

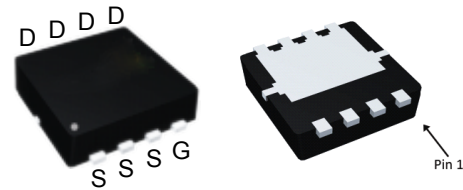
Features

- 30V/28A,
 $R_{DS(ON)} = 2.5m\Omega$ (typ.) @ $V_{GS}=10V$
 $R_{DS(ON)} = 3m\Omega$ (typ.) @ $V_{GS}=4.5V$
- Lower Q_g and Q_{gd} for high-speed switching
- Lower $R_{DS(ON)}$ to Minimize Conduction Losses
- 100% UIS + R Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)

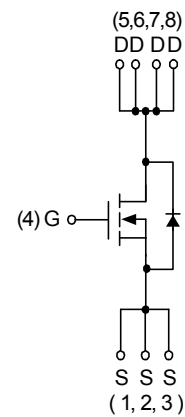
Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Pin Description



PDFN3.3*3.3-8L



N-Channel MOSFET

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		30	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _C =25°C	28	A
I _D	Continuous Drain Current	T _C =25°C	28	
		T _C =100°C	21	
I _{DM} ^a	Pulsed Drain Current	T _C =25°C	84	A
P _D	Maximum Power Dissipation	T _C =25°C	32.8	W
		T _C =100°C	13.1	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	3.8	°C/W
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	t ≤ 10s	40	°C/W
		Steady State	70	
I _{AS} ^c	Avalanche Current, Single pulse	L=0.1mH	35	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.1mH	61.25	mJ

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

Note b : Surface Mounted on 1in² pad area, t ≤ 999sec.

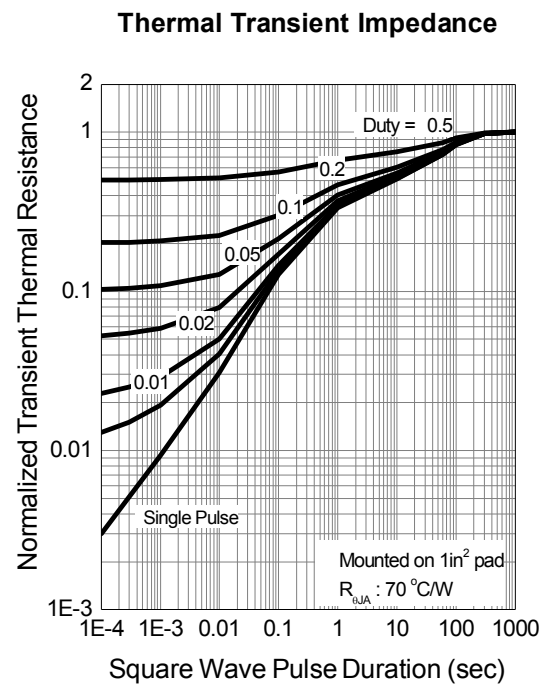
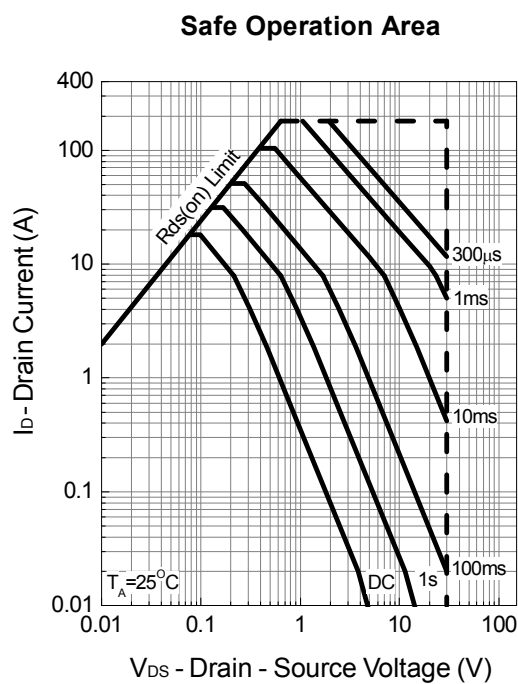
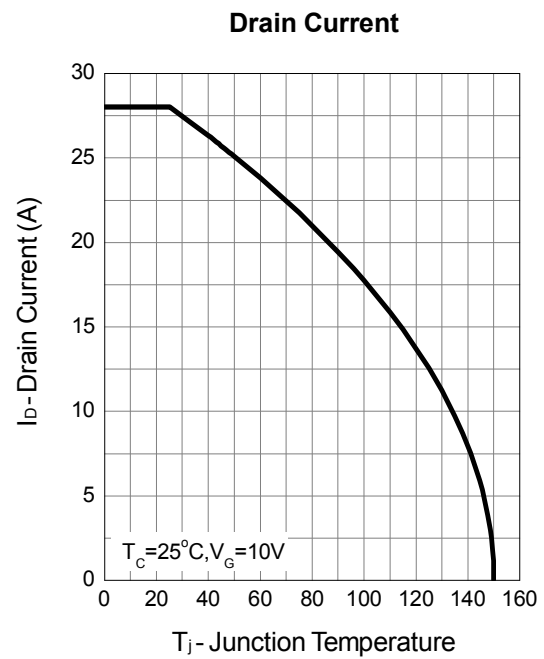
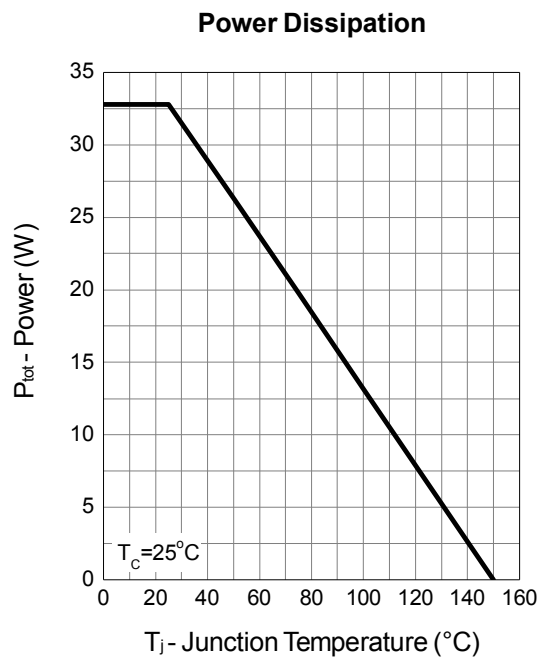
Note c : UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature T_J=25°C).

Electrical Characteristics (T_A = 25°C unless otherwise noted)

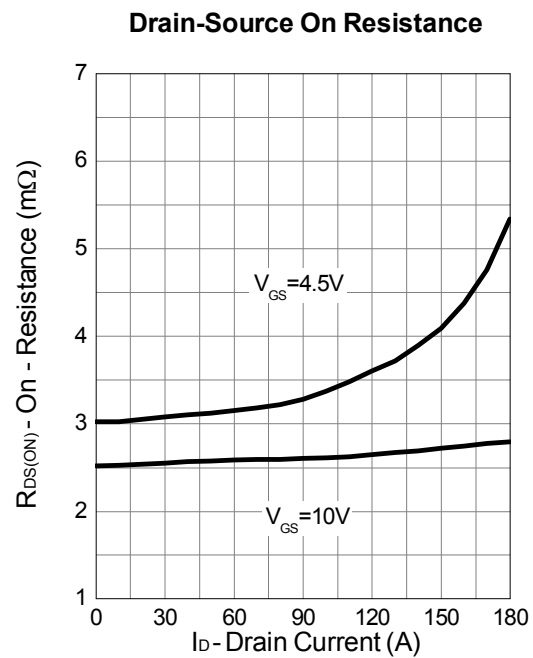
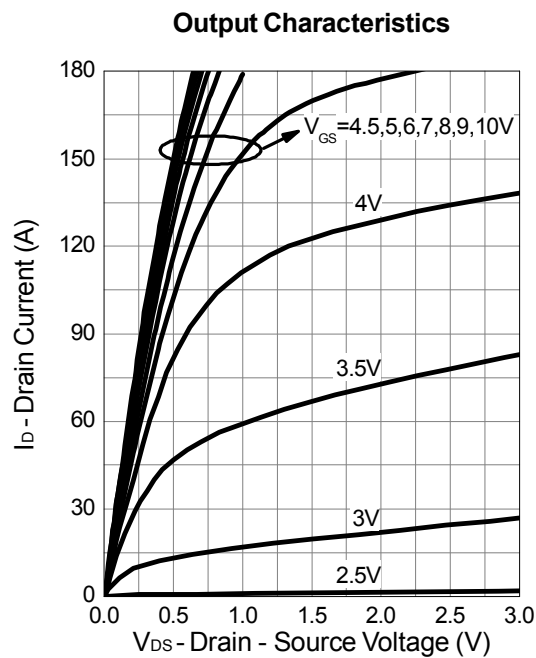
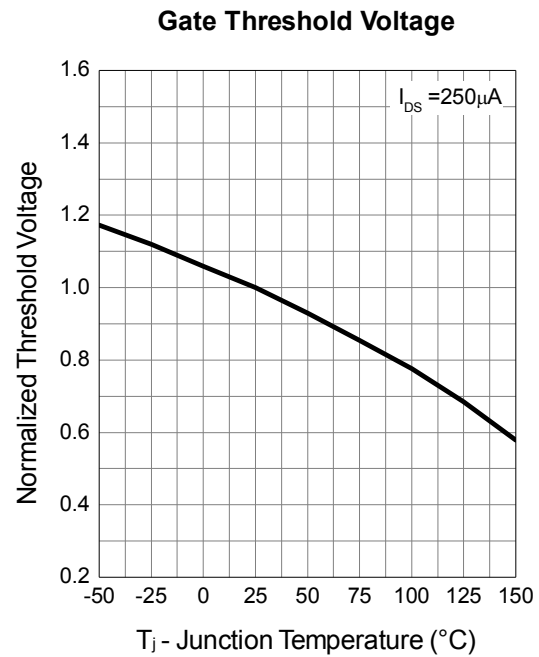
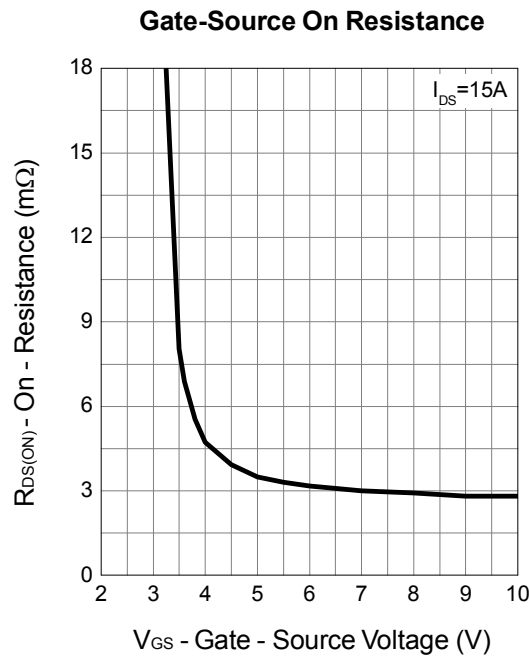
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
BV _{DSS} t	Drain-Source Breakdown Voltage (transient)	V _{GS} =0V, I _{D(aval)} =35A T _{case} =25°C, t _{transient} =100ns	34	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.4	1.7	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±12	μA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =15A	-	2.5	3.4	mΩ
		T _J =125°C	-	4.35	-	
		V _{GS} =4.5V, I _{DS} =10A	-	3	5.1	
Gfs	Forward Transconductance	V _{DS} =5V, I _{DS} =10A	-	20	-	S
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V	-	0.77	1.1	V
t _{rr}	Reverse Recovery Time	I _{SD} =5A, dI _{SD} /dt=100A/μs, V _{dd} =15V	-	40	-	ns
t _a	Charge Time		-	20	-	
t _b	Discharge Time		-	20	-	
Q _{rr}	Reverse Recovery Charge		-	33	-	nC
Dynamic Characteristics						
R _G	Gate Resistance	V _{GS} =0V,V _{DS} =0V,F=1MHz	-	0.8	1.8	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	2220	-	pF
C _{oss}	Output Capacitance		-	800	-	
C _{rss}	Reverse Transfer Capacitance		-	70	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, R _L =15Ω, I _{DS} =1A, V _{GEN} =10V, R _G =1Ω	-	15	-	ns
t _r	Turn-on Rise Time		-	12	-	
t _{d(OFF)}	Turn-off Delay Time		-	28	-	
t _f	Turn-off Fall Time		-	32	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =15A	-	28	37	nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =15A	-	13.4	-	
Q _{gth}	Threshold Gate Charge		-	2.5	-	
Q _{gs}	Gate-Source Charge		-	4	-	
Q _{gd}	Gate-Drain Charge		-	4.5	-	

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

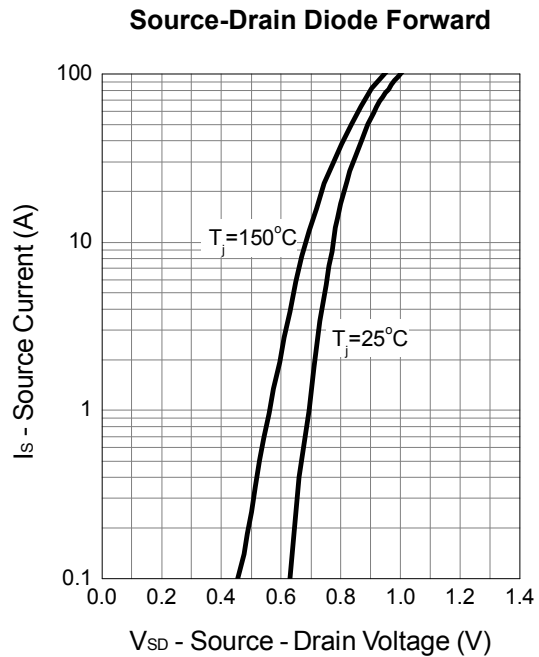
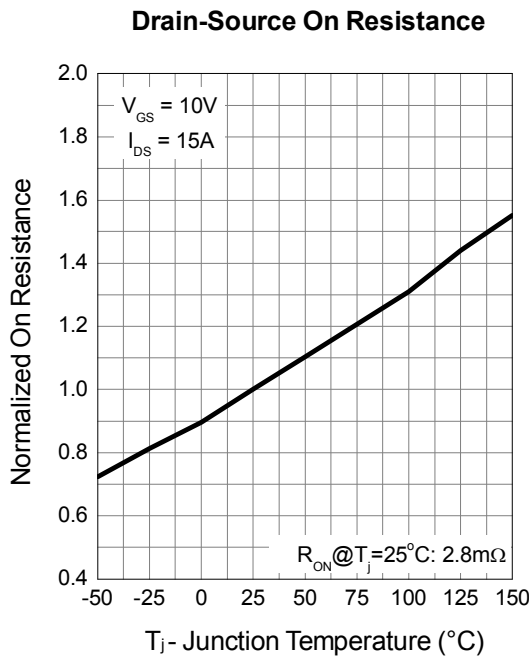
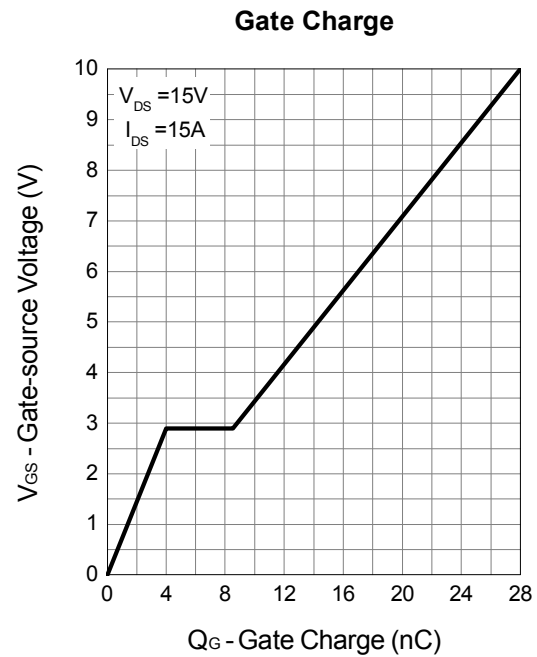
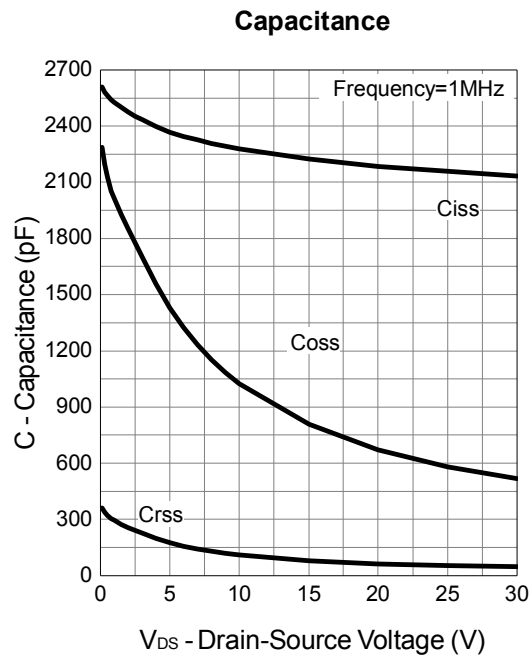
Typical Operating Characteristics



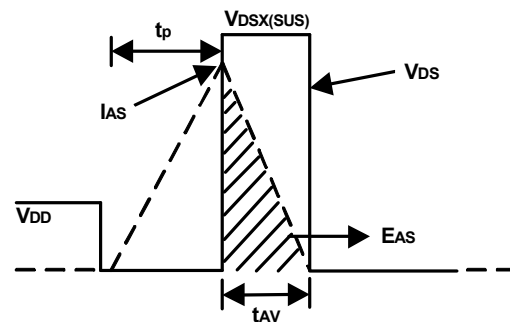
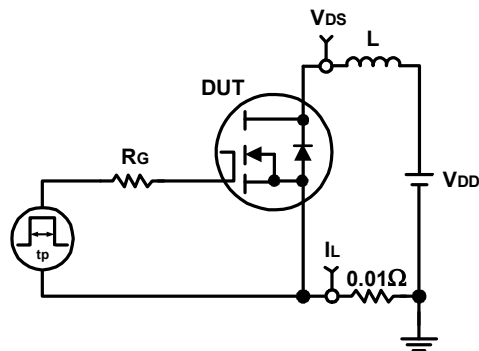
Typical Operating Characteristics (Cont.)



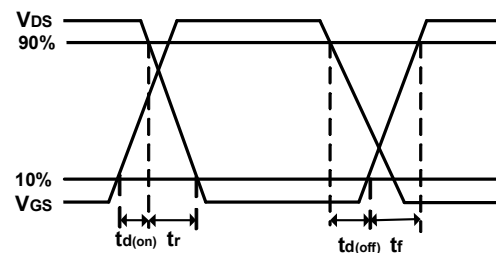
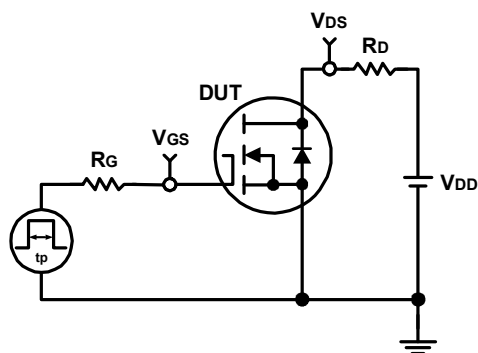
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

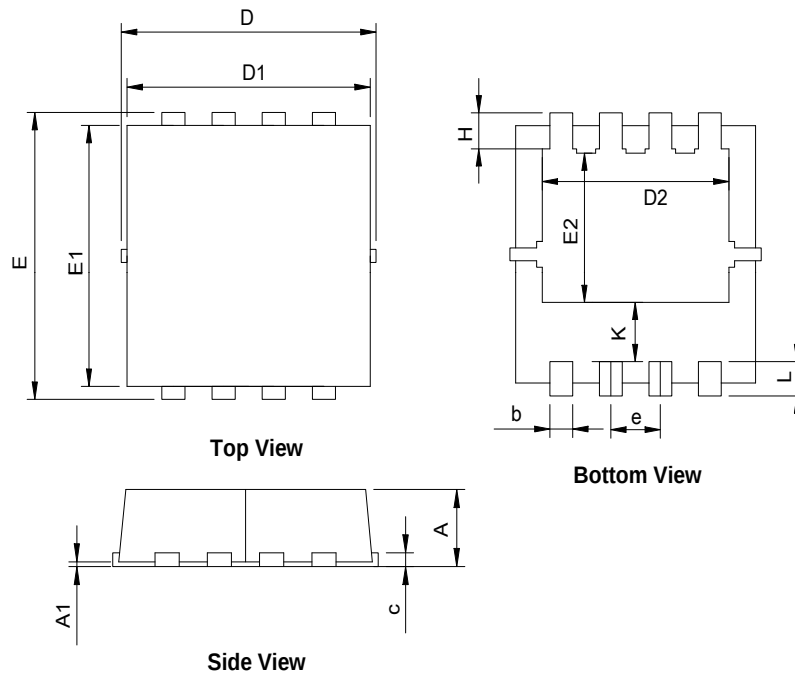


Switching Time Test Circuit and Waveforms



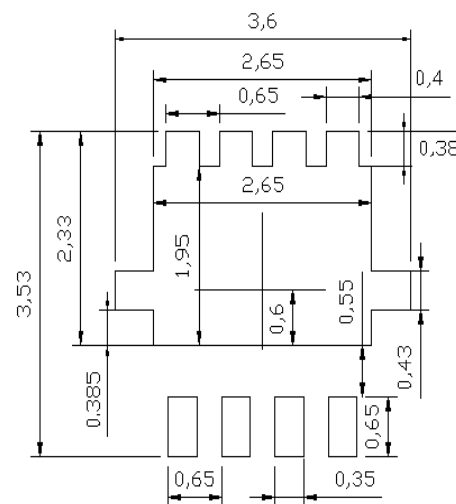
Package Information

PDFN3.3*3.3-8L



SYMBOL	PDFN3.3*3.3-8L			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.10	0.25	0.004	0.010
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.59	0.093	0.102
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.98	0.065	0.078
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



UNIT: mm