

ESL100SA

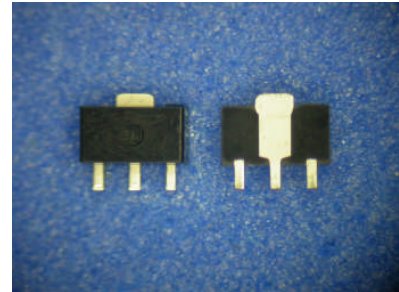
1W SOT89 Molded Package FET

FEATURES

- Up to 3GHz Frequency Band
- 1W Output Power
- SOT-89 SMT Package
- Die Attached with AuSn preforms
- RoHS Compliant

DESCRIPTION

The ESL100SA is a high performance GaAs MESFET housed in a low-cost SOT-89 molded package. The device are suitable for driver amplifier in GSM, UTMS,WLL,PHS and CATV systems.



ABSOLUTE MAXIMUM RATING (Case Temperature Tc=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	Vds	12	V
Gate-Source Voltage	Vgs	-5	V
RF Input Power	Pin	21	dBm
Power Dissipation	Pt	3.6	W
Junction Temperature	Tj	+150	°C
Storage Temperature	Tstg	-40 to +150	°C

RECOMMENDED OPERATING CONDITION (Case Temperature Tc= 25°C)

Item	Symbol	Condition	Unit
Drain-Source Voltage	Vds	10	V
Drain-Source Current	Ids	220	mA
RF Input Power	Pin	18	dBm
Junction Temperature	Tj	150	°C

ELECTRICAL CHARACTERISTICS (Case Temperature Tc= 25°C)

Parameter	Symbol	Condition	Limit			Unit	
			Min.	Typ.	Max.		
D C	Threshold Voltage	Vth	Vds=5V, Id=15mA	-2.4		-1.2	V
	Saturated Drain Current	Idss	Vgs=0V, Vds=5V		300	500	mA
	Transconductance	Gm	Vds=5V, Id=200mA	80	150		mS
	G-D Brakedown Voltage	Vgdo	Igd=-1mA	20			V
R F	Small Signal Gain	Ga		12	13		dB
	Output Power at 1dB	P1dB	f=2.1GHz	28.5	30		dBm
	Output IP3	OIP3	Vds=10V, Id=220mA		50		dBm
	Noise Figure	NF			3		dB

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S-Parameters

V_{ds}=10V I_d=220mA f=50MHz to 4 GHz Z_I = Z_s = 50 ohm

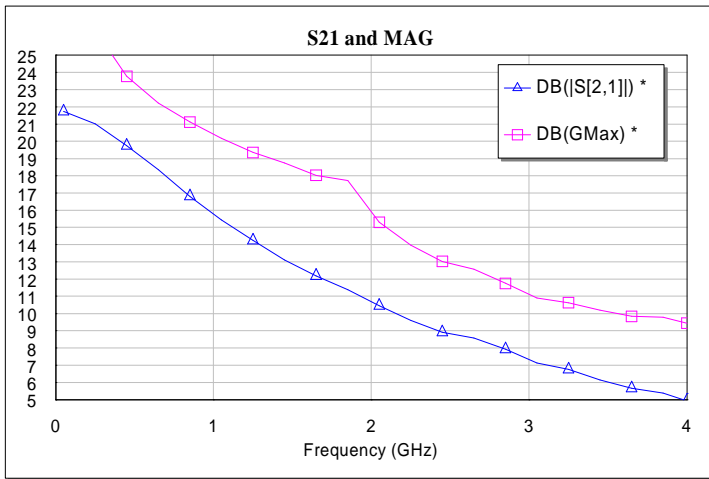


Fig.1 S21 and MAG vs Frequency

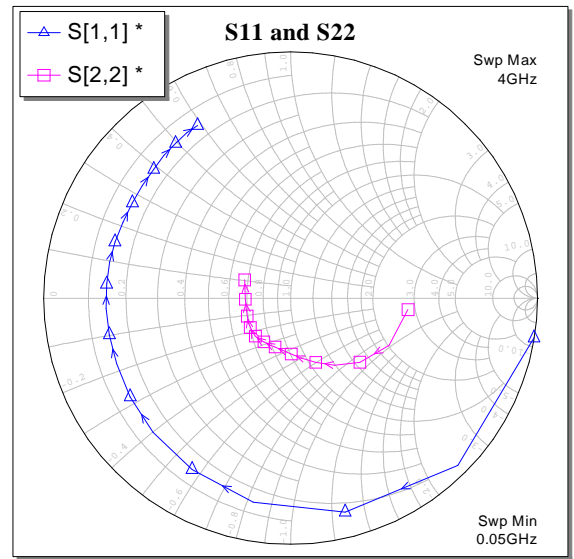


Fig.2 S-Parameters

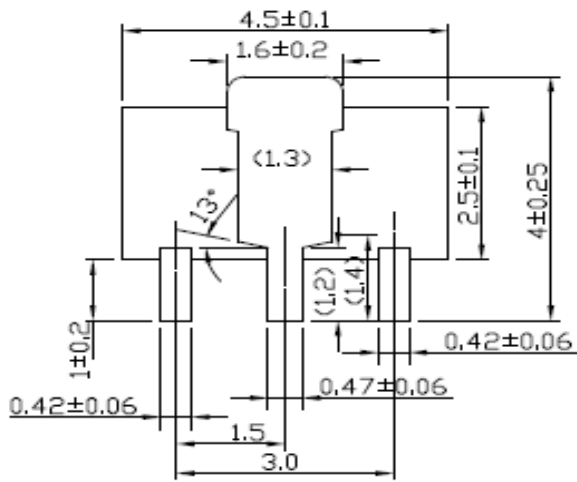
Table 1 S-Parameters

Frequency (GHz)	S[1,1] * (DB Mag)	S[1,1] * (Ang:Deg)	S[2,1] * (DB Mag)	S[2,1] * (Ang:Deg)	S[1,2] * (DB Mag)	S[1,2] * (Ang:Deg)	S[2,2] * (DB Mag)	S[2,2] * (Ang:Deg)
0.05	-0.0131	-9.32	21.7	174	-45.2	85.1	-6.42	-5.59
0.25	-0.363	-45.1	21	154	-31.8	71.4	-7.08	-25.7
0.45	-0.954	-75.7	19.7	138	-27.8	60.8	-8.35	-42.9
0.65	-1.5	-100	18.4	125	-26.1	52	-9.75	-56.9
0.85	-1.92	-120	16.8	116	-25.4	48.3	-11.1	-68.7
1.05	-2.17	-136	15.4	109	-24.9	47.5	-12.1	-79.6
1.25	-2.34	-148	14.3	103	-24.4	46.8	-12.9	-89.4
1.45	-2.46	-159	13.1	98.5	-24.4	47.4	-13.4	-99
1.65	-2.51	-169	12.2	94.9	-23.9	47.8	-13.6	-108
1.85	-2.52	-177	11.4	90.8	-24	46.9	-13.6	-115
2.05	-2.54	176	10.5	87.3	-24.1	51.2	-13.6	-121
2.25	-2.53	169	9.6	84.3	-24	53.3	-13.6	-127
2.45	-2.53	162	8.91	82.7	-23.5	56.8	-13.5	-133
2.65	-2.55	156	8.58	80.8	-23	55.9	-13.7	-138
2.85	-2.52	149	7.93	75.6	-23.7	57.5	-13.9	-144
3.05	-2.45	143	7.13	73.1	-23.6	64	-14.1	-149
3.25	-2.36	137	6.76	71.7	-22.5	65	-14.4	-158
3.45	-2.22	132	6.15	69.4	-22.3	68	-14.7	-167
3.65	-2.14	127	5.66	67.2	-22.5	68.8	-14.7	-178
3.85	-2.02	122	5.37	64.1	-22.2	67.4	-14.5	168
4	-1.98	118	4.94	61.3	-22.5	67.9	-14	158

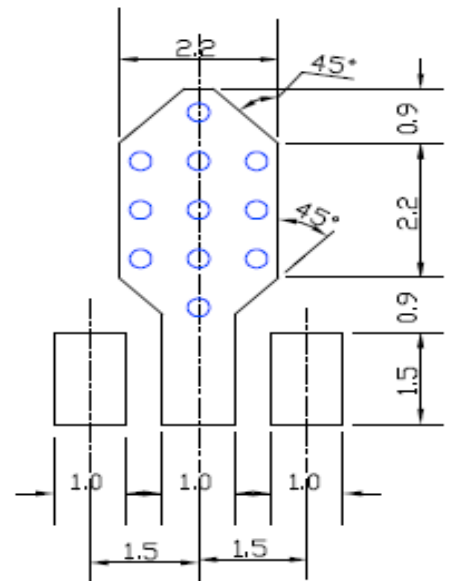
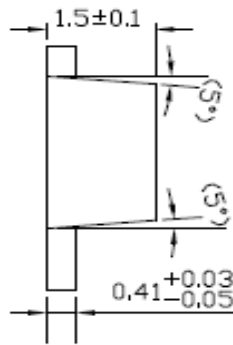
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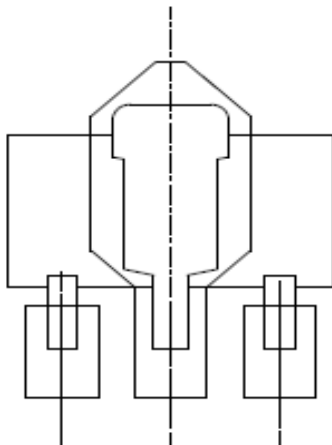
Package Out Line and Land Pattern



SOT-89 Package



PCB Pad Layout
(Via Hole $\phi 0.3$ mm, Pitch 0.8mm)



Mounting Configuration