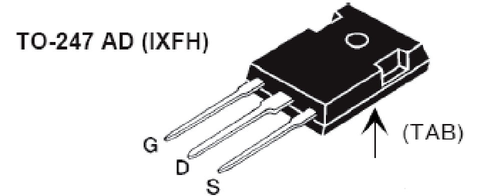
IXYS RF

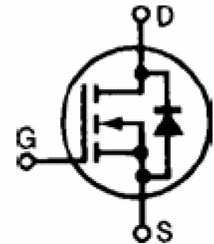
IXZH08N120
Z-MOS RF Power MOSFET

N-Channel Enhancement Mode Switch Mode RF MOSFET
Low Capacitance Z-MOS_{TM} MOSFET Process
Optimized for RF Operation
Ideal for Class C, D, & E Applications

V_{DSS}	=	1200 V
I_{D25}	=	8.0 A
$R_{DS(on)}$	=	2.1 Ω
P_{DC}	=	300 W

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	1200	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ	1200	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_c = 25°C	8	A
I_{DM}	T_c = 25°C, pulse width limited by T_{JM}	40	A
I_{AR}	T_c = 25°C	8	A
E_{AR}	T_c = 25°C	TBD	mJ
dv/dt	$I_S \le I_{DM}$, di/dt ≤ 100A/µs, $V_{DD} \le V_{DSS}$, $T_j \le$ 150°C, R_G = 0.2Ω	5	V/ns
	I_S = 0	>200	V/ns
P_{DC}		300	W
P_{DAMB}	T_c = 25°C	3.0	W
R_{thJC}		0.5	C/W





Symbol	Test Conditions		min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 4 ma		1200			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250µA		3.5		6.5	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0				±100	nA
I_{DSS}	V_{DS} = 0.8V_{DSS} V_{GS}=0	T_J = 25C T_J =125C			50 1	µA mA
$R_{DS(on)}$	V_{GS} = 20 V, I_D = 0.5I_{D25} Pulse test, t ≤ 300µS, duty cycle d ≤ 2%			2.1		Ω
g_{fs}	V_{DS} = 50 V, I_D = 0.5I_{D25}, pulse test			10.1		S
T_J			-55		+175	°C
T_{JM}				175		°C
T_{stg}			-55		+ 175	°C
T_L	1.6mm(0.063 in) from case for 10 s			300		°C
Weight				3.5		g

Features

- IXYS advanced Z-MOS process
- Low gate charge and capacitances
  - easier to drive
  - faster switching
- Low $R_{DS(on)}$
- Very low insertion inductance (<2nH)

Advantages

- High Performance RF Z-MOS™
- Optimized for RF and high speed

PRELIMINARY

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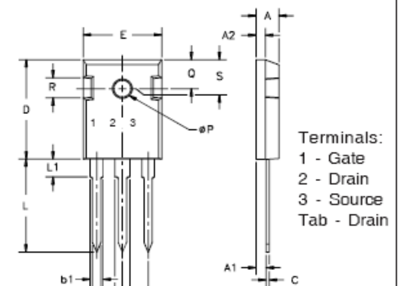
Symbol	Test Conditions	Characteristic Values (T_J = 25°C unless otherwise specified) min.	typ.	max.	
R_G				1	Ω
C_{iss}			1960		pF
C_{oss}	V_{GS} = 0 V, V_{DS} = 0.8 $V_{DSS(max)}$, f = 1 MHz		59		pF
C_{rss}			9.2		pF
$T_{d(on)}$			4		ns
T_{on}	V_{GS} = 15 V, V_{DS} = 0.8 V_{DSS} I_D = 0.5 I_{DM}		5		ns
$T_{d(off)}$	R_G < 1 Ω (External)		4		ns
T_{off}			6		ns

Source-Drain Diode

Characteristic Values (T_J = 25°C unless otherwise specified)

Symbol	Test Conditions	min.	typ.	max.	
I_S	V_{GS} = 0 V			8	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			48	A
V_{SD}	I_F=I_S, V_{GS}=0 V, Pulse test, t ≤ 300μs, duty cycle ≤2%			1.5	V
T_{rr}			TBD		ns

TO-247 AD (IXFH) Outline

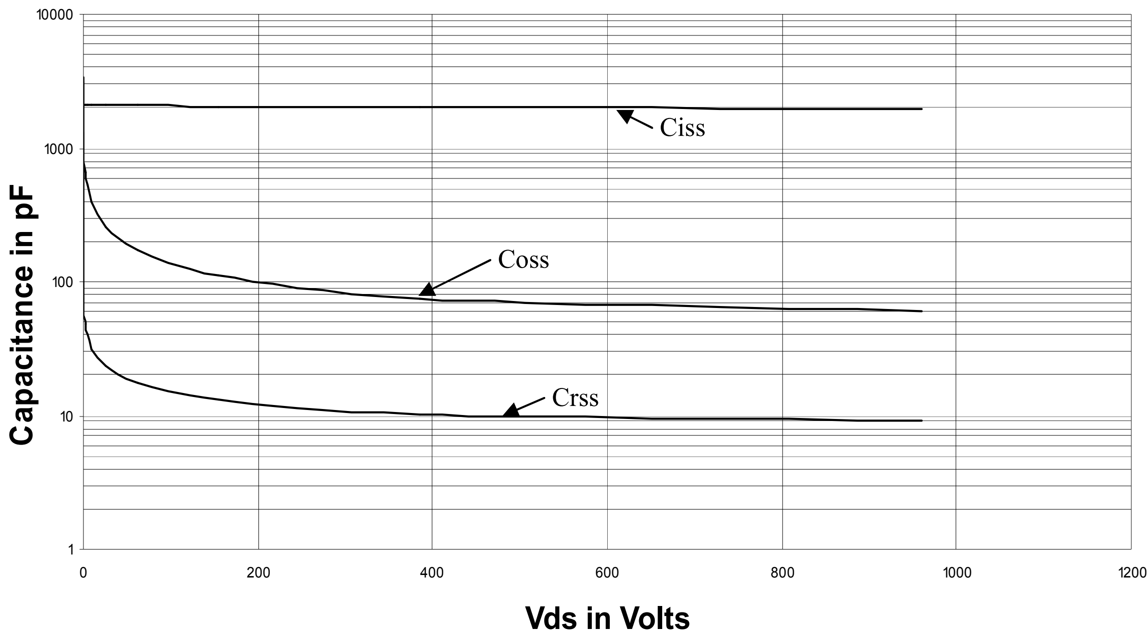


Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.7	5.3	.185	.209
A_1	2.2	2.54	.087	.102
A_2	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b_1	1.65	2.13	.065	.084
b_2	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	242	BSC

IXYS RF reserves the right to change limits, test conditions and dimensions.
IXYS RF MOSFETS are covered by one or more of the following U.S. patents:

4,835,592 4,860,072 4,881,106 4,891,686 4,931,844 5,017,508
5,034,796 5,049,961 5,063,307 5,187,117 5,237,481 5,486,715
5,381,025 5,640,045 6,404,065 6,583,505 6,710,463 6,727,585
6,731,002

PRELIMINARY



IXZ308N120 Capacitances verses Vds

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