

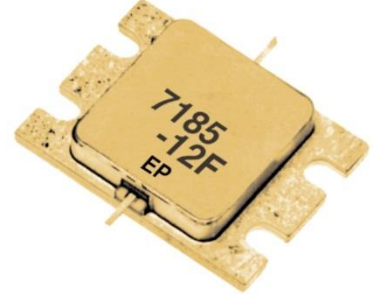
FEATURES

- High Output Power: $P_{1dB} = 41.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 8.0\text{dB}$ (Typ.)
- High Power Added Efficiency: $PAE = 30\%$ (Typ.)
- Low $IM_3 = -45\text{dBc}$ @ $P_o = 30.0\text{dBm}$
- Broad Band: 7.1 to 8.5GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\text{ohm}$
- Hermetically Sealed Package

DESCRIPTION

The FLM7185-12F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

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



ABSOLUTE MAXIMUM RATING (Case Temperature $T_c=25\text{deg.C}$)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	$T_c = 25\text{deg.C}$	57.6	W
Storage Temperature	T_{stg}		-65 to +175	deg.C
Channel Temperature	T_{ch}		175	deg.C

Sumitomo Electric 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 32.0 and -5.6 mA respectively with gate resistance of 50ohm.

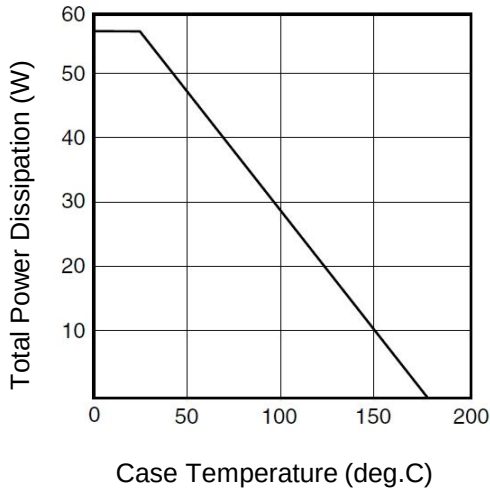
ELECTRICAL CHARACTERISTICS (Case Temperature $T_c=25\text{deg.C}$)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS}=5V, V_{GS}=0V$	-	5000	7500	mA
Transconductance	g_m	$V_{DS}=5V, I_{DS}=3250\text{mA}$	-	5000	-	mS
Pinch-off Voltage	V_p	$V_{DS}=5V, I_{DS}=250\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS}=-250\text{uA}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS}=10V,$ $I_{DS}=0.65 I_{DSS}$ (Typ.), $f=7.1$ to 8.5 GHz, $Z_S=Z_L=50\text{ohm}$	40.0	41.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		7.0	8.0	-	dB
Drain Current	I_{dsr}		-	3500	4500	mA
Power-added Efficiency	PAE		-	30	-	%
Gain Flatness	ΔG		-	-	1.2	dB
3rd Order Intermodulation Distortion	IM_3	$f = 8.5$ GHz, $\Delta f = 10$ MHz 2-Tone Test $P_{out} = 30.0\text{dBm}$ S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	2.3	2.6	deg.C/W
Channel Temperature Rise	ΔT_{ch}	$10V \times I_{dsr} \times R_{th}$	-	-	80	deg.C

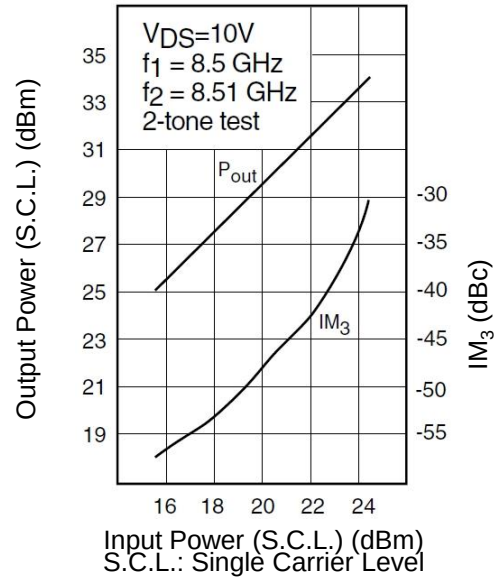
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level

CASE STYLE	IK	
ESD	Class 3A	4000V to 8000V
Note : Based on ANSI/ESDA/JEDEC JS-001-2014(C=100pF, R=1.5kohm)		
RoHS Compliance	Yes	

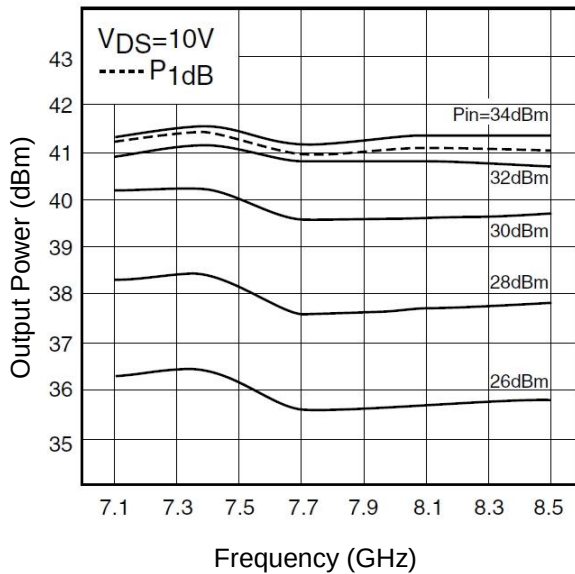
POWER DERATING CURVE



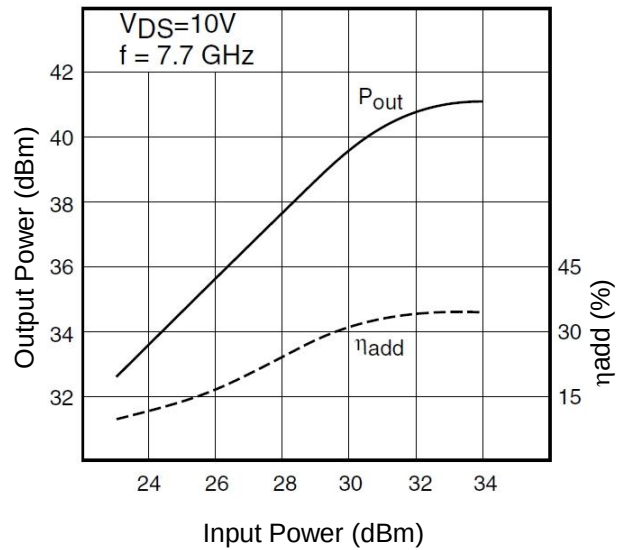
OUTPUT POWER & IM_3 vs. INPUT POWER

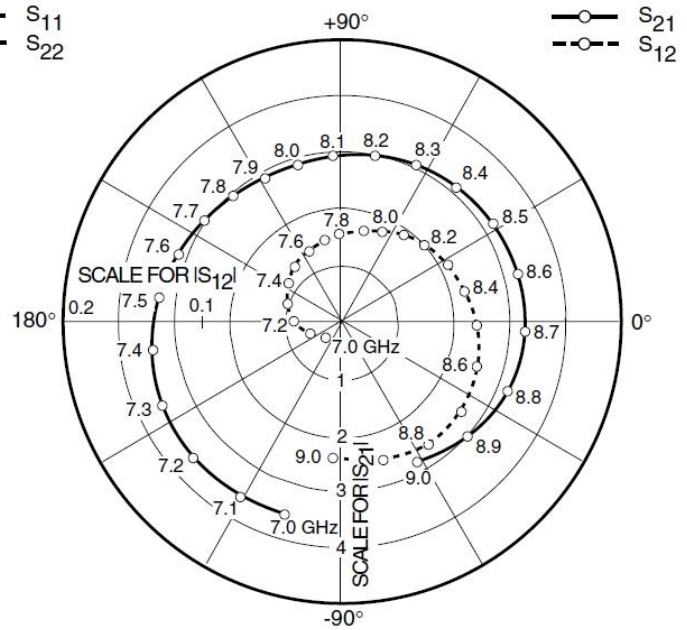
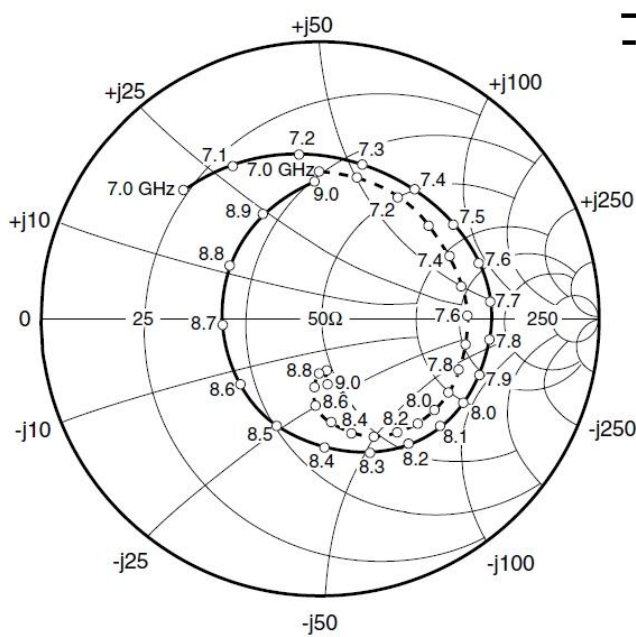


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER



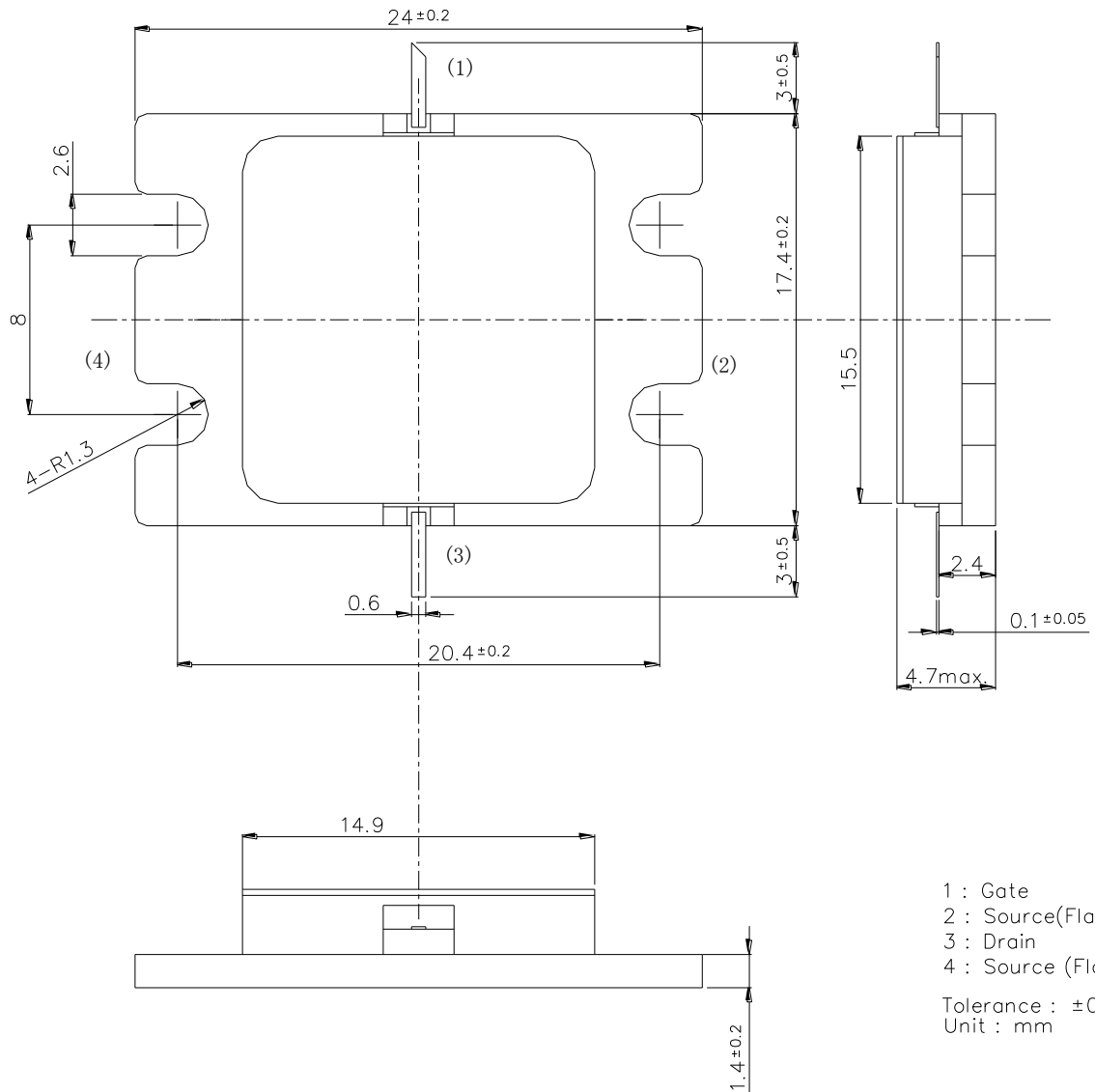


S-PARAMETERS

$V_{DS} = 10V$, $I_{DS} = 3250mA$

FREQUENCY (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7000	0.665	137.1	3.537	-107.2	0.017	-134.4	0.532	89.7
7100	0.626	119.6	3.608	-120.7	0.025	-157.6	0.525	75.0
7200	0.592	97.1	3.612	-138.2	0.033	-178.1	0.518	57.8
7300	0.577	74.7	3.558	-155.3	0.039	162.3	0.514	41.1
7400	0.575	53.6	3.435	-171.8	0.046	145.3	0.516	26.3
7500	0.583	35.2	3.312	172.6	0.051	131.0	0.519	12.8
7600	0.597	19.3	3.169	158.0	0.054	115.4	0.526	0.7
7700	0.610	5.1	3.045	144.1	0.059	102.4	0.531	-10.2
7800	0.616	-7.8	2.945	131.1	0.062	90.8	0.534	-20.5
7900	0.613	-19.8	2.889	118.6	0.065	77.0	0.533	-30.2
8000	0.599	-31.2	2.897	106.2	0.069	66.0	0.528	-39.1
8100	0.581	-42.5	2.938	92.8	0.075	54.3	0.516	-47.8
8200	0.556	-54.9	2.987	78.9	0.080	41.0	0.498	-56.6
8300	0.524	-69.4	3.055	64.6	0.087	27.8	0.473	-65.7
8400	0.476	-87.6	3.144	49.3	0.091	13.4	0.435	-74.8
8500	0.424	-110.2	3.220	32.6	0.097	-1.4	0.380	-84.1
8600	0.375	-139.2	3.264	15.1	0.103	-19.0	0.315	-91.5
8700	0.351	-173.9	3.250	-3.3	0.107	-36.8	0.251	-94.1
8800	0.370	150.2	3.168	-22.6	0.107	-55.2	0.204	-90.2
8900	0.423	118.4	3.016	-41.9	0.104	-74.0	0.200	-83.9
9000	0.491	92.3	2.818	-61.1	0.098	-93.2	0.236	-84.9

■ Package Outline
Case Style : IK



CAUTION

This product contains **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not put these products into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.