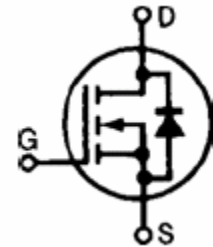
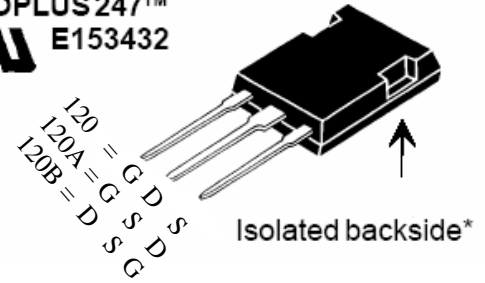


N-Channel Enhancement Mode Switch Mode RF MOSFET  
 Low Capacitance Z-MOS™ MOSFET Process  
 Optimized for RF Operation  
 Ideal for Class C, D, & E Applications

**V<sub>DSS</sub> = 1200 V**  
**I<sub>D25</sub> = 8.0 A**  
**R<sub>DS(on)</sub> = 2.1 Ω**  
**P<sub>DC</sub> = TBD W**

Symbol	Test Conditions	Maximum Ratings
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 150°C	1200 V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 150°C; R <sub>GS</sub> = 1 MΩ	1200 V
V <sub>GS</sub>	Continuous	±20 V
V <sub>GSM</sub>	Transient	±30 V
I <sub>D25</sub>	T <sub>c</sub> = 25°C	8 A
I <sub>DM</sub>	T <sub>c</sub> = 25°C, pulse width limited by T <sub>JM</sub>	40 A
I <sub>AR</sub>	T <sub>c</sub> = 25°C	8 A
E <sub>AR</sub>	T <sub>c</sub> = 25°C	TBD mJ
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , di/dt ≤ 100A/μs, V <sub>DD</sub> ≤ V <sub>DSS</sub> , T <sub>J</sub> ≤ 150°C, R <sub>G</sub> = 0.2Ω	5 V/ns
	I <sub>S</sub> = 0	>200 V/ns
P <sub>DC</sub>		TBD W
P <sub>DHS</sub>	T <sub>c</sub> = 25°C, Derate 4.4W/°C above 25°C	TBD W
P <sub>DAMB</sub>	T <sub>c</sub> = 25°C	3.0 W
R <sub>thJC</sub>		TBD C/W
R <sub>thJHS</sub>		TBD C/W

ISOPLUS 247™  
 E153432



**Features**

- Isolated Substrate
  - high isolation voltage (>2500V)
  - excellent thermal transfer
  - Increased temperature and power cycling capability
- IXYS advanced Z-MOS process
- Low gate charge and capacitances
  - easier to drive
  - faster switching
- Low R<sub>DS(on)</sub>
- Very low insertion inductance (<2nH)
- No beryllium oxide (BeO) or other hazardous materials

**Advantages**

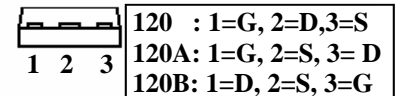
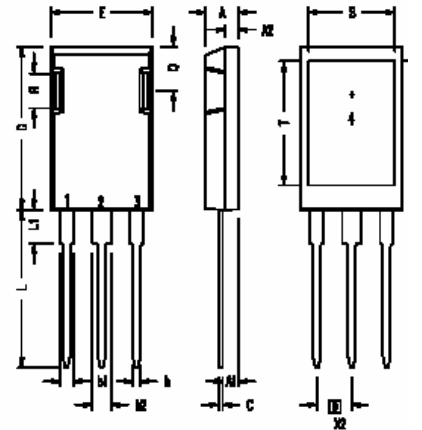
- High Performance RF Z-MOS™
- Optimized for RF and high speed
- Common Source RF Package
  - A = Gate Source Drain
  - B = Drain Source Gate
- Easy to mount—no insulators needed

		min.	typ.	max.	
V <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 4 ma	1200			V
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	3.5		6.5	V
I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V <sub>DC</sub> , V <sub>DS</sub> = 0			±100	nA
I <sub>DSS</sub>	V <sub>DS</sub> = 0.8V <sub>DSS</sub> V <sub>GS</sub> =0	T <sub>J</sub> = 25C T <sub>J</sub> = 125C		50	μA
				1	mA
R <sub>DS(on)</sub>	V <sub>GS</sub> = 20 V, I <sub>D</sub> = 0.5I <sub>D25</sub> Pulse test, t ≤ 300μS, duty cycle d ≤ 2%		2.1		Ω
g <sub>fs</sub>	V <sub>DS</sub> = 50 V, I <sub>D</sub> = 0.5I <sub>D25</sub> , pulse test		10.1		S
T <sub>J</sub>		-55		+175	°C
T <sub>JM</sub>			175		°C
T <sub>stg</sub>		-55		+ 175	°C
T <sub>L</sub>	1.6mm(0.063 in) from case for 10 s		300		°C
Weight			3.5		g

**PRELIMINARY**

Symbol	Test Conditions	Characteristic Values		
		min.	typ.	max.
$R_G$				1 $\Omega$
$C_{iss}$			1960	pF
$C_{oss}$	$V_{GS} = 0\text{ V}, V_{DS} = 0.8 V_{DSS(max)}, f = 1\text{ MHz}$		59	pF
$C_{rss}$			9.2	pF
$C_{stray}$	Back Metal to any Pin		33	pF
$T_{d(on)}$			4	ns
$T_{on}$	$V_{GS} = 15\text{ V}, V_{DS} = 0.8 V_{DSS}, I_D = 0.5 I_{DM}$		5	ns
$T_{d(off)}$	$R_G = 1\ \Omega$ (External)		4	ns
$T_{off}$			6	ns

**ISOPLUS 247 OUTLINE**



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

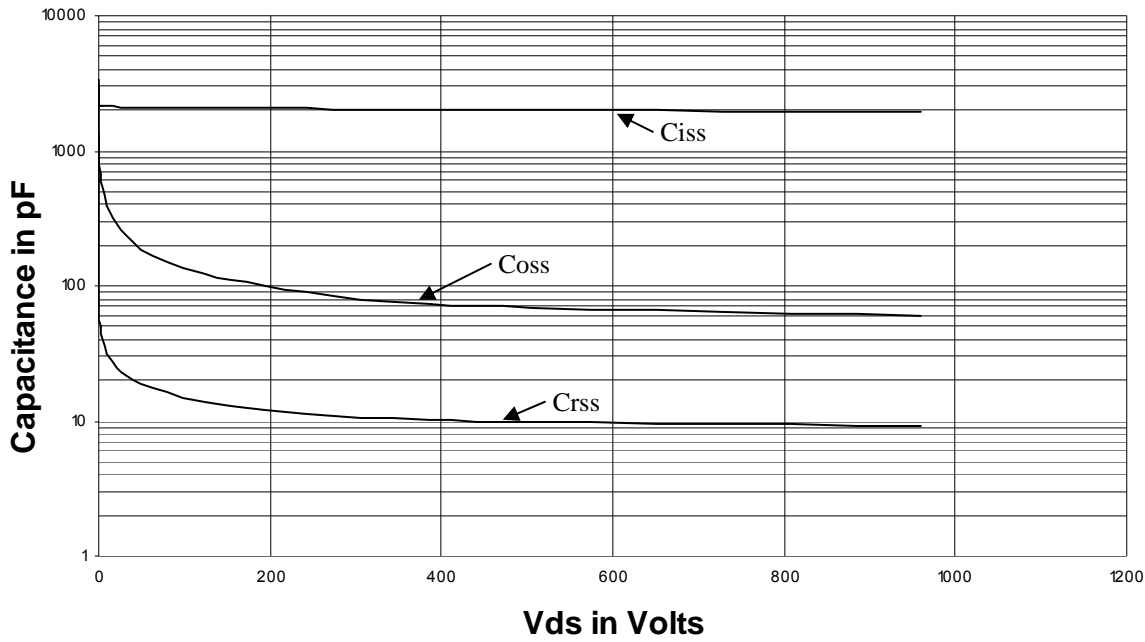
Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A <sub>1</sub>	2.29	2.54	.090	.100
A <sub>2</sub>	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b <sub>1</sub>	1.91	2.13	.075	.084
b <sub>2</sub>	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190

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 | 4,850,072 | 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**

**PRELIMINARY**

Doc #dsIXZR08N120\_A/B REV 07/04 ©  
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