

N-Channel High Density Trench MOSFET (60V,4.8A)

PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(on)} (m-ohm) Max
60V	4.8A	75 @ VGS = 10V, ID =4.8A
		85 @ VGS = 4.5V, ID = 4A

Features

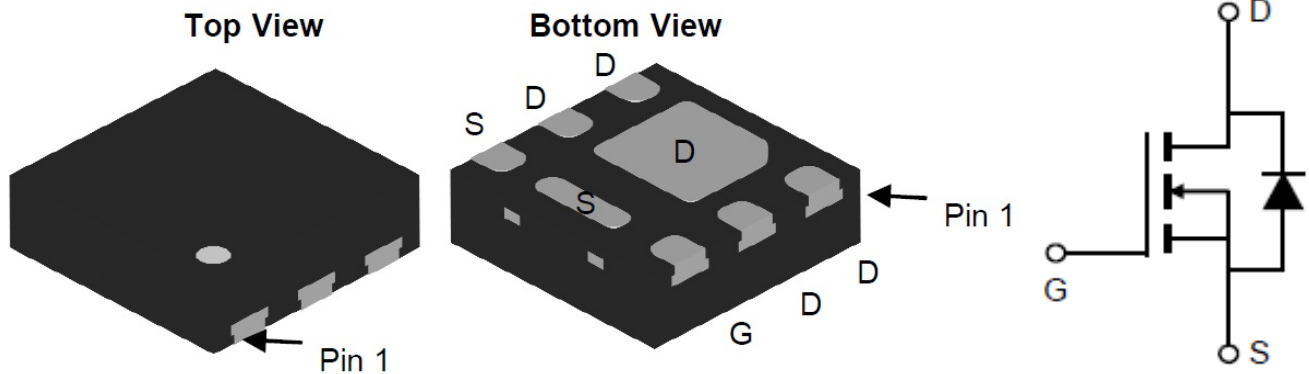
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

General Description

- Case: DFN2 X 2-6L
- Case Material: Molded Plastic. UL Flammability
- Moisture Sensitivity: Level 1 per
- RoHS and Halogen-Free Compliant

Application

- DC/DC Converters in Computing, Servers
- Isolated DC/DC Converters in Telecom and Industrial



Absolute Maximum Ratings (T_A = 25°C, unless otherwise noted)

Symbol	Parameter	Ratings	Unit
V _{DS}	Drain-Source Voltage	60	V
V _G S	Gate-Source Voltage (G)	± 20	V
I _D	Drain Current (Continuous)	4.8	A
I _{DM}	Drain Current (Pulsed) (C) (a)	26	A
PD	Total Power Dissipation @T _A = 25°C (b)	2.8	W
	Total Power Dissipation @T _A = 100°C (b)	1.8	



T _{opr}	Operating Temperature Range	85	°C
T _{stg}	Storage Temperature Range	- 55 to +150	°C
R _{θJA}	Maximum Junction-to-Ambient (t _≤ 10S)	45	°C/W
	Maximum Junction-to-Ambient (Steady-State)	80	°C/W

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.
b: 1-in² 2oz Cu PCB board

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

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250uA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} = 0V	-	-	1	nA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ± 20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	1.2	1.8	2.2	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} = 10V, I _D = 5A		65	80	mΩ
		V _{GS} = 4.5V, I _D = 4A		76	90	
G _{FS}	Forward Transconductance	V _{DS} = 5V, I _D = 4.8A	-	20	-	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz	-	450	-	pF
C _{oss}	Output Capacitance		-	56	-	
C _{rss}	Reverse Transfer Capacitance		-	26	-	
Switching Characteristics						
Q _g	Total Gate Charge(10V)	V _{DS} = 30V, I _D = 4.8A, V _{GS} = 15V	-	47.7	-	nC
Q _g	Total Gate Charge(4.5)			23		
Q _{gs}	Gate-Source Charge			7.6		
Q _{gd}	Gate-Drain Charge			10		
t _{d(on)}	Turn-on Delay Time	V _{GS} = 10V, V _{DS} = 30V R _L = 0.75Ω, R _{GEN} = 3Ω,	-	10.5	-	nS
t _r	Turn-on Rise Time			7.5		
t _{d(off)}	Turn-off Delay Time			22.8		
t _f	Turn-off Fall Time			6		
T _{rr}	Body Diode Reverse Recovery Time	IF=1.8A, di/dt=50A/us		20		nS
Q _{rr}	Body Diode Reverse Recovery Charge	IF=1.8A, di/dt=50A/us		20		nC

Note:

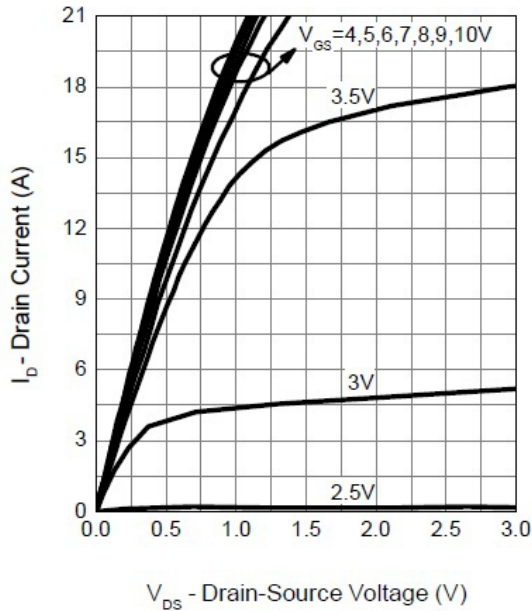
A: The value of R_{qJA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The

Power dissipation PDSM is based on R_{qJA} and the maximum allowed junction temperature of 150°C. The value in any given application depends

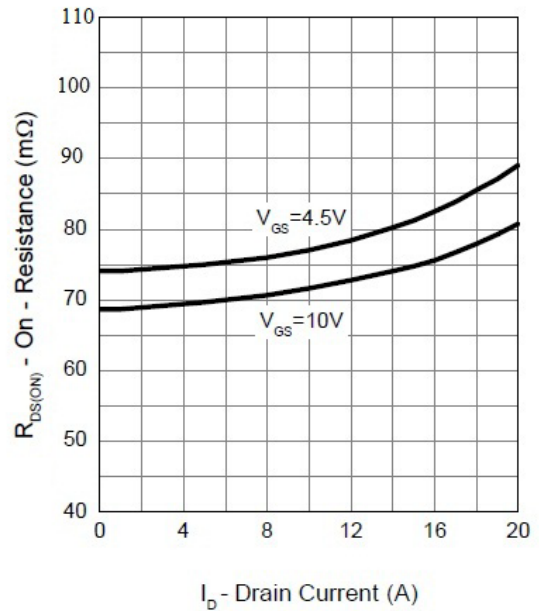
on the user's specific board design..

Typical Performance Characteristics

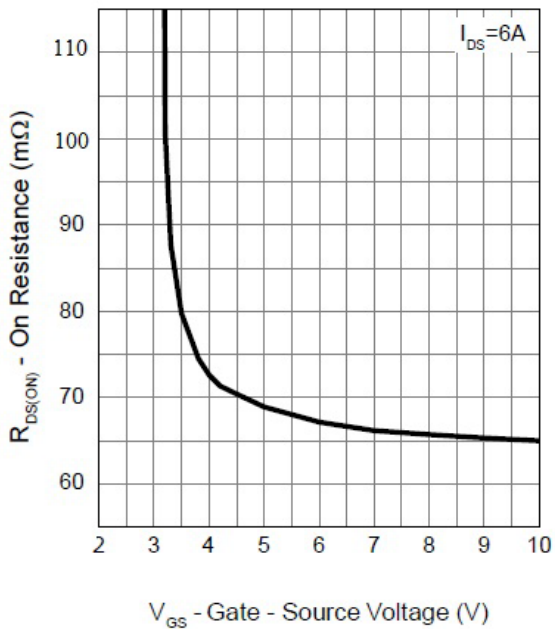
Output Characteristics



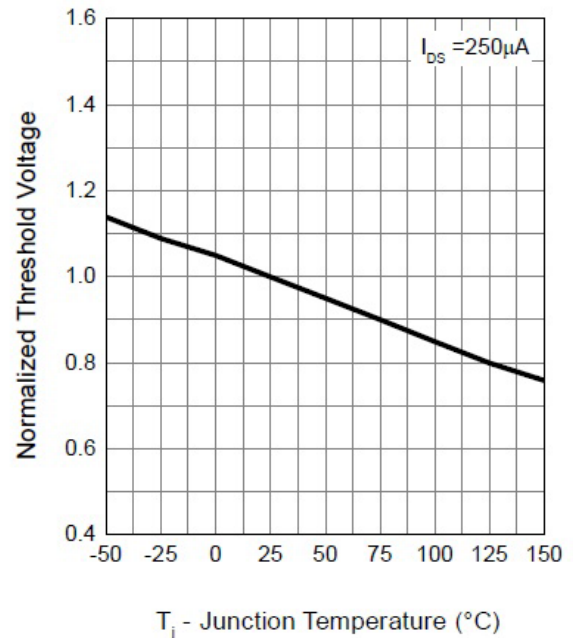
Drain-Source On Resistance



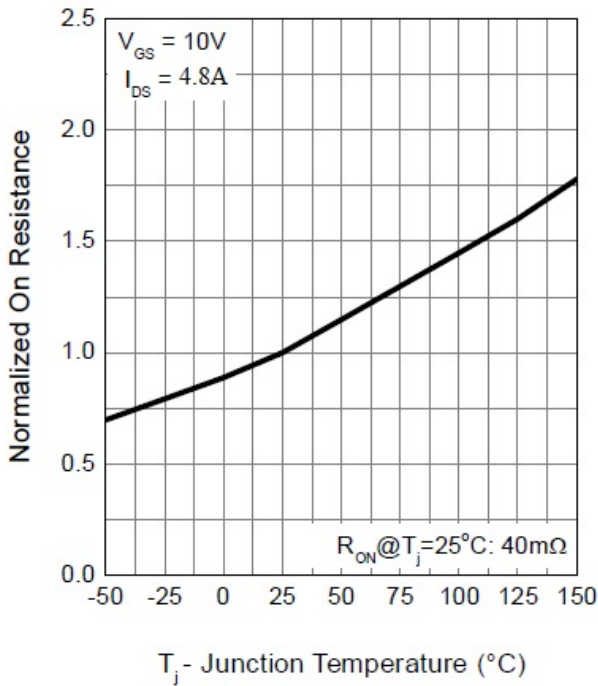
Gate-Source On Resistance



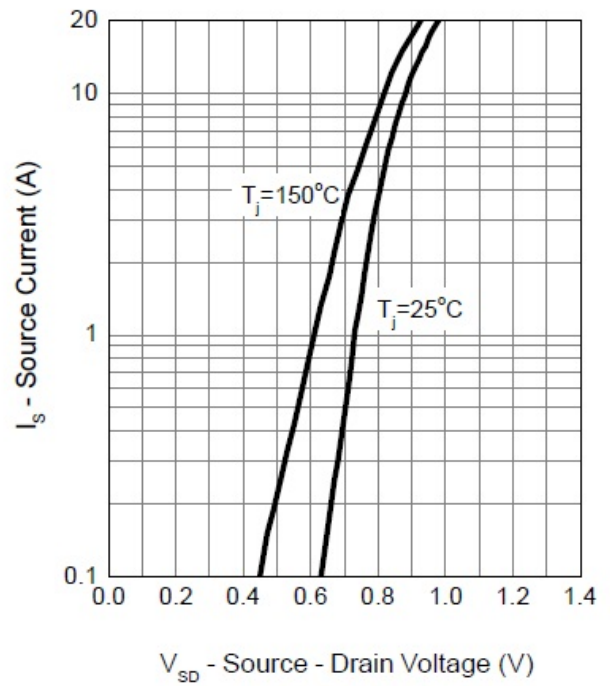
Gate Threshold Voltage



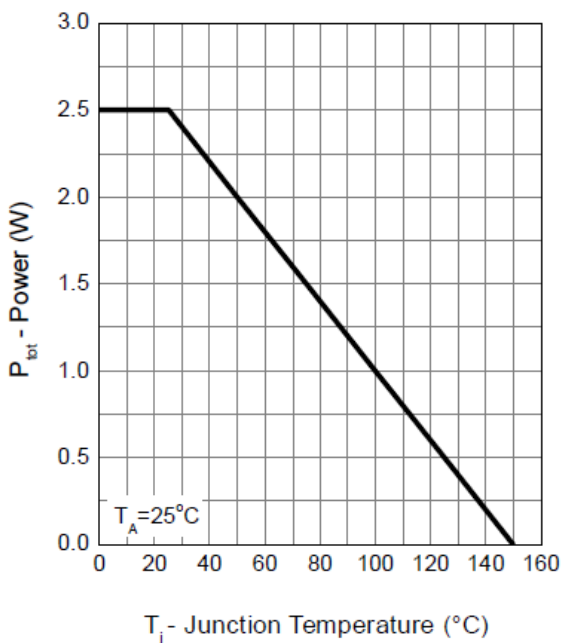
Drain-Source On Resistance



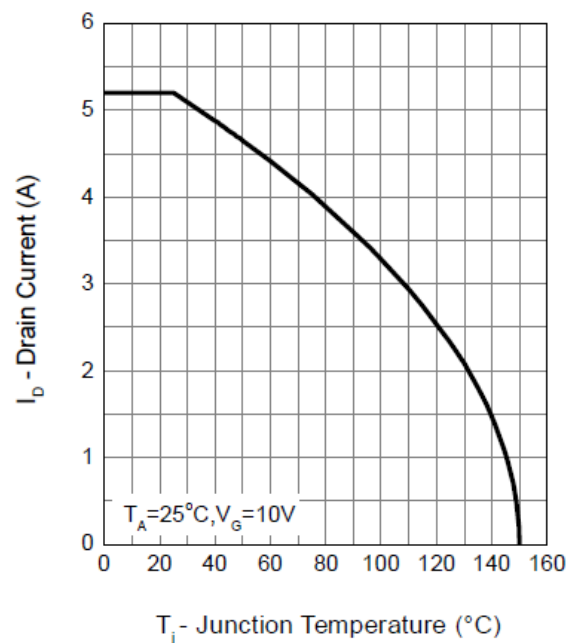
Source-Drain Diode Forward



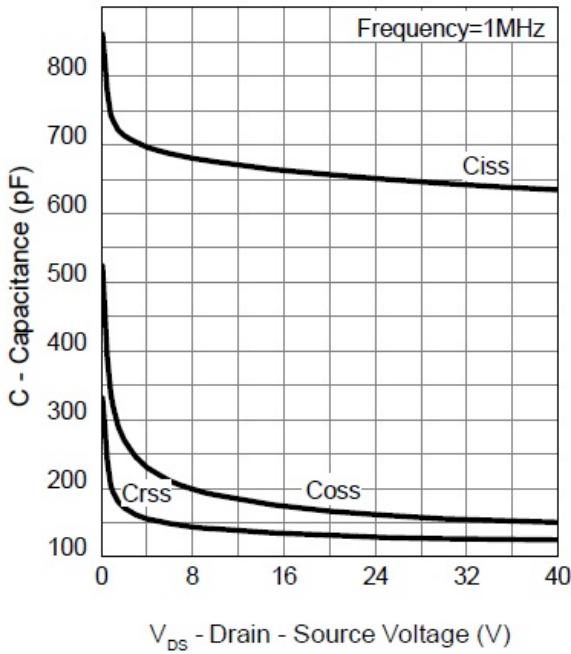
Power Dissipation



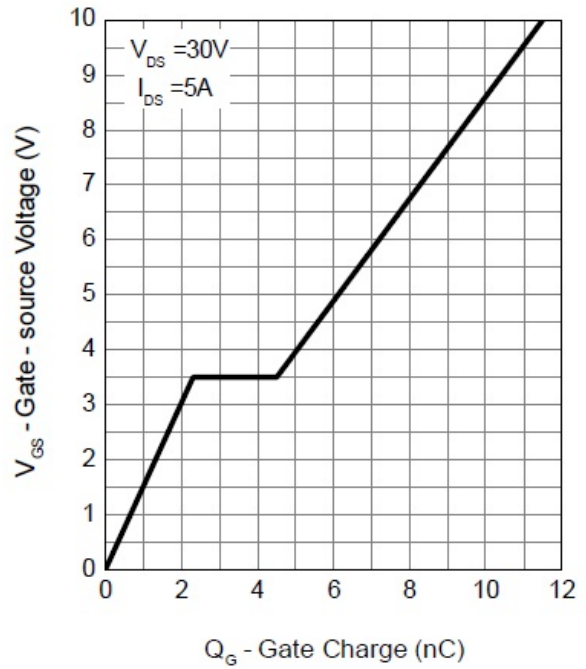
Drain Current



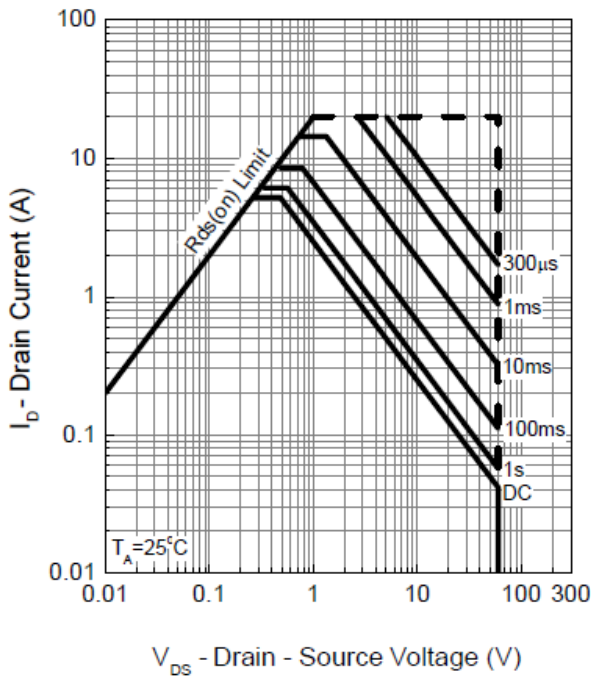
Capacitance



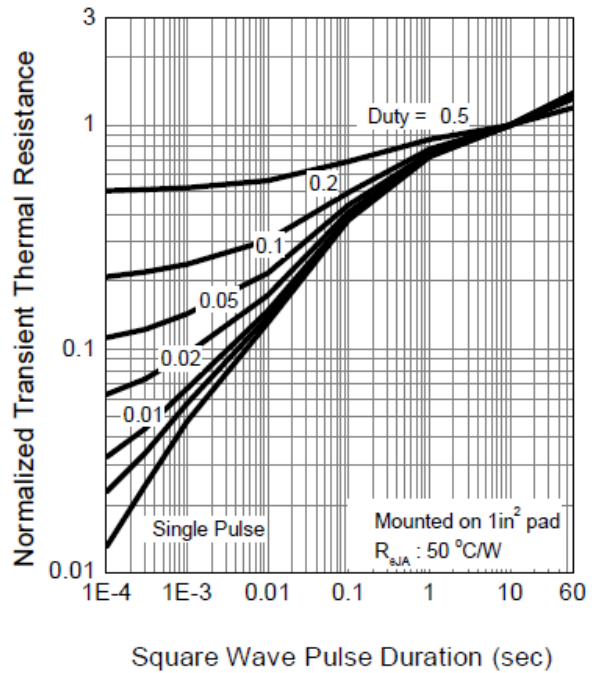
Gate Charge



Safe Operation Area

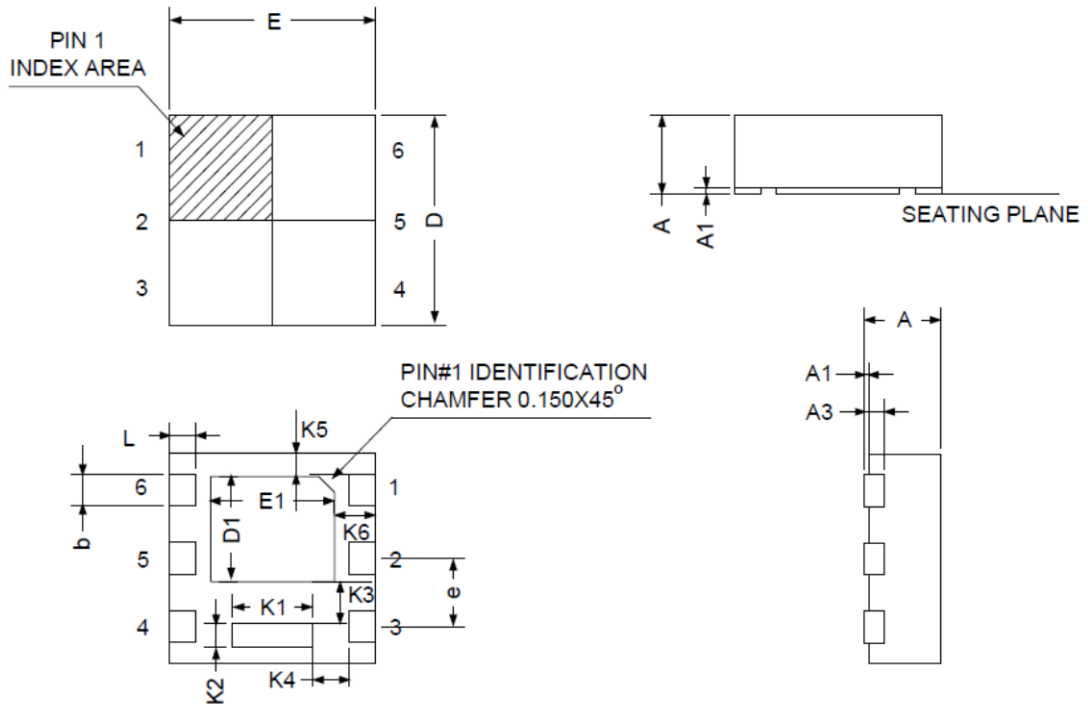


Thermal Transient Impedance



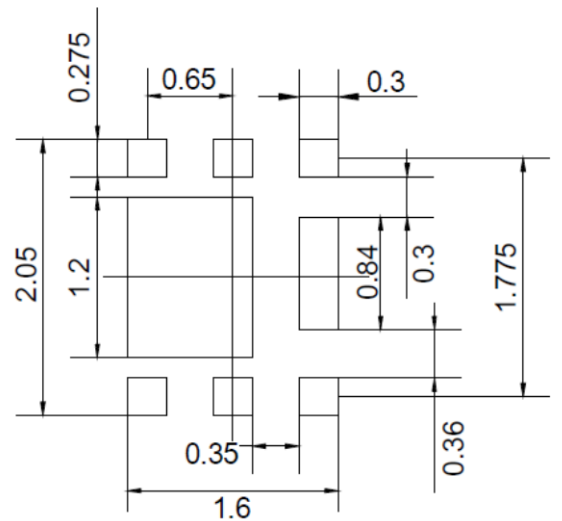
DFN 2*2-6L PACKAGE OUTLINE DIMENSIONS

DFN2x2-6



SYMBOL	DFN2x2-6			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	0.80	0.028	0.031
A1	0.00	0.05	0.000	0.002
A3	0.200 REF		0.008 REF	
b	0.25	0.35	0.010	0.014
D	1.90	2.10	0.075	0.083
E	1.90	2.10	0.075	0.083
D1	0.90	1.10	0.035	0.043
E1	0.90	1.10	0.035	0.043
e	0.65 BSC		0.026 BSC	
L	0.20	0.30	0.008	0.012
K1	0.65	0.85	0.026	0.033
K2	0.20	-	0.008	-
K3	0.20	-	0.008	-
K4	0.32	-	0.013	-
K5	0.20	0.26	0.008	0.010
K6	0.45	0.55	0.018	0.022

RECOMMENDED LAND PATTERN



UNIT: mm