C	3.75	W
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		175	°C

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

1. The drain-source operating voltage (V_{DS}) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 4.4 and -0.25 mA respectively with gate resistance of 1000Ω.
3. The operating channel temperature (T_{ch}) should not exceed 145°C.

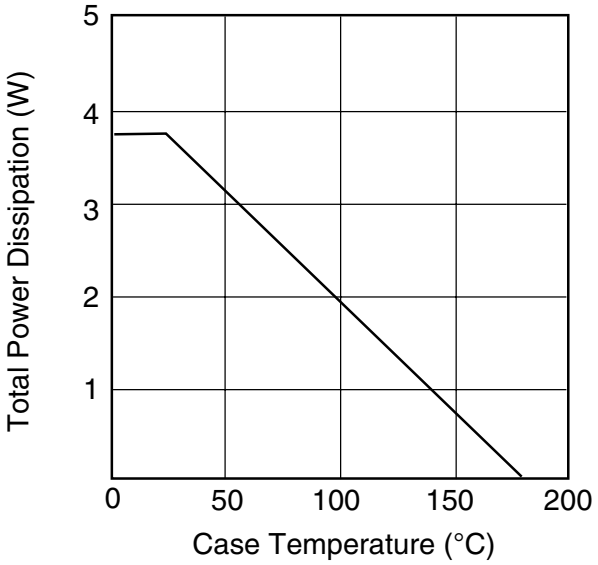
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	200	300	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 125mA	-	100	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} =10mA	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -10μA	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} = 10V $I_{DS} \approx 0.6\ I_{DSS}$ (Typ.), f = 8 GHz	25.5	27.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		8.0	9.0	-	dB
Power-added Efficiency	η_{add}		-	38	-	%
Thermal Resistance	R_{th}	Channel to Case	-	27	40	°C/W

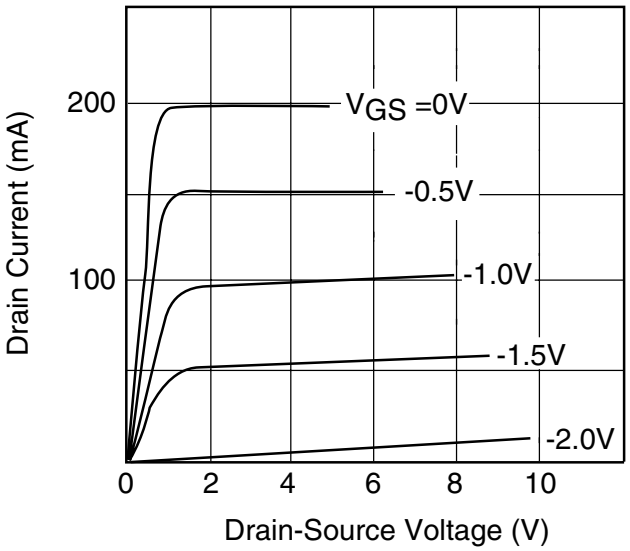
CASE STYLE: WG

G.C.P.: Gain Compression Point

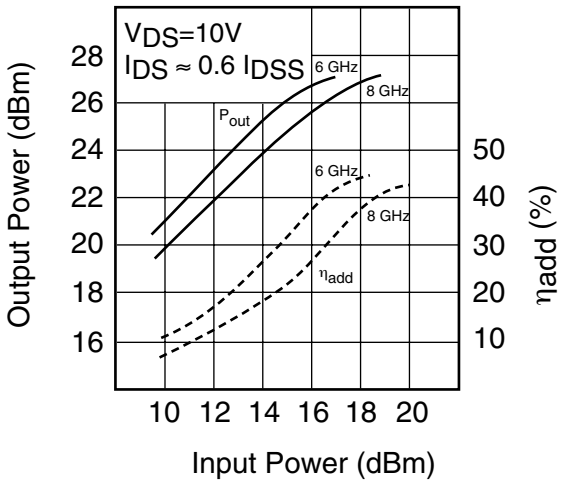
POWER DERATING CURVE



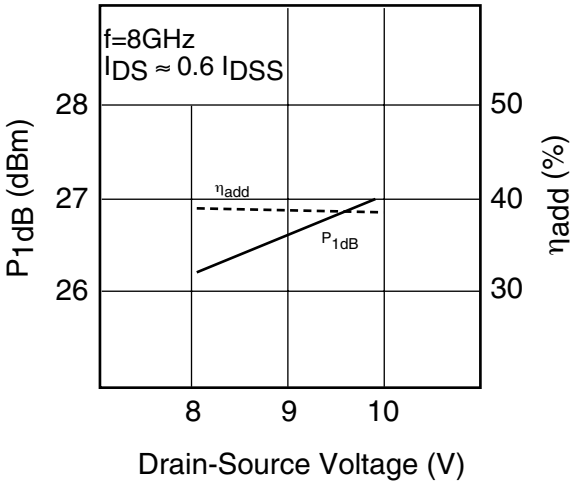
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE

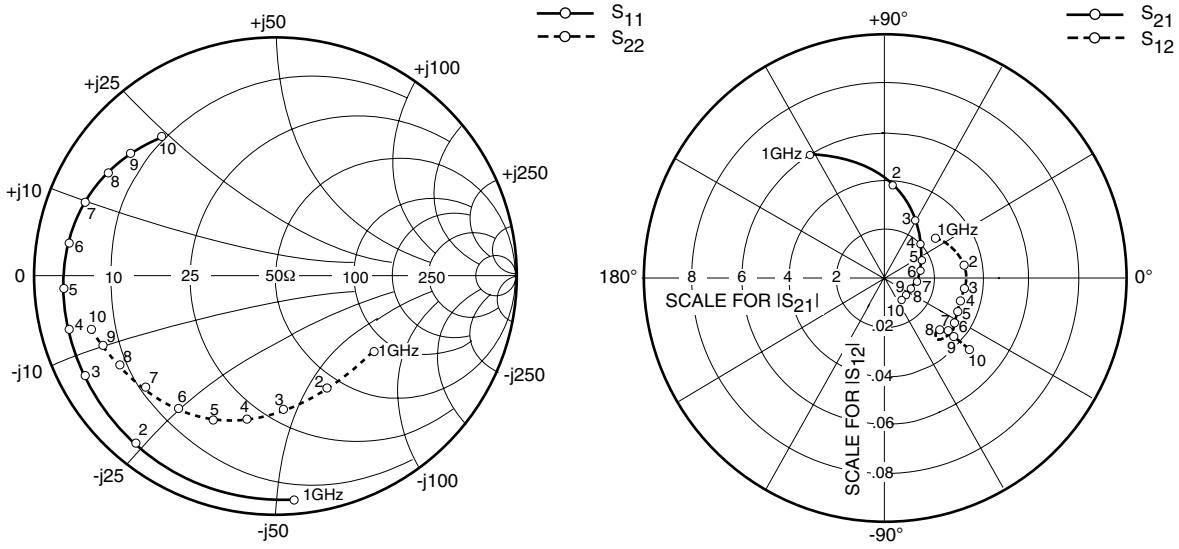


OUTPUT POWER vs. INPUT POWER



P1dB & ηadd vs. VDS





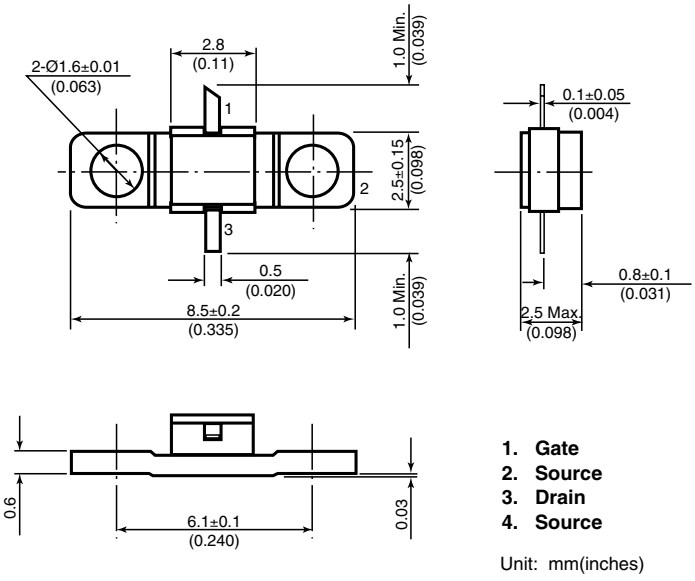
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 125mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.973	-47.9	7.249	147.9	.016	60.6	.545	-20.4
1000	.941	-85.1	5.946	121.8	.026	38.1	.519	-38.2
2000	.912	-129.5	3.846	86.0	.033	8.9	.514	-66.2
3000	.897	-151.8	2.675	62.2	.033	-8.5	.562	-86.5
4000	.889	-164.8	2.058	44.1	.032	-17.6	.618	-101.2
5000	.881	-176.2	1.712	27.8	.033	-25.1	.658	-113.0
6000	.869	171.6	1.506	11.2	.033	-31.0	.689	-125.1
7000	.847	159.0	1.339	-6.1	.035	-39.4	.717	-138.5
8000	.816	148.5	1.199	-21.6	.033	-41.3	.745	-149.3
9000	.787	139.7	1.125	-35.4	.037	-41.0	.773	-157.4
10000	.740	129.4	1.149	-49.4	.045	-40.5	.796	-163.1

Case Style "WG"

Metal-Ceramic Hermetic Package



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

Unit: mm(inches)