

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
B _V DSS Drain–Source Breakdown Voltage	V _{GS} = 0 I _D = 10mA	40			V
I _D DSS Zero Gate Voltage Drain Current	V _{DS} = 12.5V V _{GS} = 0			1	mA
I _G DSS Gate Leakage Current	V _{GS} = 20V V _{DS} = 0			1	μA
V _{GS(th)} Gate Threshold Voltage*	I _D = 10mA V _{DS} = V _{GS}	0.5		7	V
g _{fs} Forward Transconductance*	V _{DS} = 10V I _D = 0.8A	0.72			S
G _{PS} Common Source Power Gain	P _O = 10W	10			dB
η Drain Efficiency	V _{DS} = 12.5V I _{DQ} = 0.4A	40			%
VSWR Load Mismatch Tolerance	f = 1GHz	20:1			—
C _{iss} Input Capacitance	V _{DS} = 0 V _{GS} = -5V f = 1MHz			48	pF
C _{oss} Output Capacitance	V _{DS} = 12.5V V _{GS} = 0 f = 1MHz			40	pF
C _{rss} Reverse Transfer Capacitance	V _{DS} = 12.5V V _{GS} = 0 f = 1MHz			4	pF

* Pulse Test: Pulse Duration = 300 μs , Duty Cycle ≤ 2%

HAZARDOUS MATERIAL WARNING

The ceramic portion of the device between leads and metal flange is beryllium oxide. Beryllium oxide dust is highly toxic and care must be taken during handling and mounting to avoid damage to this area.

THESE DEVICES MUST NEVER BE THROWN AWAY WITH GENERAL INDUSTRIAL OR DOMESTIC WASTE.

THERMAL DATA

R _{THj-case}	Thermal Resistance Junction – Case	Max. 4.2°C / W
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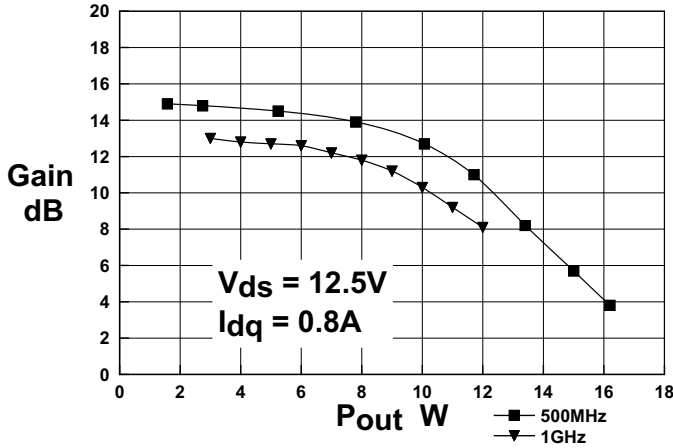


Figure 1- Gain vs. Power Output

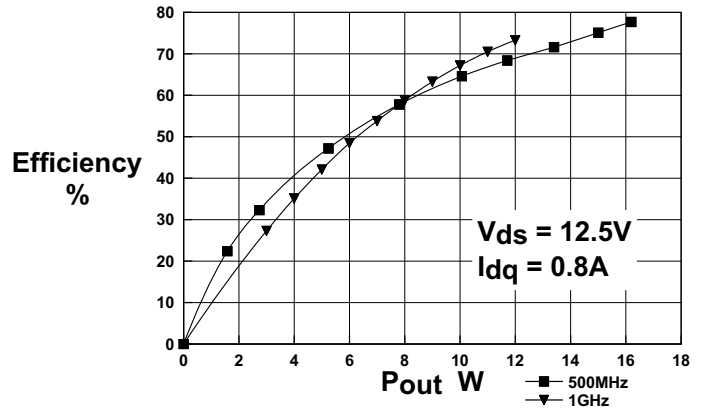


Figure 2 - Efficiency vs Output Power

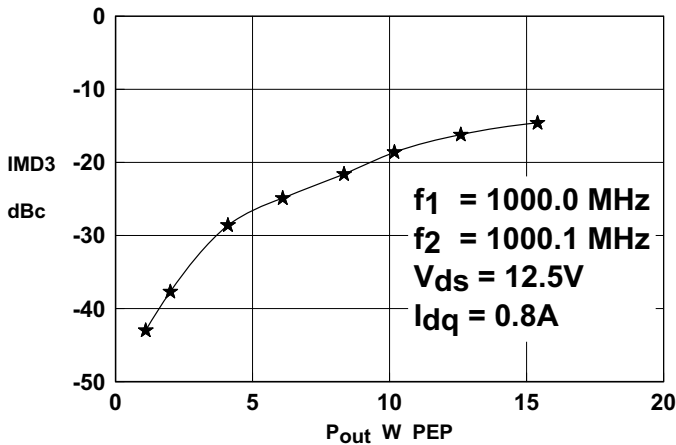


Figure 3 - IMD vs Power Output

D2214UK
OPTIMUM SOURCE AND LOAD IMPEDANCE

Frequency MHz	Z _S Ω	Z _L Ω
1000MHz	0.9 - j4.9	1.9 - j7.3

Typical S Parameters

! V_{DS} = 12.5V, I_{DQ} = 0.8A
MHz S M A R 50

!Freq !MHz	S11 mag	ang	S21 mag	ang	S12 mag	ang	S22 mag	ang
70	0.77	-124.6	19.6	100.6	0.020	10.0	0.58	-120.3
100	0.75	-136.7	14.7	89.0	0.020	2.0	0.60	-130.3
150	0.77	-148	9.3	72.2	0.017	-7.6	0.65	-140.3
200	0.80	-154.9	6.4	61.7	0.015	-10.3	0.71	-146.8
250	0.83	-160.2	4.7	52.8	0.012	-10.4	0.76	-151.4
300	0.85	-164.1	3.8	49.3	0.010	-4.1	0.79	-155.5
350	0.87	-167.8	3.0	39.7	0.007	8.7	0.82	-159.6
400	0.88	-170.9	2.5	39.0	0.006	29.4	0.85	-162.6
450	0.90	-174.5	2.0	33.8	0.007	56.1	0.87	-165.9
500	0.90	-177.5	1.8	31.5	0.009	73.1	0.87	-168.5
550	0.92	-179.2	1.5	25.5	0.012	80.5	0.90	-171.7
600	0.92	-176.5	1.4	20.4	0.016	81.4	0.90	-174.4
650	0.93	-174.6	1.2	17.5	0.018	84.5	0.91	-176.5
700	0.94	-172.2	1.1	11.7	0.021	81.5	0.92	-178.7
750	0.94	-169.7	0.9	10.0	0.022	83.0	0.93	-179.1
800	0.95	-167.6	0.7	7.7	0.024	82.7	0.94	-177.2
850	0.95	-165.5	0.6	11.4	0.027	88.1	0.94	-174.4
900	0.96	-164.1	0.6	11.4	0.031	89.0	0.95	-172.6
950	0.96	-161.3	0.6	12.3	0.036	89.5	0.95	-170.6
1000	0.96	-158.6	0.5	8.7	0.040	86.0	0.95	-169

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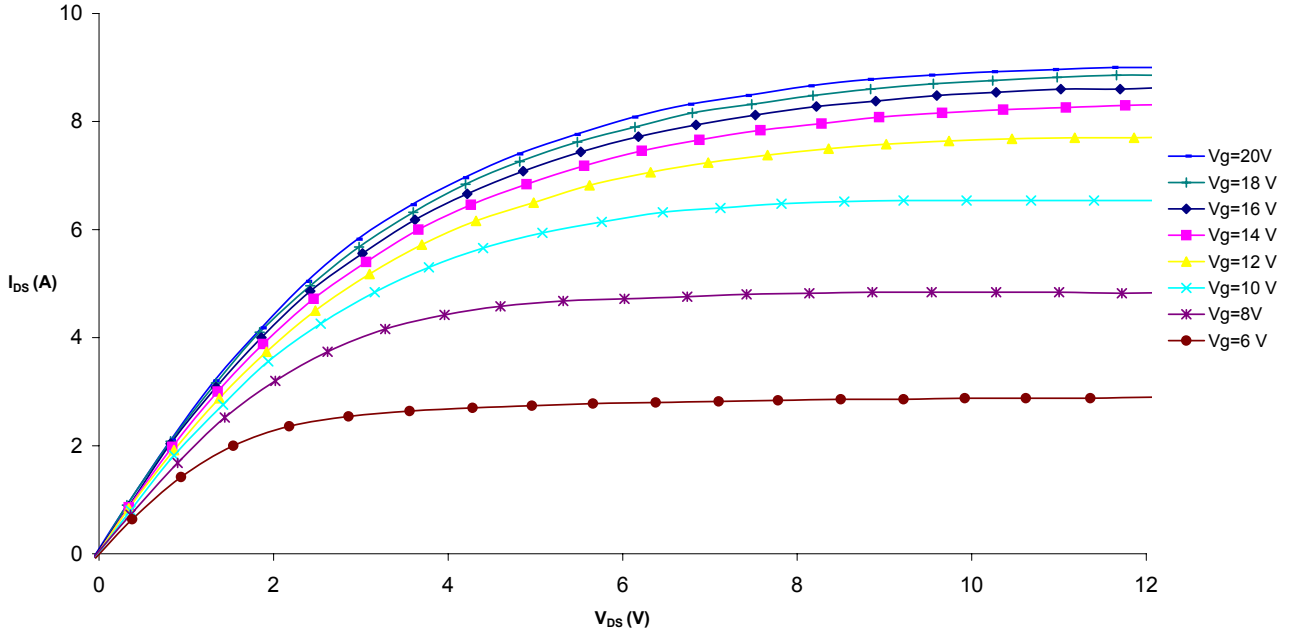


Figure 4 – Typical IV Characteristics.

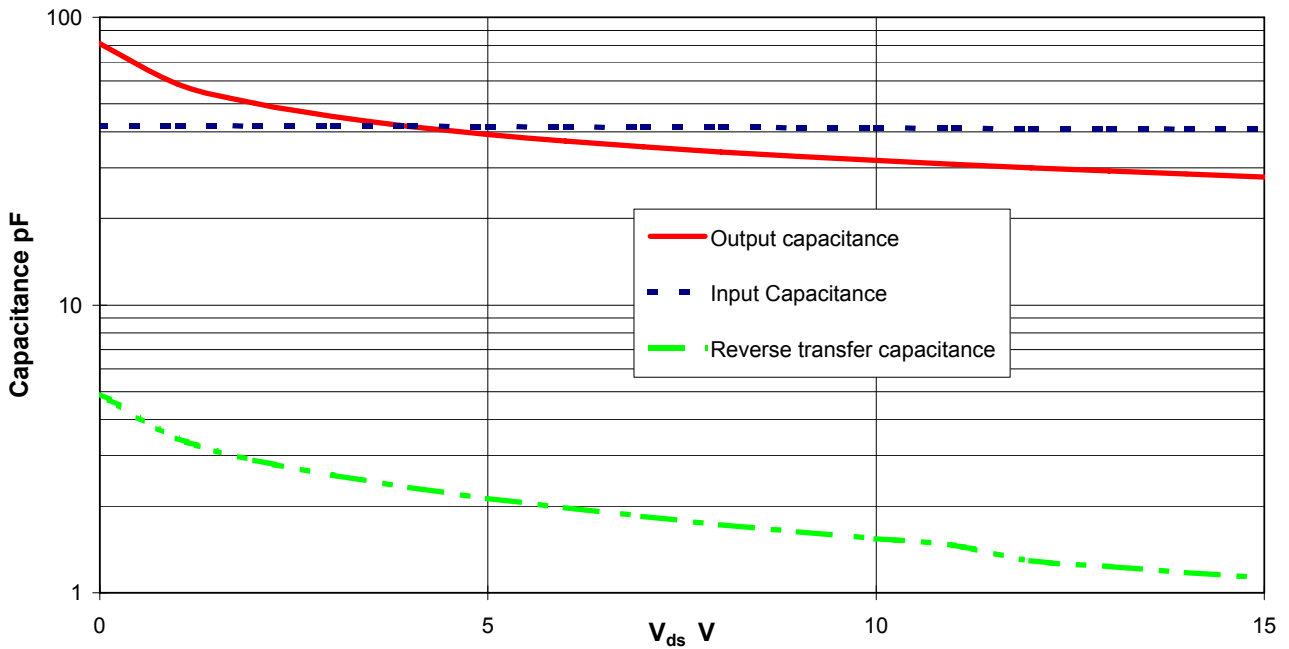
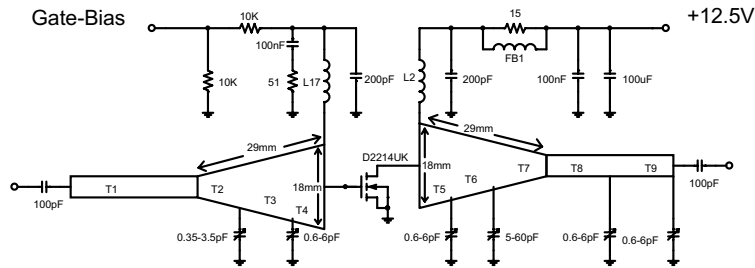


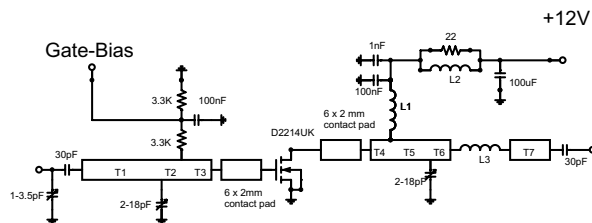
Figure 5 – Typical CV Characteristics.



Substrate 0.8mm PTFE/glass

- | | |
|------------------------------------------------------|-----------------|
| T1 28mm 50 Ohms | T6 14mm |
| T2 11mm | T7 10mm |
| T3 11mm | T8 11mm 50 Ohms |
| T4 7mm | T9 17mm 50 Ohms |
| T5 5mm | |
| FB1 Murata BL02RN1-R62 | |
| L1,L2 10 turns 22swg enamelled copper wire, 6mm i.d. | |

Figure 6 - 1GHz Test Fixture



Substrate 0.8mm PTFE/glass, Er=2.5

All microstrip lines W=2.2mm

- | |
|----------------------------------------------------------------------------------|
| T1 32mm |
| T2 4mm |
| T3 5mm |
| T4 3mm |
| T5 9mm |
| T6 7.5mm |
| T7 13mm |
| L1 6 turns 0.5mm dia enamelled copper wire, 3mm i.d. |
| L2 1.5 turns 0.5mm enamelled copper wire on Siemens B62152A7 2 hole ferrite core |
| L3 1/16" dia wire hairpin loop 15mm long |

Figure 7 - 500MHz Test Fixture