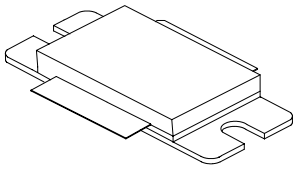
1011LD300

300 Watts, 32 Volts
Pulsed Avionics 1030 to 1090 MHz
LDMOS FET

GENERAL DESCRIPTION

The 1011LD300 is a COMMON SOURCE N-Channel enhancement mode lateral MOSFET capable of providing 300 W_{pk} of RF power from 1030 to 1090 MHz. The device is nitride passivated and utilizes gold metallization to ensure highest MTTF. The transistor includes input prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE
55QM
(Common Source)



ABSOLUTE MAXIMUM RATINGS

Power Dissipation

Device Dissipation @25°C (P_d)	1590 W

Voltage and Current

Drain-Source (V_{DSS})	75V
Gate-Source (V_{GS})	± 20V

Temperatures

Storage Temperature	-65 to +150°C
Operating Junction Temperature	+200°C

ELECTRICAL CHARACTERISTICS @ 25°C

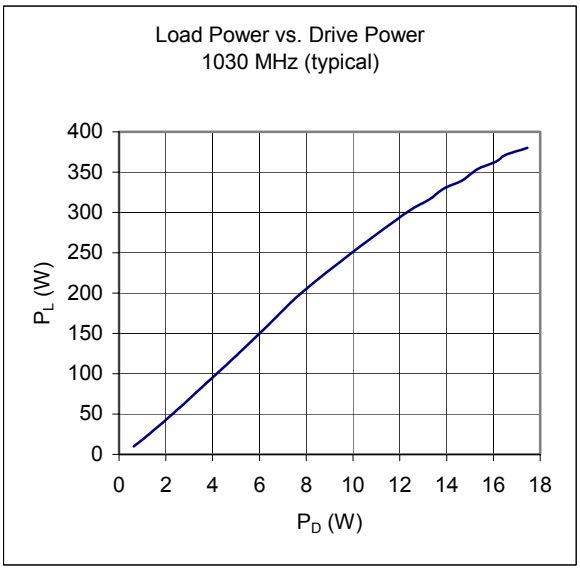
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV_{dss}	Drain-Source Breakdown	V_{gs} = 0V, I_d =30mA	75			V
I_{dss}	Drain-Source Leakage Current	V_{ds} = 38V, V_{gs}= 0V			10	µA
I_{gss}	Gate-Source Leakage Current	V_{gs} = 10V, V_{ds} = 0V			2	µA
$V_{gs(th)}$	Gate Threshold Voltage	V_{ds} = 10V, I_d = 60 mA	3		6	V
$V_{ds(on)}$	Drain-Source On Voltage	V_{gs} = 10V, I_d = 3A			0.3	V
g_{FS}	Forward Transconductance	V_{ds} = 10V, I_d = 3A		3		S
θ_{JC}[1]	Thermal Resistance				.11	°C/W

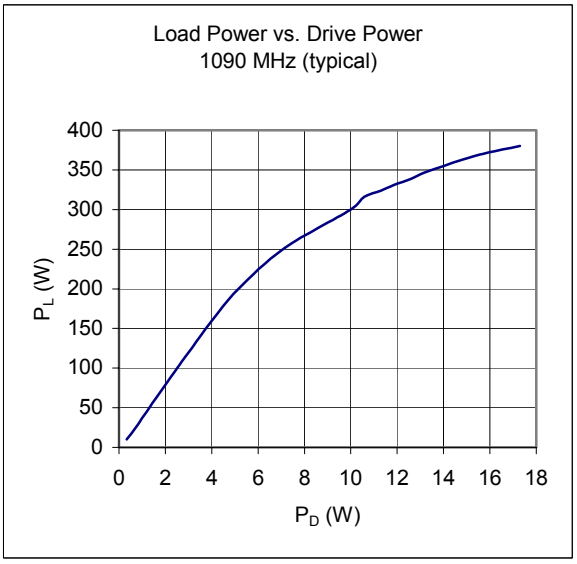
FUNCTIONAL CHARACTERISTICS @ 25°C, Vds = 32V, I_{dq} = 750mA

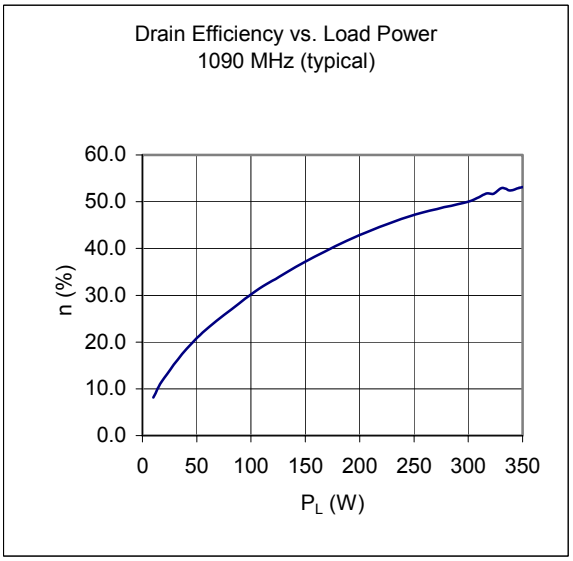
G_{PS}	Common Source Power Gain	Pulse width = 32 µs, LTDC=2%	13	14		dB
Pd	Pulse Droop	F=1030/1090 MHz, P_{out} = 300W			0.5	dB
η_d	Drain Efficiency	F = 1030 MHz, P_{out} =300W	43			%
ψ	Load Mismatch	F = 1090 MHz, P_{out} = 300W			3:1	

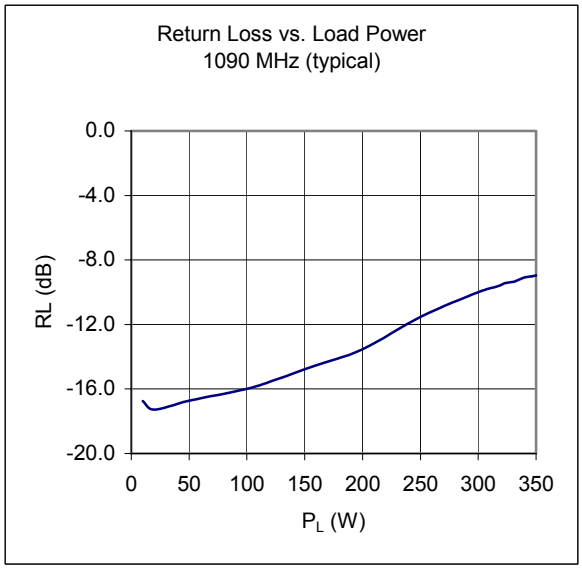
NOTES: 1. At rated output power and pulse conditions
2. Pulse Format 1: 32µs, 2% Long Term Duty Factor

Rev. B – Apr 2004







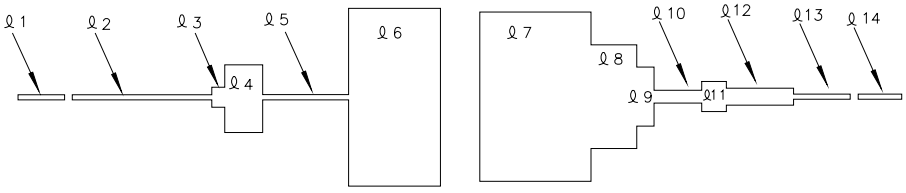


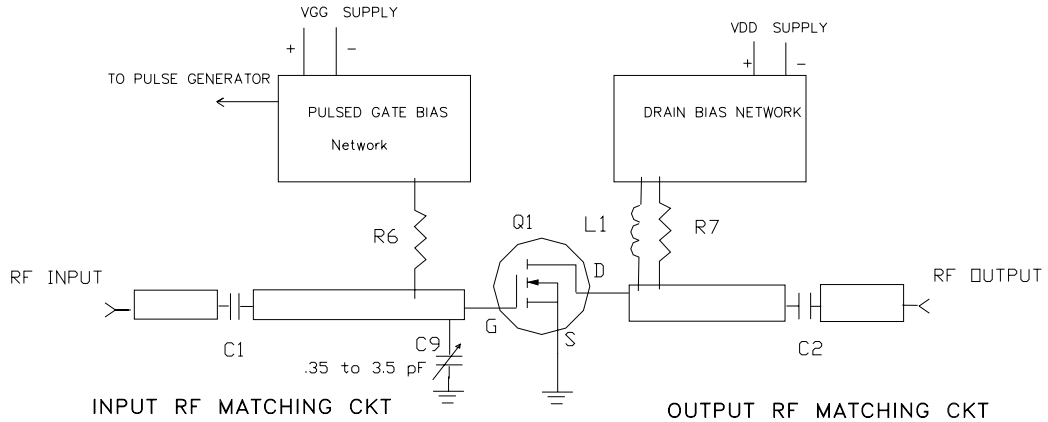
REVISIONS				
ZONE	REV	DESCRIPTION	DATE:	APPROVED

ℓ NO.	L	W
1	0.220	0.024
2	0.660	0.024
3	0.061	0.094
4	0.180	0.320
5	0.406	.024
6	0.434	0.840
7	0.526	0.800
8	0.216	0.490
9	0.082	0.278
10	0.226	0.062
11	0.116	0.142
12	0.318	0.080
13	0.268	0.024
14	0.206	0.024

C1, C2 = 33 pF ATC 200A
R6 = 301 ohm
R7 = 22 ohm
L1 = 0.8" long #20 AWG wire

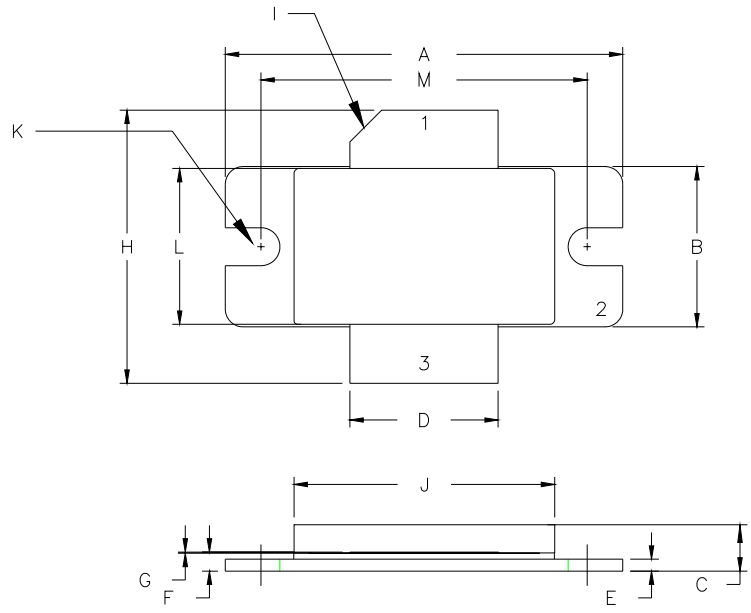
6010 25 MIL
H=25 mil
εr = 10.2





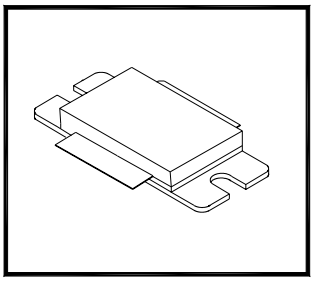
ADVANCED POWER TECHNOLOGY RF	CAGE	DWG NO.	REV
	0PJR2	1011LD300	
		SCALE 1:1	SHEET

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



DIM	MILLIMETER	TOL	INCHES	TOL
A	34.03	.25	1.340	.010
B	13.72	.25	.540	.010
C	4.19	.19	.165	.015
D	12.70	.13	.500	.005
E	1.02	.13	.040	.005
F	1.57	.13	.062	.005
G	0.13	.03	.005	.001
H	23.37	.76	.920	.030
I	45°	5°	45°	5°
J	22.35	.25	.880	.030
K	3.30 DIA	.13	.130 DIA	.005
L	13.34	.13	.525	.005
M	27.94	MAX	1.100	MAX

STYLE 1:
PIN 1 = DRAIN
2 = SOURCE
3 = GATE



ADVANCED POWER TECHNOLOGY RF	CAGE	DWG NO.	REV
	0PJR2	55QM	–
		SCALE 2/1	SHEET