

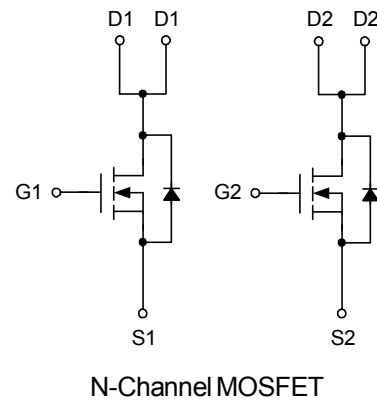
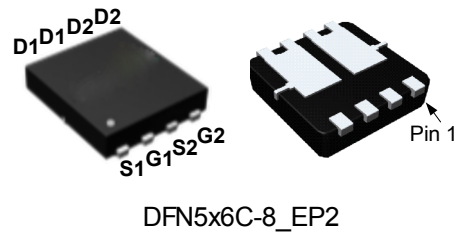
Features

- 30V/35A,
 $R_{DS(ON)} = 8m\Omega$ (typ.) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 11m\Omega$ (typ.) @ $V_{GS} = 4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)
- Moisture Sensitivity Level MSL1
(per JEDEC J-STD-020D)

Applications

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

Pin Description



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

Symbol	Parameter		Rating	Unit
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	$T_C = 25^\circ\text{C}$	35	A
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	35	
		$T_C = 100^\circ\text{C}$	21	
P_D	Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	19.2	W
		$T_C = 100^\circ\text{C}$	7.7	
I_{DM}^b	Pulse Drain Current	$T_C = 25^\circ\text{C}$	105	A
$R_{\theta JC}$	Thermal Resistance-Junction to Case	Steady State	6.5	$^\circ\text{C/W}$
$R_{\theta JA}^c$	Thermal Resistance-Junction to Ambient	$t \leq 10\text{s}$	50	$^\circ\text{C/W}$
		Steady State	88	
I_{AS}^d	Avalanche Current, Single pulse	$L = 0.1\text{mH}$	24	A
E_{AS}^d	Avalanche Energy, Single pulse	$L = 0.1\text{mH}$	29	mJ

Note a: Max. continuous current is limited by bonding wire.

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

Note c: Surface Mounted on 1in^2 pad area, steady state $t = 999\text{s}$.

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

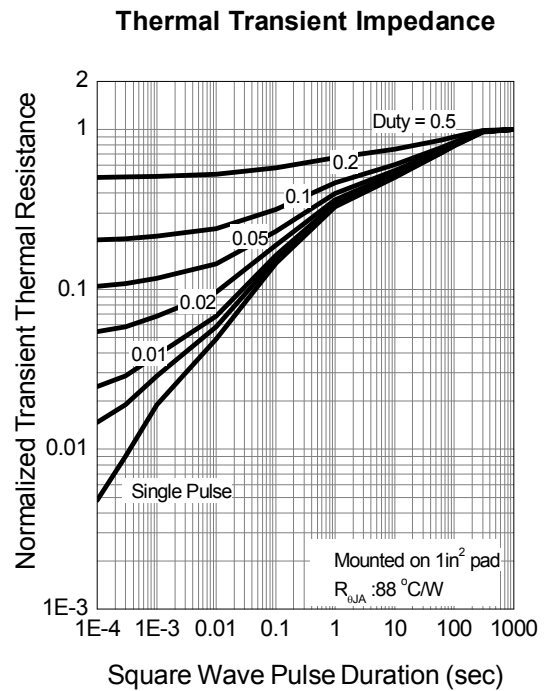
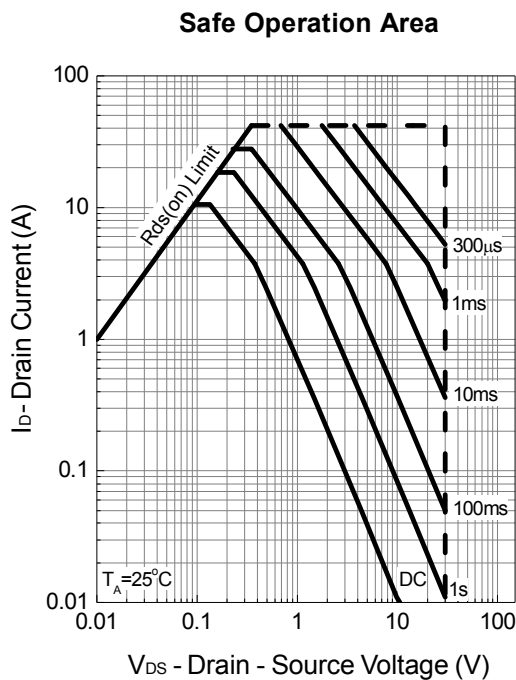
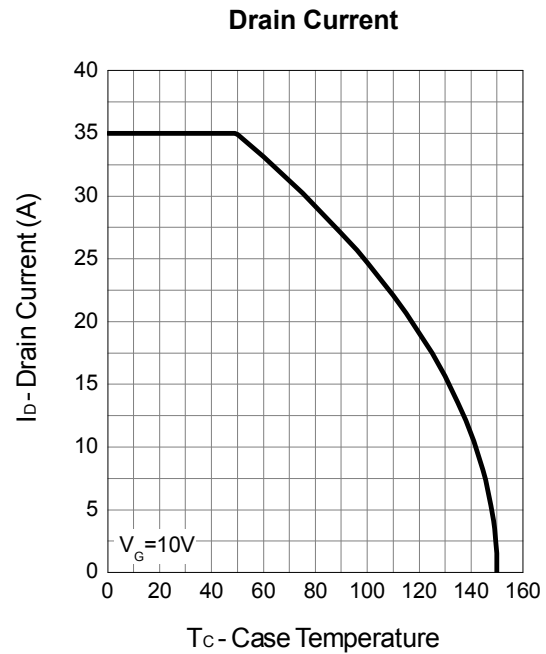
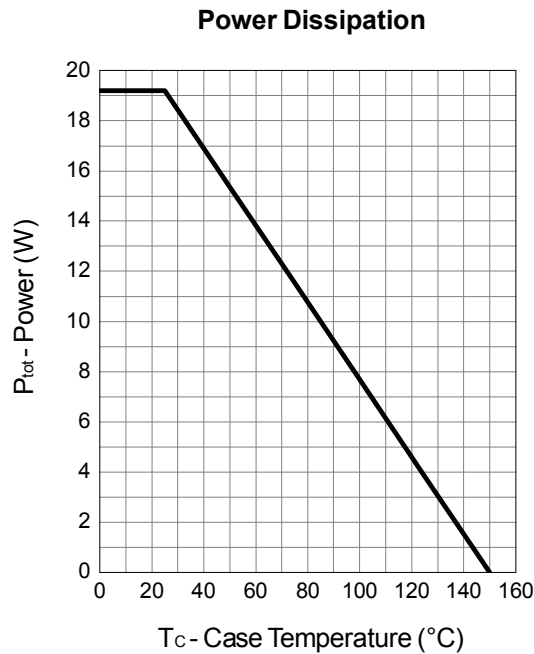
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V T _J =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.2	1.8	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^e	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =15A T _J =125°C	-	8 10.4	10 -	mΩ
Gfs	Forward Transconductance	V _{DS} =5V, I _{DS} =15A	-	28	-	S
Diode Characteristics						
V _{SD} ^e	Diode Forward Voltage	I _{SD} =15A, V _{GS} =0V	-	0.86	1.1	V
t _{rr}	Reverse Recovery Time	V _{dd} =20V I _{SD} =5A, dI _{SD} /dt=100 A/μs	-	14	-	ns
t _a	Charge Time		-	7.6	-	
t _{rr}	Reverse Recovery Time		-	6.4	-	
Q _{rr}	Reverse Recovery Charge		-	6.2	-	nC
Dynamic Characteristics ^f						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1.2	2.4	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	1180	-	pF
C _{oss}	Output Capacitance		-	190	-	
C _{rss}	Reverse Transfer Capacitance		-	115	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, R _L =15Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	8.6	-	ns
t _r	Turn-on Rise Time		-	12.4	-	
t _{d(OFF)}	Turn-off Delay Time		-	25	-	
t _f	Turn-off Fall Time		-	7.2	-	
Gate Charge Characteristics ^f						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =15A	-	20	26.0	nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =15A	-	10	-	
Q _{gth}	Threshold Gate Charge		-	1.9	-	
Q _{gs}	Gate-Source Charge		-	3.5	-	
Q _{gd}	Gate-Drain Charge		-	3.8	-	

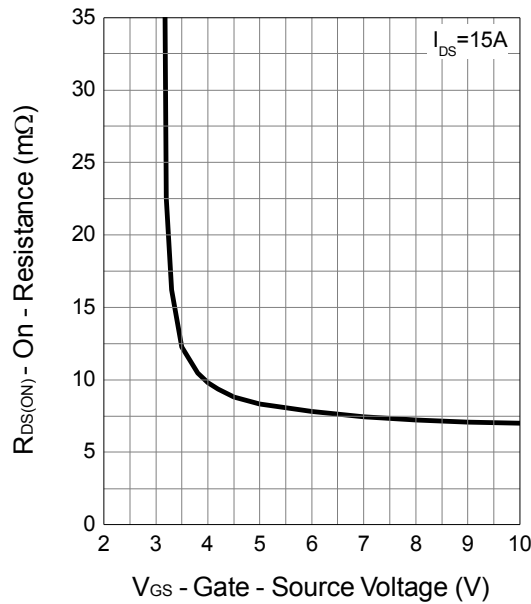
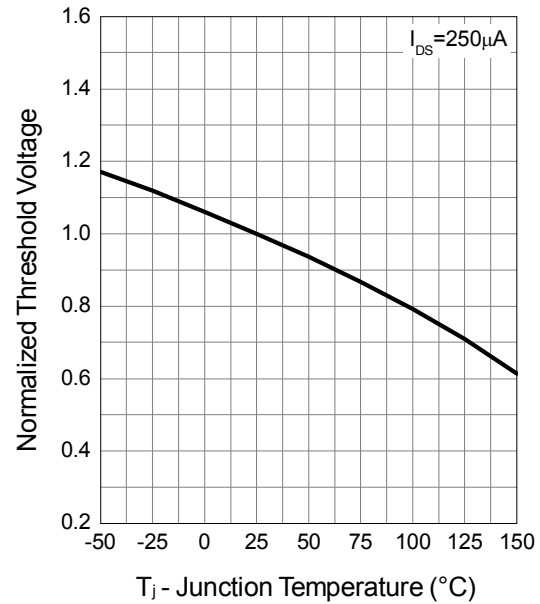
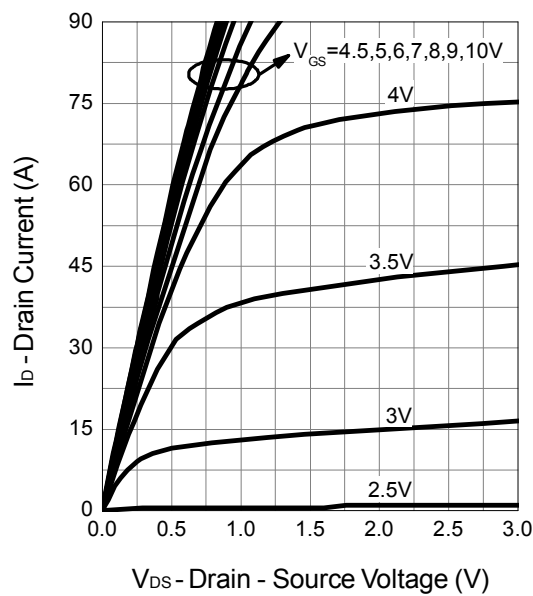
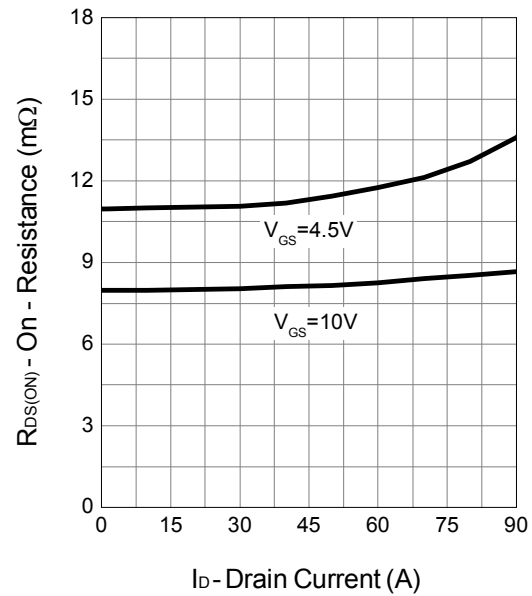
Note e : Pulse test ; pulse width≤300μs, duty cycle≤2%.

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

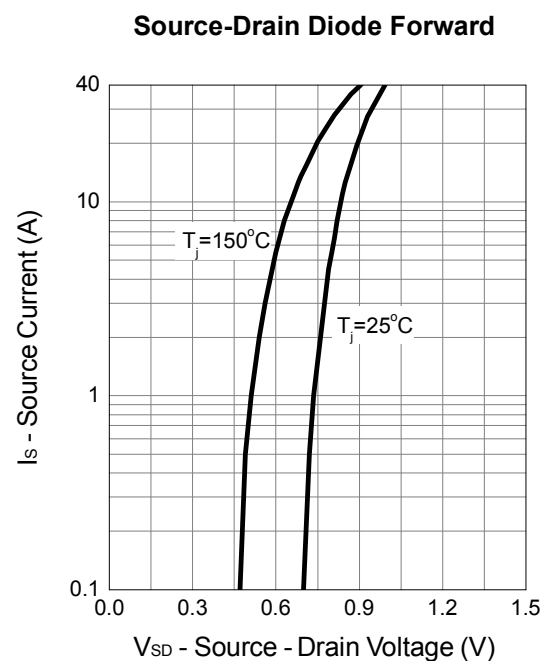
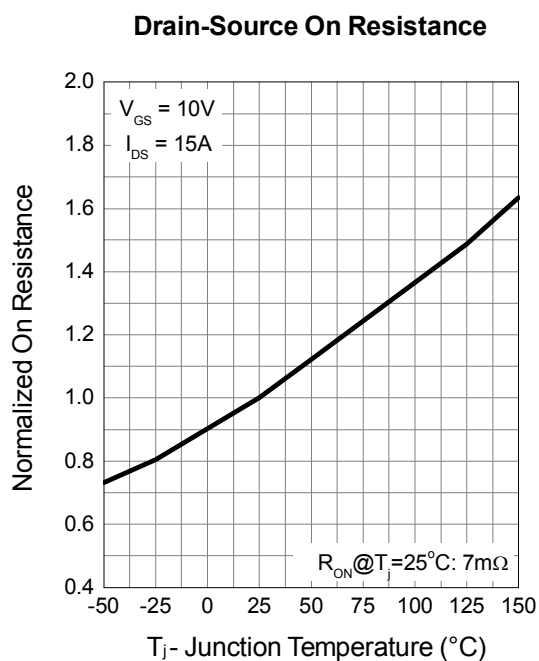
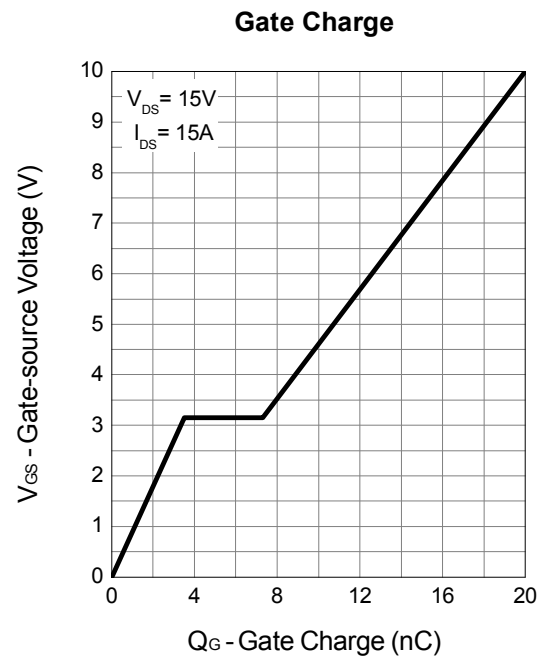
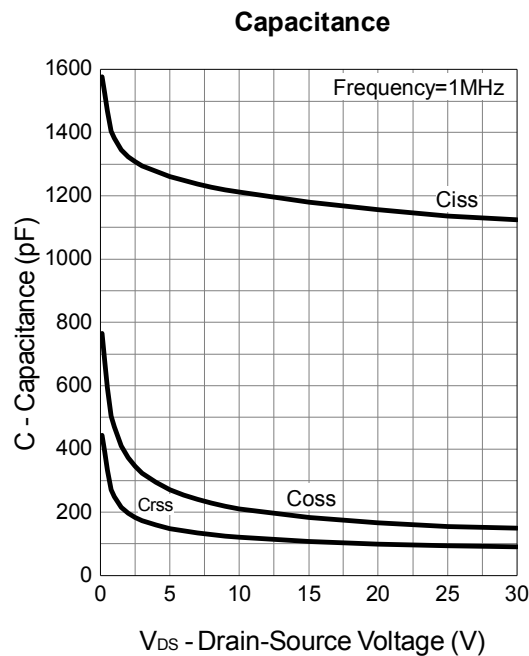
Typical Operating Characteristics



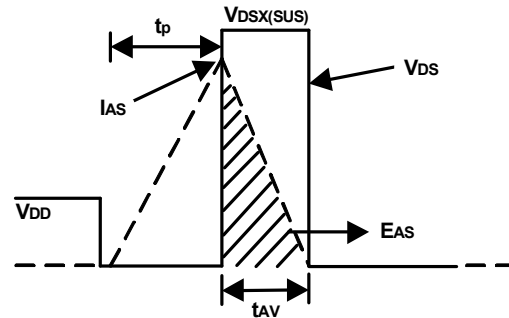
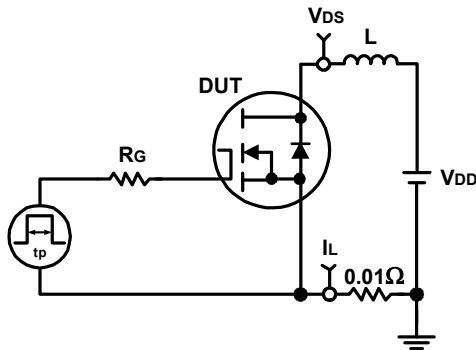
Typical Operating Characteristics (Cont.)

Gate-Source On Resistance

Gate Threshold Voltage

Output Characteristics

Drain-Source On Resistance


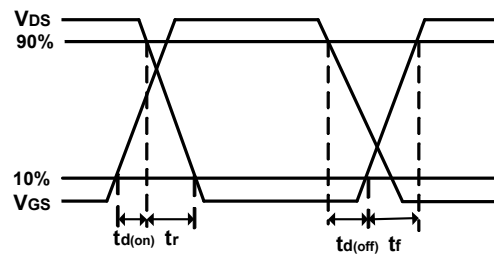
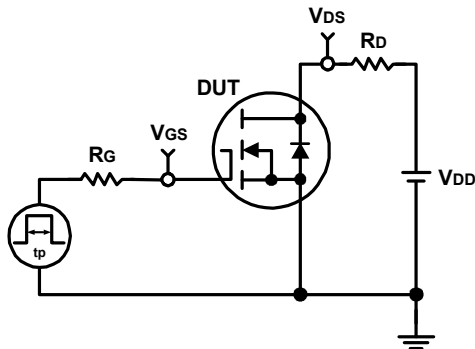
Typical Operating Characteristics (Cont.)



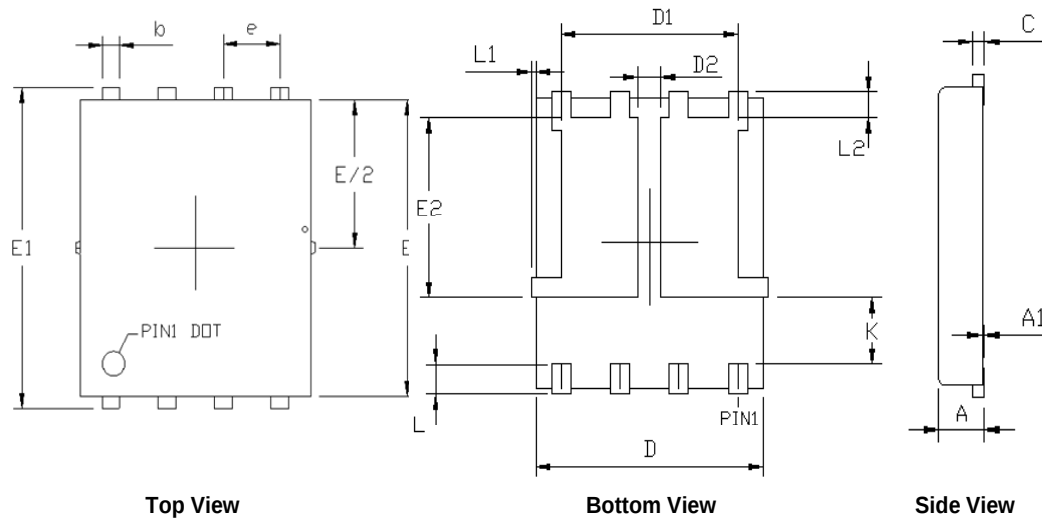
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms

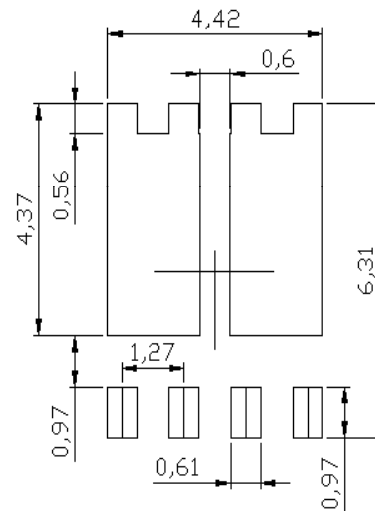


Package Information

DFN5x6C-8-EP2


SYMBOLS	DFN5x6C-8_EP2_P			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.900	1.200	0.035	0.047
A1	0.000	0.050	0.000	0.002
b	0.300	0.500	0.012	0.020
c	0.150	0.300	0.006	0.012
D	4.800	5.000	0.189	0.197
D1	3.550	4.550	0.140	0.179
D2	0.500	0.910	0.020	0.036
E	5.650	5.850	0.222	0.230
E1	5.900	6.200	0.232	0.244
E2	3.200	3.780	0.126	0.149
e	1.27 BSC		0.050 BSC	
K	1.100	-	0.043	-
L	0.500	0.800	0.020	0.031
L1	0.000	0.150	0.000	0.006
L2	0.325	0.610	0.013	0.024

RECOMMENDED LAND PATTERN



UNIT: mm