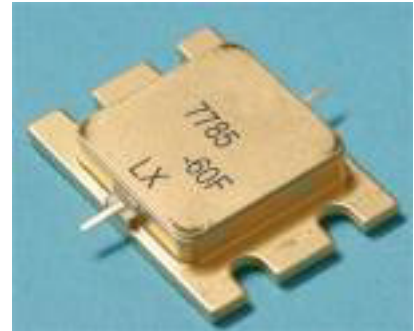




# ELM7785-60F

## C-Band Internally Matched FET



### FEATURES

- High Output Power: P1dB=48.0dBm(Typ.)
- High Gain: G1dB=8.0dB(Typ.)
- High PAE:  $\eta_{add}$ =37%(Typ.)
- Broad Band: 7.7 to 8.5GHz
- Impedance Matched Zin/Zout = 50ohm
- 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 50ohm system.

### ABSOLUTE MAXIMUM RATINGS (Case Temperature Tc=25deg.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	deg.C
Channel Temperature	T <sub>ch</sub>	175	deg.C

### RECOMMENDED OPERATING CONDITION (Case Temperature Tc=25deg.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	deg.C
Channel Temperature	T <sub>ch</sub>		150	deg.C

### ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25deg.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>GSO</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 I <sub>DS</sub> DC=9.5A f= 7.7 to 8.5 GHz Z <sub>S</sub> =Z <sub>L</sub> =50 ohm	47.0	48.0	-	dBm
Power Gain at 1dB G.C.P.	G <sub>1dB</sub>		7.0	8.0	-	dB
Drain Current	I <sub>DSR</sub>		-	14.5	16.0	A
Power-added Efficiency	η <sub>add</sub>		-	37	-	%
Gain Flatness	ΔG		-	-	1.6	dB
Thermal Resistance	R <sub>th</sub>	Channel to Case	-	0.8	1.0	deg.C/W
Channel Temperature Rise	ΔT <sub>ch</sub>	10V x I <sub>DSR</sub> X R <sub>th</sub>	-	-	100	deg.C

G.C.P.: Gain Compression Point

### CASE STYLE : IK

ESD	Class 3A	4000V to 8000V
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Note : Based on EIAJ ED-4701 C-111A (C=100pF, R=1.5kohm)

RoHS COMPLIANCE	Yes
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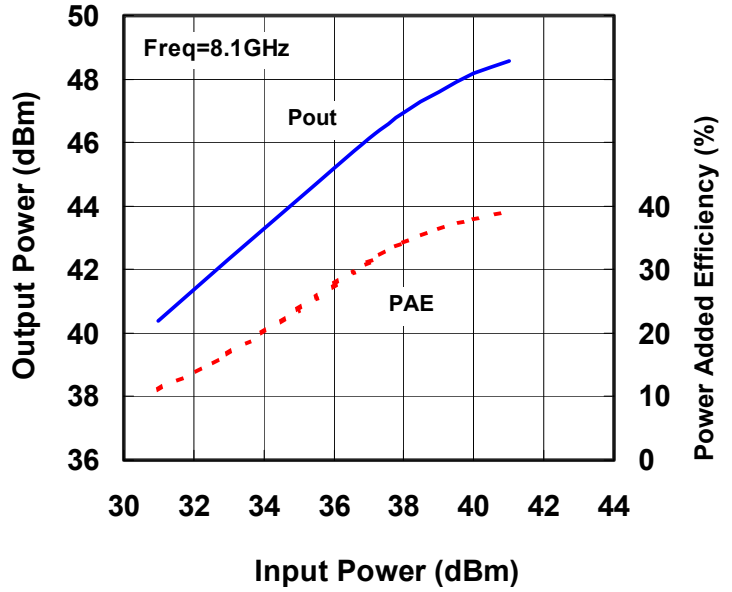


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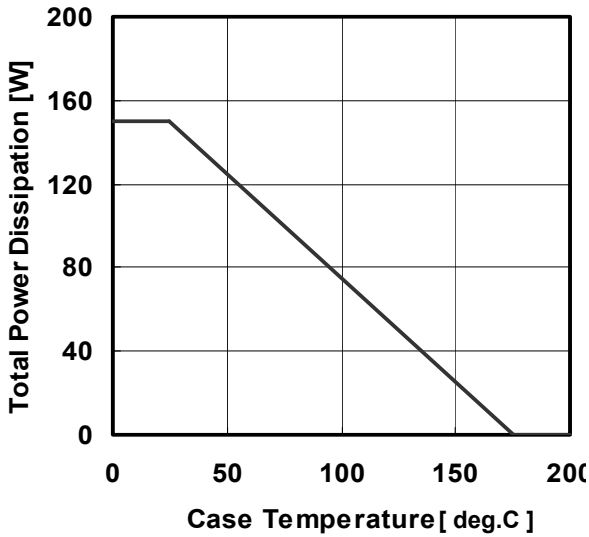
## C-Band Internally Matched FET

### OUTPUT POWER & POWER ADDED EFFICIENCY vs INPUT POWER

V<sub>ds</sub>=10V I<sub>dsDC</sub>=9.5A

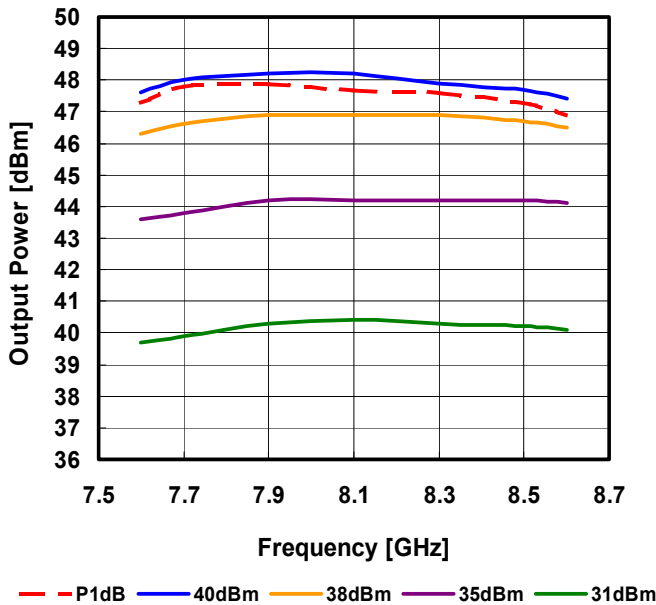


### POWER DERATING CURVE



### OUTPUT POWER vs FREQUENCY

V<sub>ds</sub>=10V, I<sub>dsDC</sub>=9.5A

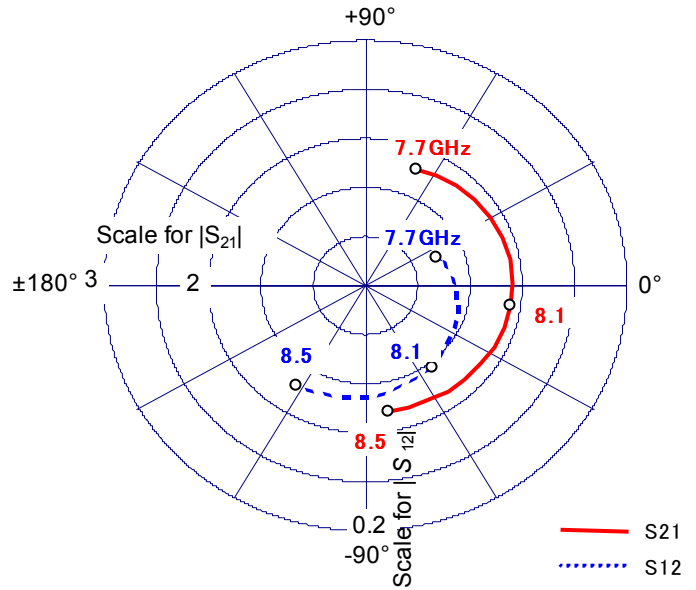
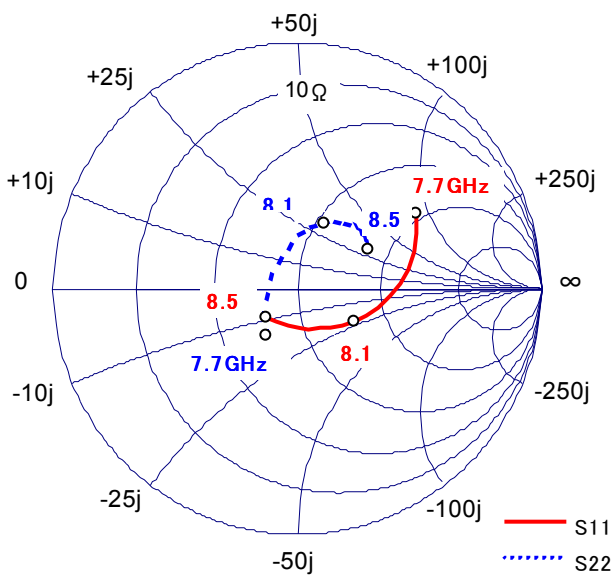




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## ■ S-PARAMETERS



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

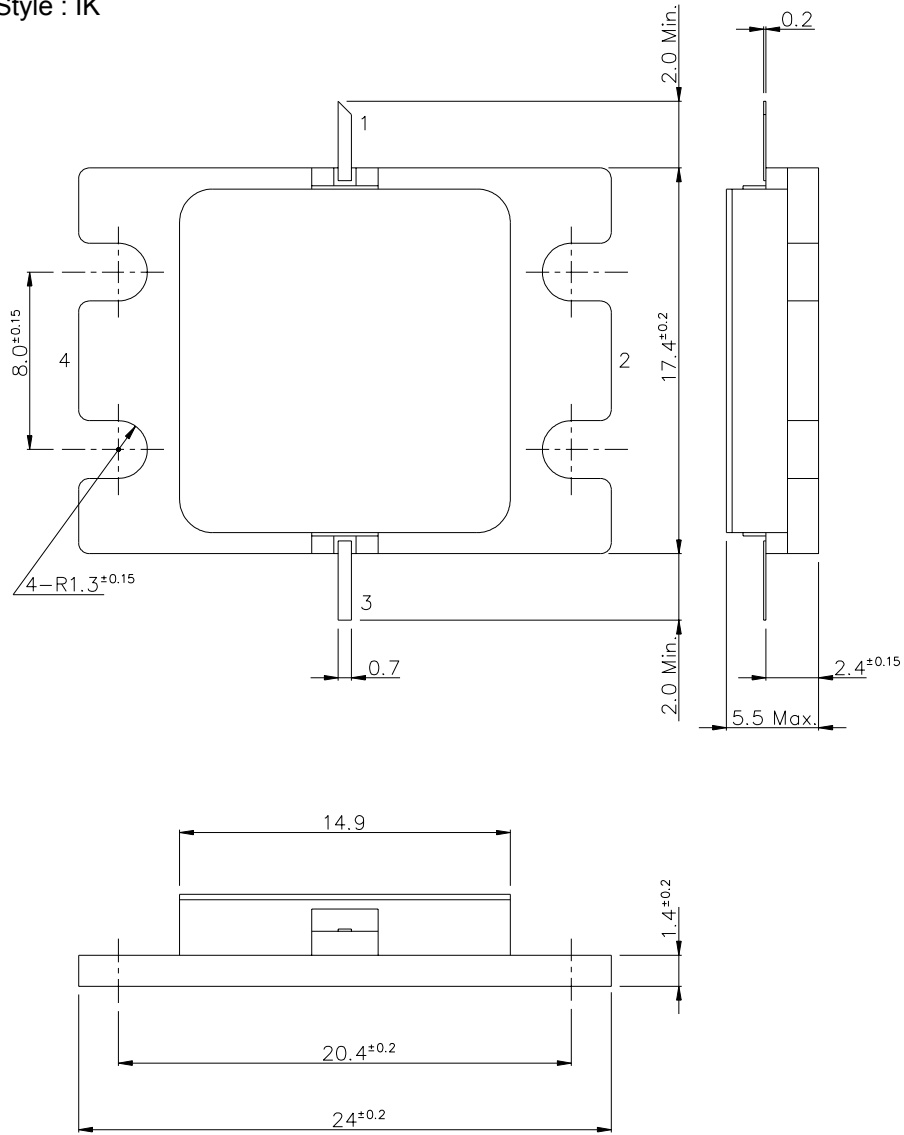


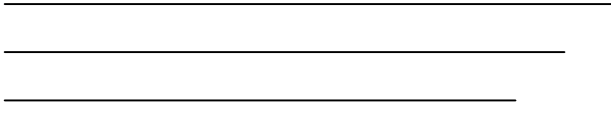
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## Package Out Line

Case Style : IK





## **ELM7785-60F**

***C-Band Internally Matched FET***

**For further information please contact:**

**<http://global-sei.com/Electro-optic/about/office.html>**

### **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.