

# ELM7785-60F

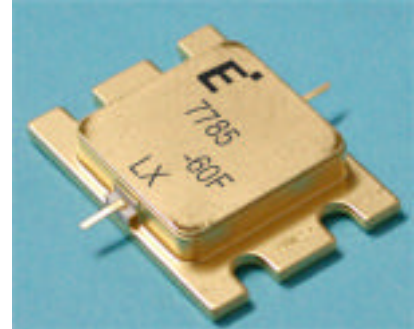
## C-Band Internally Matched FET

### FEATURES

- High Output Power: P<sub>1dB</sub>=48.0dBm(Typ.)
- High Gain: G<sub>1dB</sub>=8.0dB(Typ.)
- High PAE:  $\eta_{add}$ =37%(Typ.)
- Broad Band: 7.7~8.5GHz
- Impedance Matched Z<sub>in</sub>/Z<sub>out</sub> = 50 $\Omega$
- Hermetically Sealed Package

### DESCRIPTION

The ELM7785-60F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 $\Omega$  system.



### ABSOLUTE MAXIMUM RATINGS (Case Temperature T<sub>c</sub>=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	15	V
Gate-Source Voltage	V <sub>GS</sub>	-5	V
Total Power Dissipation	P <sub>T</sub>	150	W
Storage Temperature	T <sub>stg</sub>	-65 to +175	°C
Channel Temperature	T <sub>ch</sub>	175	°C

### RECOMMENDED OPERATING CONDITION (Case Temperature T<sub>c</sub>=25°C)

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V <sub>DS</sub>		10	V
Forward Gate Current	I <sub>GF</sub>	R <sub>G</sub> =10 ohm	144	mA
Reverse Gate Current	I <sub>GR</sub>	R <sub>G</sub> =10 ohm	-43	mA
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C
Channel Temperature	T <sub>ch</sub>		150	°C

### ELECTRICAL CHARACTERISTICS (Case Temperature T<sub>c</sub>=25°C)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V	-	28	-	A
Trans conductance	g <sub>m</sub>	V <sub>DS</sub> =5V, I <sub>DS</sub> =8A	-	20	-	mS
Pinch-off Voltage	V <sub>p</sub>	V <sub>DS</sub> =5V, I <sub>DS</sub> =1.2A	-0.5	-1.5	-3.0	V
Gate-Source Breakdown Voltage	V <sub>GS0</sub>	I <sub>GS</sub> =-1.2mA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P <sub>1dB</sub>	V <sub>DS</sub> =10V	47.0	48.0	-	dBm
Power Gain at 1dB G.C.P.	G <sub>1dB</sub>	I <sub>DS</sub> DC=9.5A	7.0	8.0	-	dB
Drain Current	I <sub>DSR</sub>	f= 7.7 ~ 8.5 GHz	-	14.5	16.0	A
Power-added Efficiency	$\eta_{add}$	Z <sub>S</sub> =Z <sub>L</sub> =50 ohm	-	37	-	%
Gain Flatness	$\Delta G$		-	-	1.6	dB
Thermal Resistance	R <sub>th</sub>	Channel to Case	-	0.8	1.0	°C/W
Channel Temperature Rise	$\Delta T_{ch}$	10V x I <sub>DSR</sub> X R <sub>th</sub>	-	-	100	°C

### CASE STYLE : IK

G.C.P.: Gain Compression Point

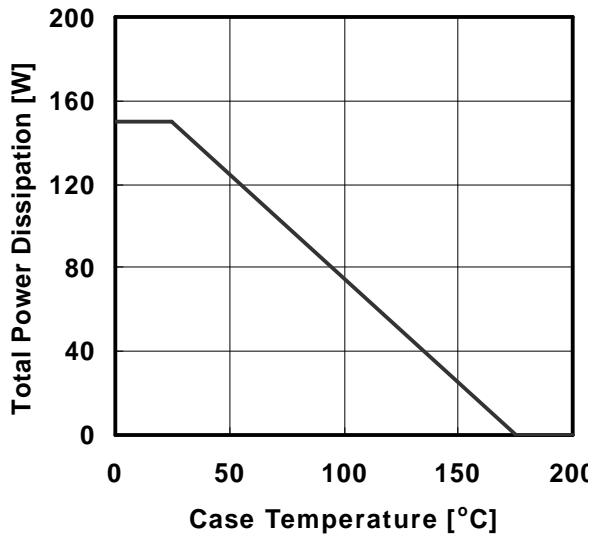
ESD	Class III	2000V ~
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Note : Based on EIAJ ED-4701 C-111A (C=100pF, R=1.5k $\Omega$ )

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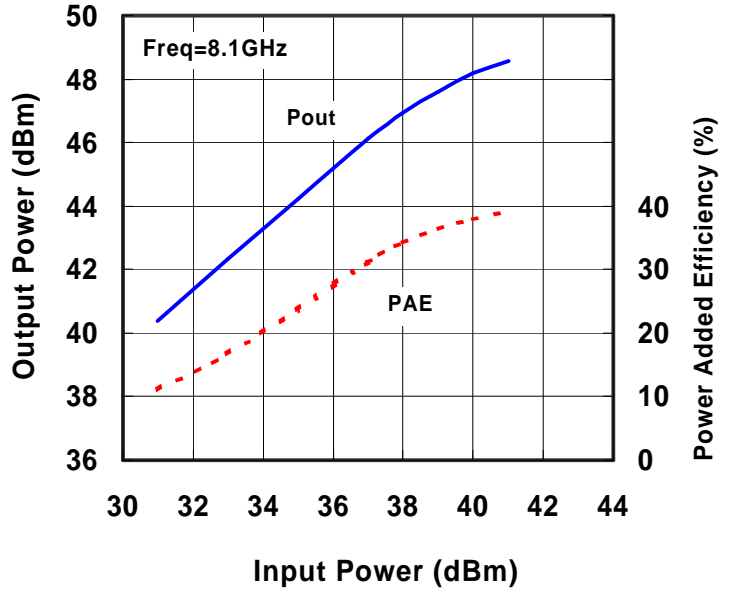
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POWER DERATING CURVE



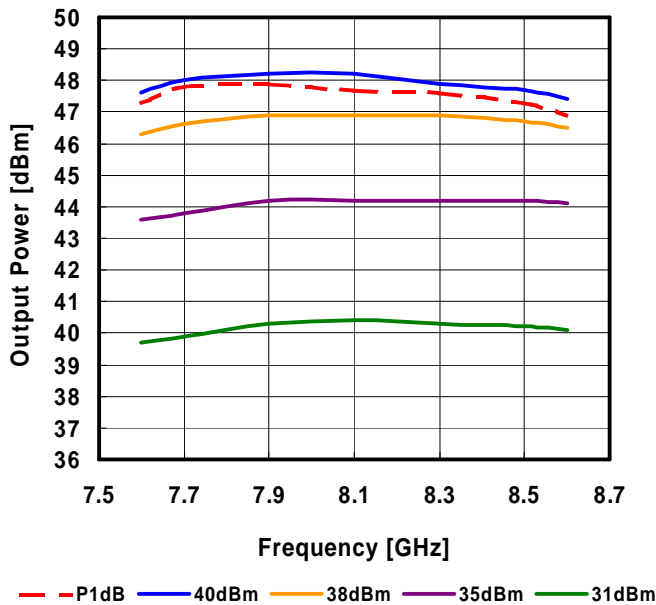
OUTPUT POWER & POWER ADDED EFFICIENCY vs INPUT POWER

Vds=10V IdsDC=9.5A



OUTPUT POWER vs. FREQUENCY

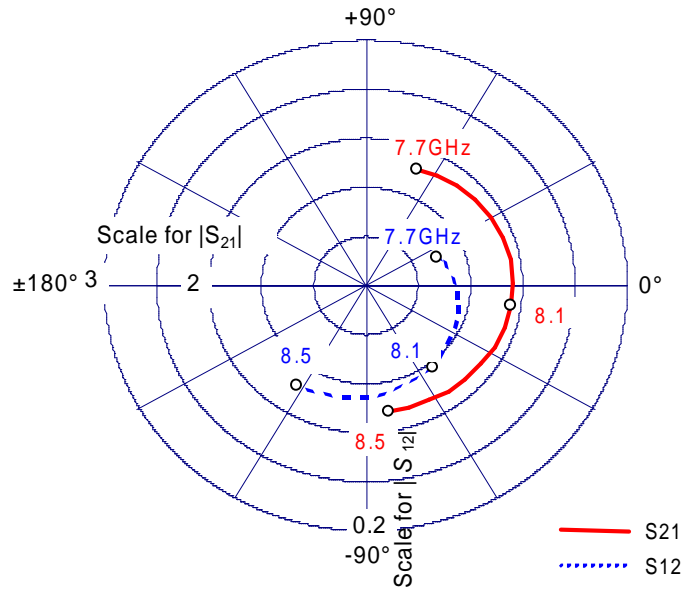
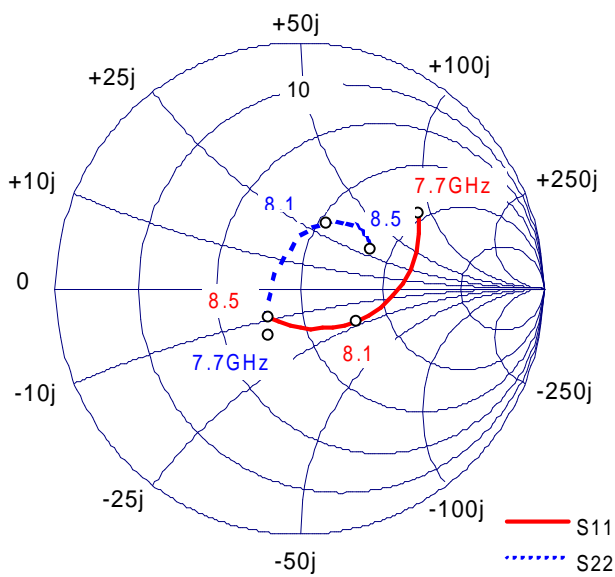
Vds=10V, IdsDC=9.5A



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## S-PARAMETERS



VDS=10.0V , IDS=9.5A

Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7.6	0.639	45.6	2.383	85.3	0.052	41.9	0.330	-100.9
7.7	0.575	31.7	2.539	67.8	0.059	22.9	0.230	-123.0
7.8	0.501	17.5	2.677	49.3	0.067	4.6	0.137	-162.3
7.9	0.421	2.8	2.772	30.3	0.074	-14.6	0.134	127.6
8.0	0.340	-12.6	2.808	11.0	0.079	-34.2	0.216	87.1
8.1	0.268	-29.3	2.795	-8.2	0.085	-52.7	0.286	67.4
8.2	0.209	-48.8	2.751	-27.0	0.086	-72.1	0.330	52.9
8.3	0.171	-74.0	2.702	-45.0	0.091	-89.7	0.343	41.5
8.4	0.157	-104.2	2.639	-62.6	0.093	-106.4	0.343	33.4
8.5	0.169	-137.3	2.591	-80.3	0.097	-123.4	0.330	28.7
8.6	0.200	-166.6	2.533	-98.0	0.099	-141.1	0.307	28.4

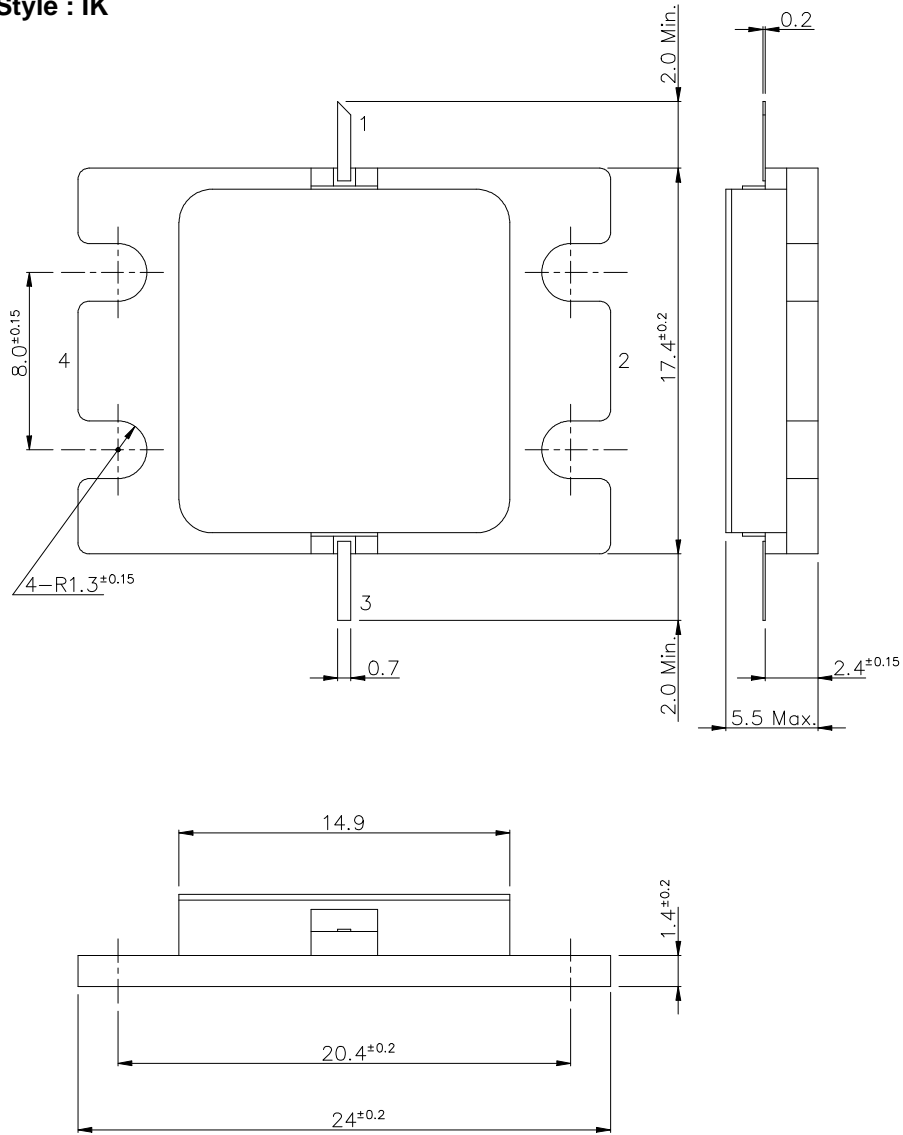
**Eudyna**

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Package Out Line

Case Style : IK



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**ES/ELM5359-60F**  
**C-Band Internally Matched FET**

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**CAUTION**

Eudyna Devices Compound Semiconductor Products contain **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.

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