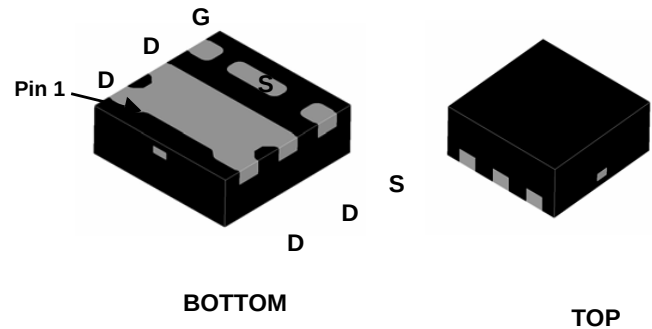


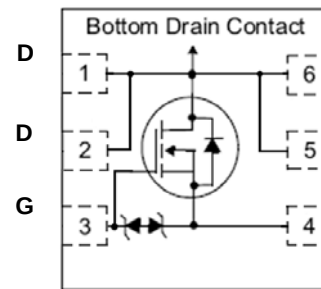
Features

- 20V/10A,
 $R_{DS(ON)} = 18m\Omega$ (max.) @ $V_{GS} = 4.5V$
 $R_{DS(ON)} = 27m\Omega$ (max.) @ $V_{GS} = 2.5V$
- 100% UIS Tested
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

Pin Description



MicroFET 1.6x1.6 Thin



N-Channel MOSFET

Applications

- Power Management in Desktop Computer or DC/DC Converters.

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter		Rating	Unit	
Common Ratings					
V _{DSS}	Drain-Source Voltage		20	V	
V _{GSS}	Gate-Source Voltage		±12	V	
T _J	Maximum Junction Temperature		150	°C	
T _{STG}	Storage Temperature Range		-55 to 150	°C	
I _S	Diode Continuous Forward Current		3	A	
I _{DP} ^a	Pulse Drain Current Tested	V _{GS} =10V(N),V _{GS} =-10V(P)	40	A	
I _D	Continuous Drain Current		T _A =25°C	10	A
			T _A =70°C	8	
P _D ^b	Maximum Power Dissipation	T _A =25°C	2.8	W	
		T _A =70°C	1.8		
R _{θJA} ^c	Thermal Resistance-Junction to Ambient	t ≤ 10s	45	°C/W	
		Steady State	80		
I _{AS} ^d	Avalanche Current, Single pulse	L=0.1mH	13	A	
E _{AS} ^d	Avalanche Energy, Single pulse	L=0.1mH	8.45	mJ	

Note a : Pulse width limited by max. junction temperature.

Note b : $t < 10\text{sec}$.

Note c : $R_{\theta JA}$ steady state $t=999\text{s}$. $R_{\theta JA}$ is measured with the device mounted on 1in^2 , FR-4 board with 2oz. Copper.

Note d : UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature $T_J=25^\circ\text{C}$).

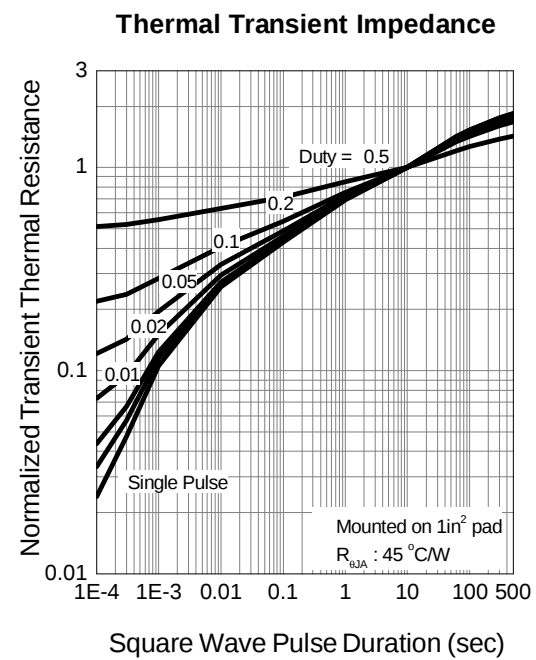
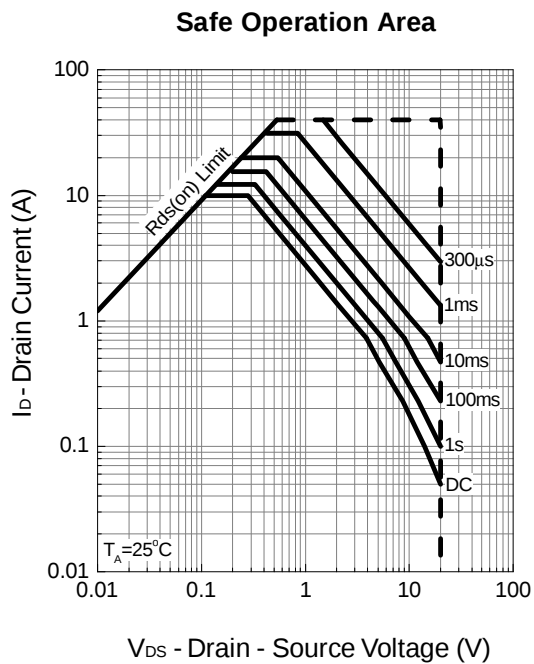
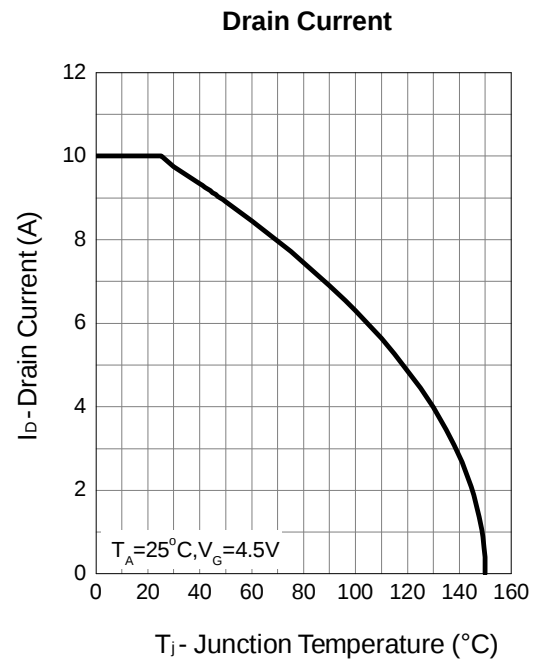
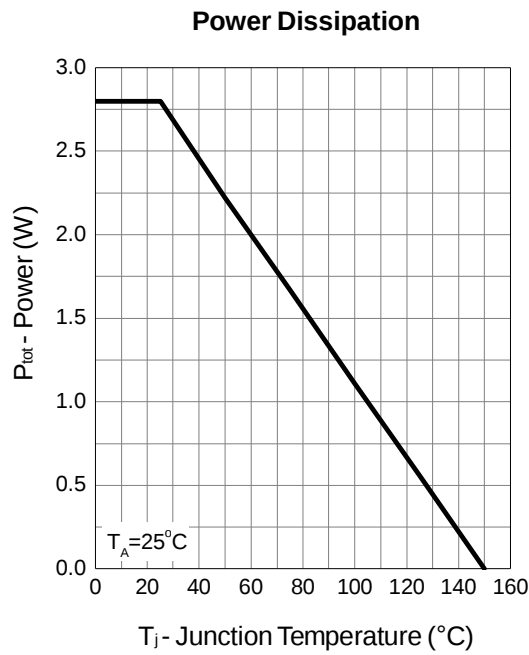
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	0.7	1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^e	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =10A	-	14.5	18	mΩ
		V _{GS} =2.5V, I _{DS} =8A	-	20	27	
Diode Characteristics						
V _{SD} ^e	Diode Forward Voltage	I _{SD} =3A, V _{GS} =0V	-	0.75	1.1	V
t _{rr}	Reverse Recovery Time	I _{DS} =8A, dI _{SD} /dt=100A/μs	-	9	-	ns
Q _{rr}	Reverse Recovery Charge		-	3	-	nC
Dynamic Characteristics ^f						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1.3	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz	-	600	-	pF
C _{oss}	Output Capacitance		-	100	-	
C _{rss}	Reverse Transfer Capacitance		-	72	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, R _L =10Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	5.3	10	ns
t _r	Turn-on Rise Time		-	14.5	27	
t _{d(OFF)}	Turn-off Delay Time		-	19.5	36	
t _f	Turn-off Fall Time		-	2.8	5	
Gate Charge Characteristics ^f						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =10A	-	6.8	10	nC
Q _{gth}	Threshold Gate Charge		-	0.25	-	
Q _{gs}	Gate-Source Charge		-	1.3	-	
Q _{gd}	Gate-Drain Charge		-	2.3	-	

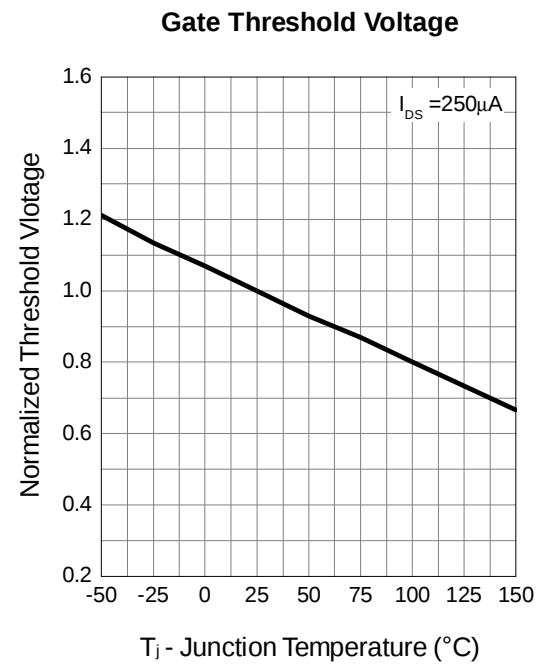
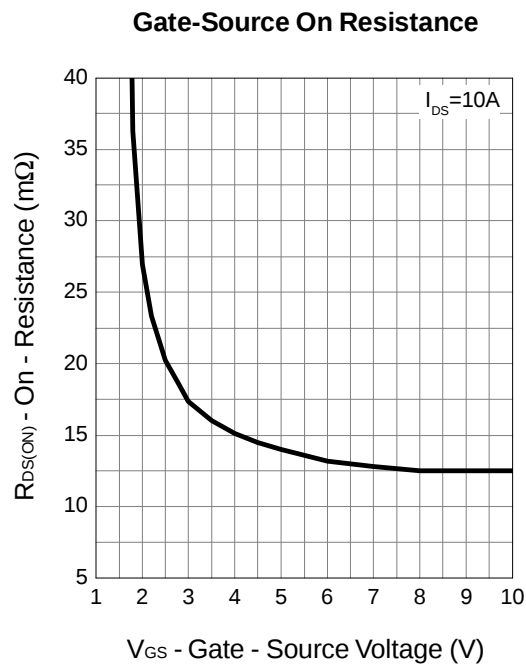
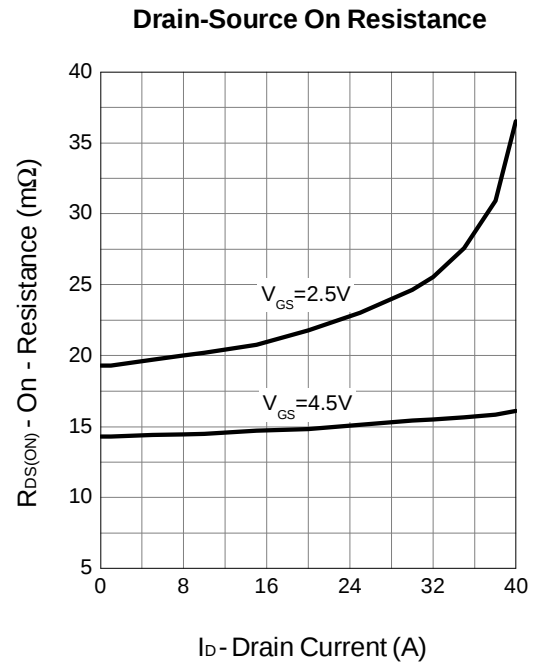
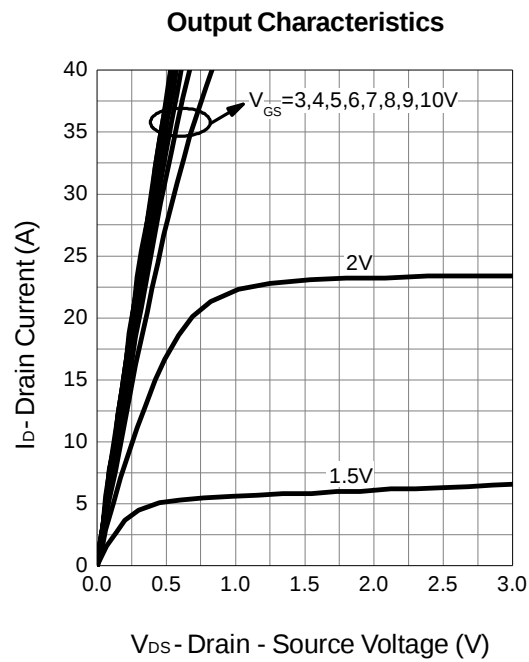
Note e : Pulse test ; pulse width≤300μs, duty cycle≤2%.

Note f : Guaranteed by design, not subject to production testing.

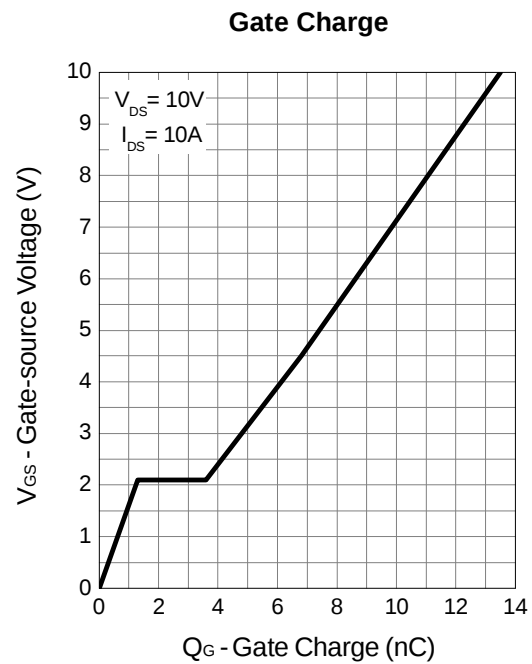
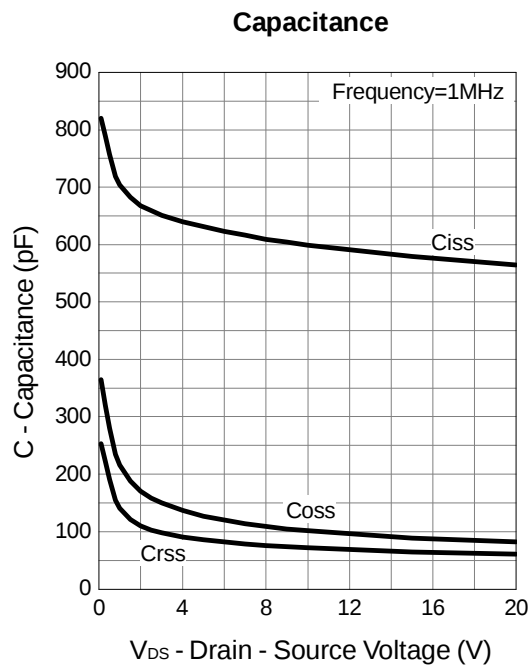
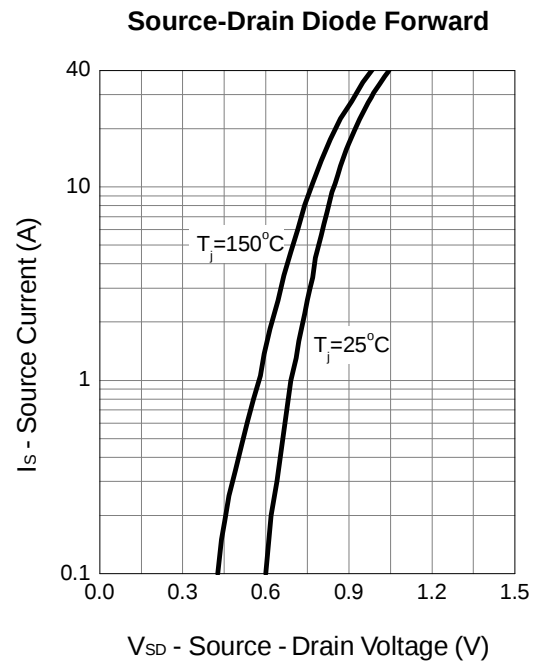
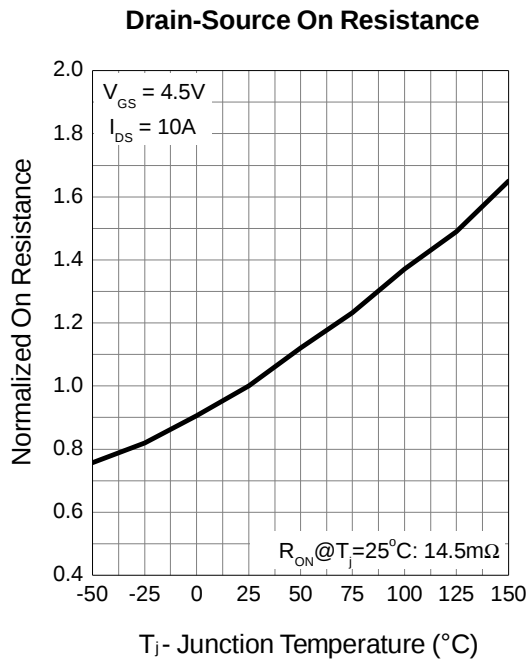
Typical Operating Characteristics



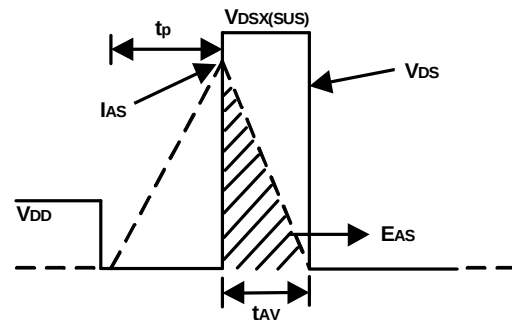
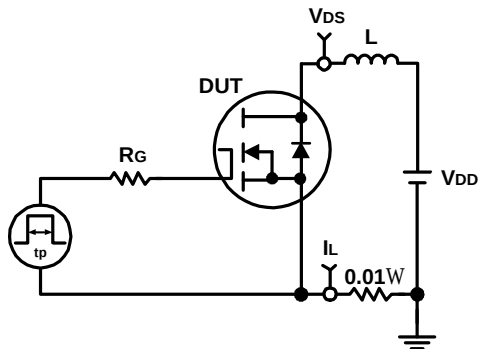
Typical Operating Characteristics (Cont.)



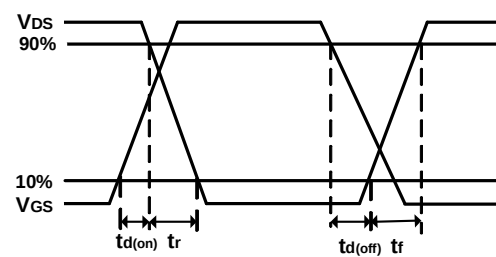
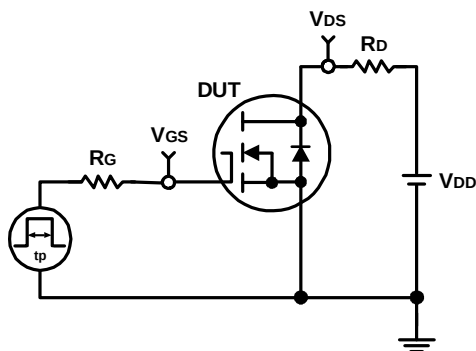
Typical Operating Characteristics (Cont.)



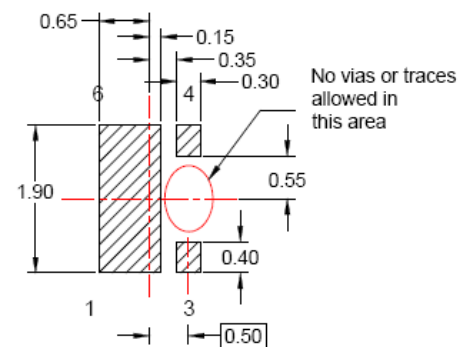
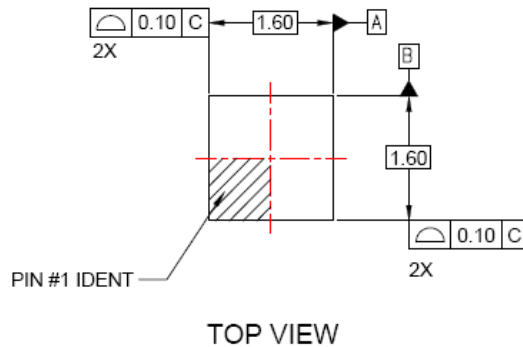
Avalanche Test Circuit and Waveforms



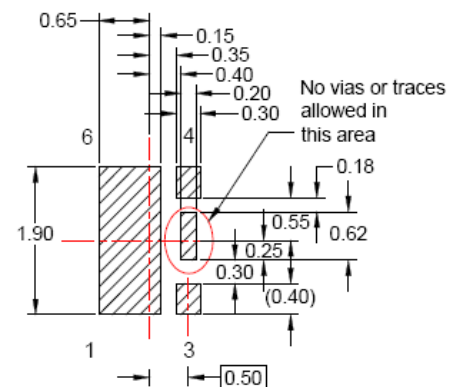
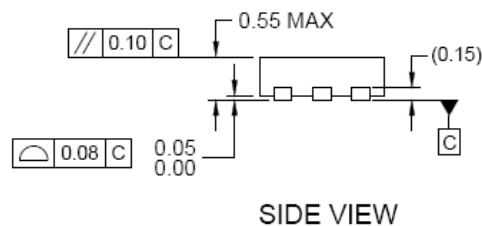
Switching Time Test Circuit and Waveforms



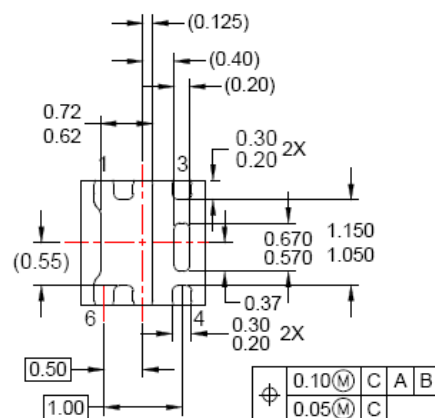
PDFN1.6X1.6 package outline drawing



RECOMMENDED LAND PATTERN OPT 1



RECOMMENDED LAND PATTERN OPT 2



NOTES:

- A. DOES NOT FULLY CONFORM TO JEDEC REGISTRATION
- B. DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
- D. LAND PATTERN RECOMMENDATION IS BASED ON FSC DESIGN ONLY