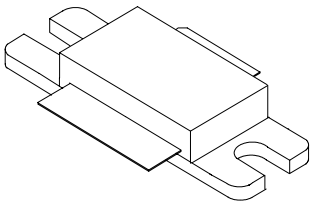
1011LD110

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

GENERAL DESCRIPTION

The 1011LD110 is a COMMON SOURCE N-Channel enhancement mode lateral MOSFET capable of providing 110 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 and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE
55QZ-1
(Common Source)



ABSOLUTE MAXIMUM RATINGS

Power Dissipation

Device Dissipation @25°C (P_d)	300 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

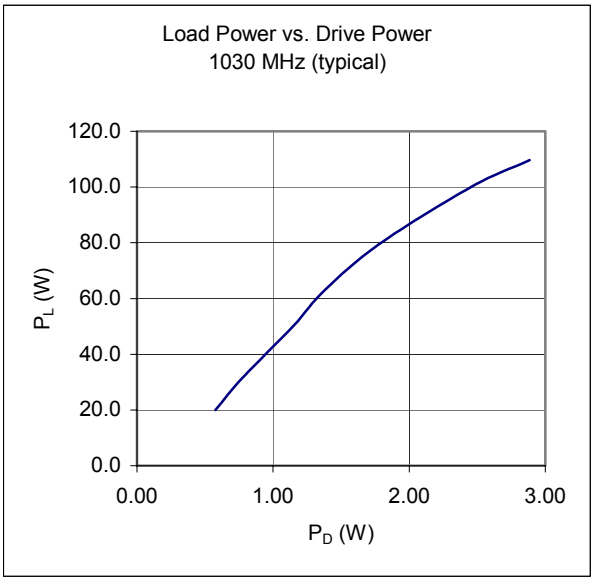
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV_{dss}	Drain-Source Breakdown	V_{gs} = 0V, I_d = 10mA	75			V
I_{dss}	Drain-Source Leakage Current	V_{ds} = 32V, V_{gs}= 0V			5	µA
I_{gss}	Gate-Source Leakage Current	V_{gs} = 10V, V_{ds} = 0V			1	µA
$V_{gs(th)}$	Gate Threshold Voltage	V_{ds} = 10V, I_d = 20 mA	3		6	V
$V_{ds(on)}$	Drain-Source On Voltage	V_{gs} = 10V, I_d = 1A			0.3	V
g_{FS}	Forward Transconductance	V_{ds} = 10V, I_d = 1A		1		S
θ_{JC}[1]	Thermal Resistance				0.6°	°C/W

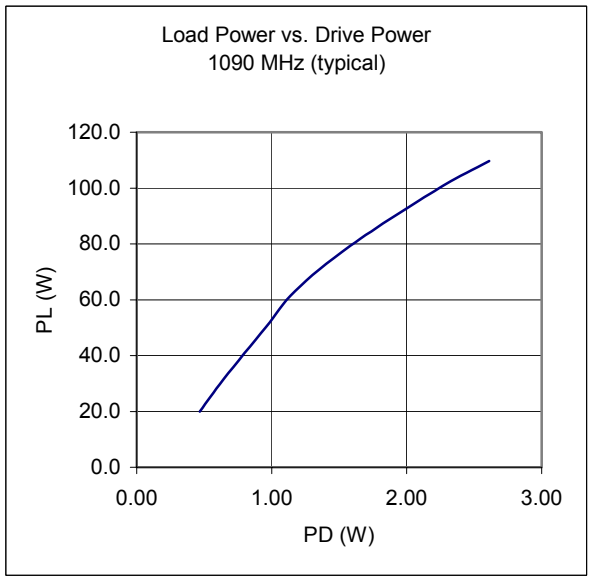
FUNCTIONAL CHARACTERISTICS @ 25°C, Vds = 32V, I_{dq} = 250mA

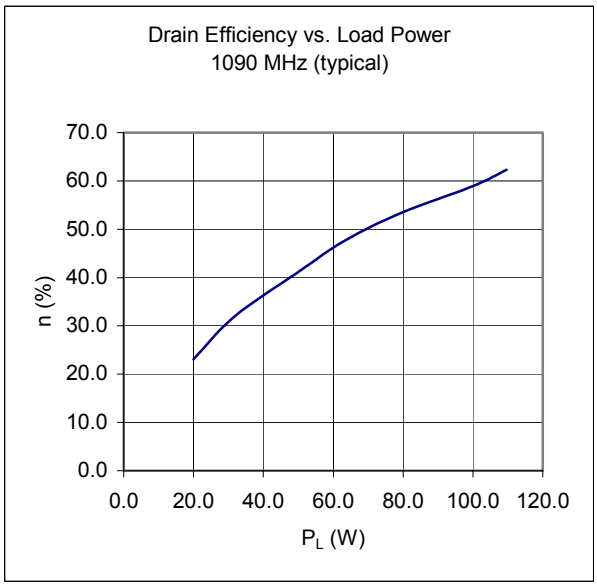
G_{PS}	Common Source Power Gain	Pulse width = 32 µs, LTDC=2%	13	15		dB
Pd	Pulse Droop	F=1030/1090 MHz, P_{out} = 110W			0.5	dB
η_d	Drain Efficiency	F = 1030 MHz, P_{out} = 110W	45	50		%
ψ	Load Mismatch	F = 1090 MHz, P_{out} = 110W			3:1	

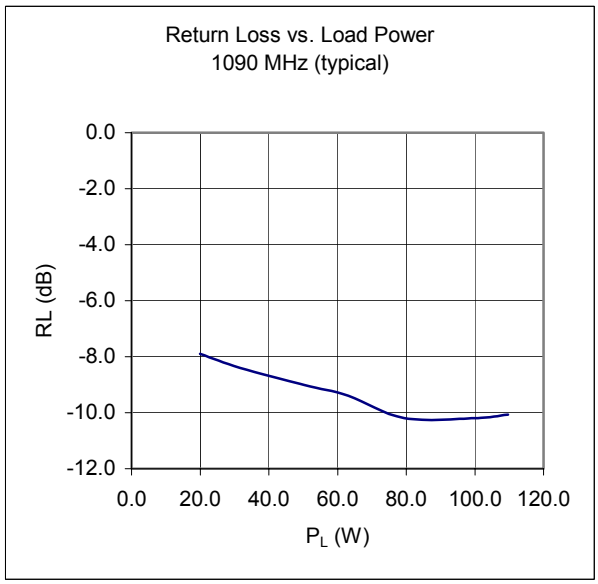
NOTES: 1. At rated output power and pulse conditions
2. Pulse Format 1: 32µs, 2% Long Term Duty Factor

Rev. B - Apr 2004





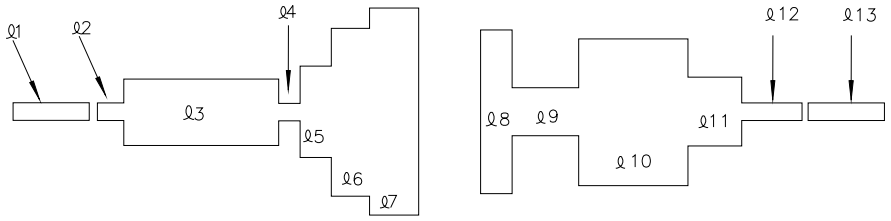


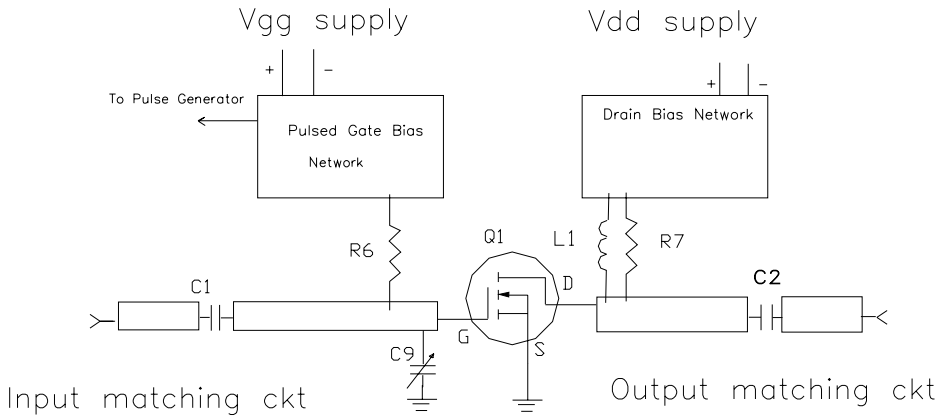


REVISIONS

ZONE	REV	DESCRIPTION	DATE:	APPROVED

ℓ NO.	L	W
1	0.373	0.086
2	0.130	0.086
3	0.758	0.326
4	0.108	0.086
5	0.157	0.446
6	0.176	0.824
7	0.240	1.02
8	0.154	0.804
9	0.326	0.234
10	0.535	0.720
11	0.263	0.338
12	0.296	0.086
13	0.373	0.086

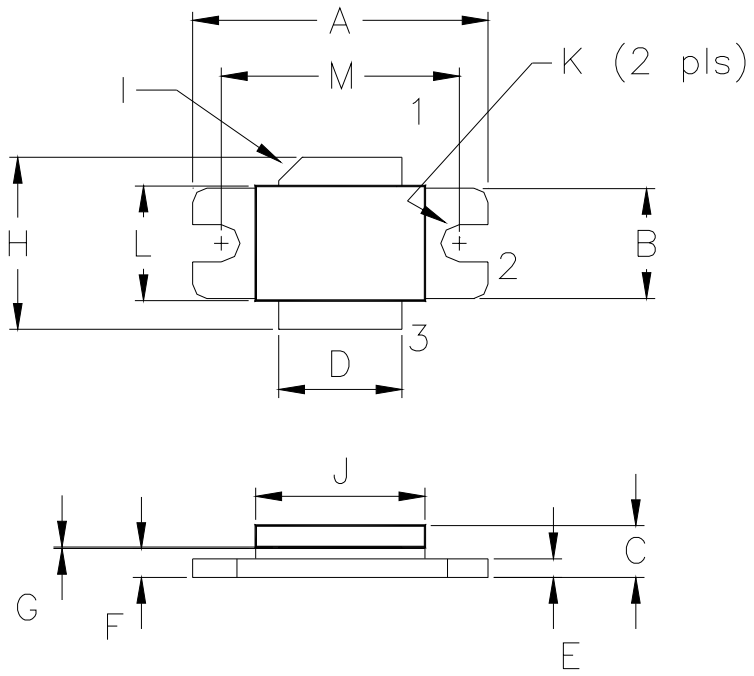




Er=2.55
H=31 mils

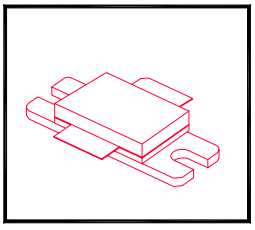
ADVANCED POWER TECHNOLOGY RF	CAGE 0PJR2	DWG NO. 1011LD110	REV
		SCALE 1:1	SHEET

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



DIM	MILLIMETER	±TOL	INCHES	±TOL
A	26.20	.25	1.03	.010
B	9.58	.25	.385	.010
C	4.57	.19	.180	.007
D	10.16	.13	.430	.005
E	1.65	.13	.065	.005
F	2.54	.13	.100	.005
G	0.13	.03	.005	.001
H	15.24	.76	.600	.030
I	45°	5°	45°	5°
J	15.00	.25	.590	.030
K	3.30 DIA	.13	.130 DIA	.005
L	10.16	.13	.400	.005
M	21.08	MAX	.830	MAX

PIN 1 = DRAIN
2 = SOURCE
3 = GATE



ADVANCED POWER TECHNOLOGY RF

CAGE	DWG NO.	REV
0PJR2	55QZ	A
	SCALE 2:1	SHEET