

30V N-Channel Enhancement Mode MOSFET

FEATURES

- Fast switching
- Low $R_{DS(ON)}$
- Trench MOSFET technology
- This is a Pb Free Device
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

GENERAL FEATURES

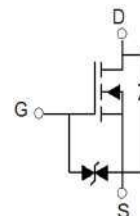
$V_{DS} = 30V$ $I_D = 1000mA$

$R_{DS(ON)} < 0.4\Omega$ @ $V_{GS} = 4.5V$

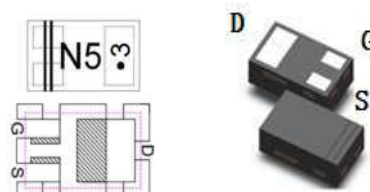
APPLICATIONS

- Low Side Load Switch
- Level Shift Circuits
- DC-DC Converter
- Portable Applications i.e. DSC, PDA, Cell Phone, etc.

Inner Equivalent Principium Chart



Marking and Pin Assignment



N5 = Device Code
 3 = Date Code*

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Package	Packing	Shipping
KLM1D01N03KH	N5	DFN1006-3	Reel	10000/Tape&Reel

MAXIMUM RATINGS($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	V_{DS}	30	V
Gate-to-Source Voltage	V_{GS}	± 10	V
Drain Current (Note 1) Steady State ($T_A = 25^\circ C$) ($T_A = 100^\circ C$)	I_D	1000 590	mA
Power Dissipation (Note 1) Steady State	PD	715	mW
Pulsed Drain Current ($t_p = 10 \mu s$)	I_{DM}	3.7	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^\circ C$
Lead Temperature for Soldering Purposes ($1/8''$ from case for 10 s)	TL	260	$^\circ C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Junction-to-Ambient - Steady State (Note 1)	$R_{\theta JA}$	305	$^\circ C/W$

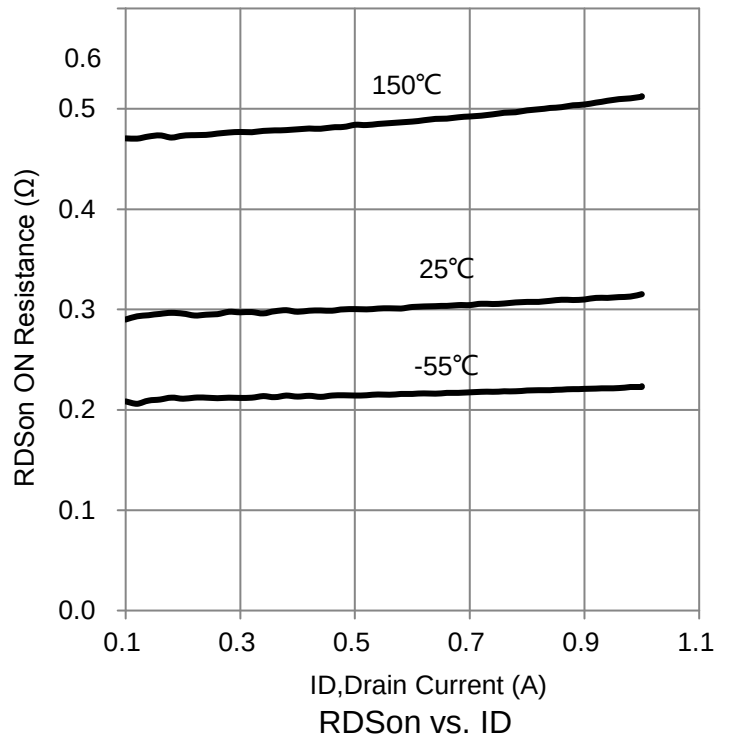
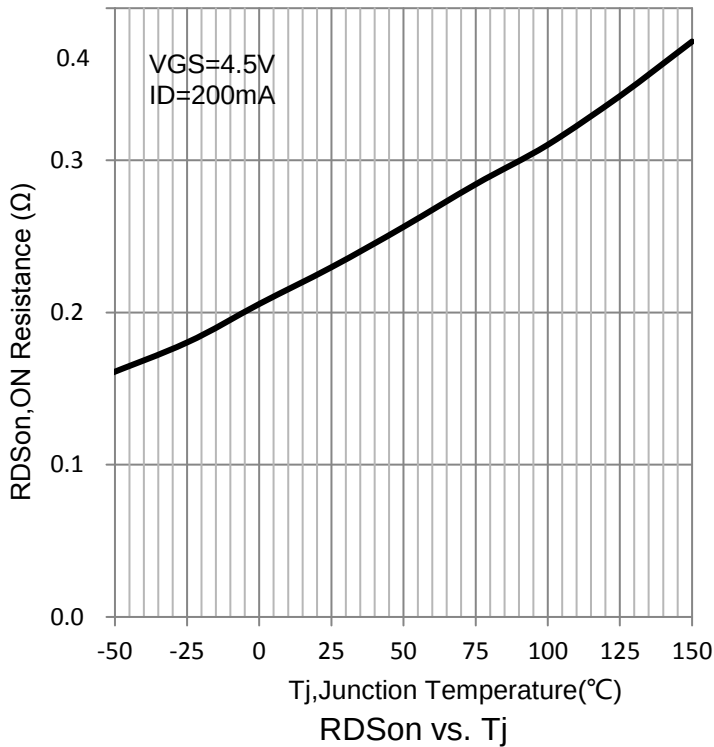
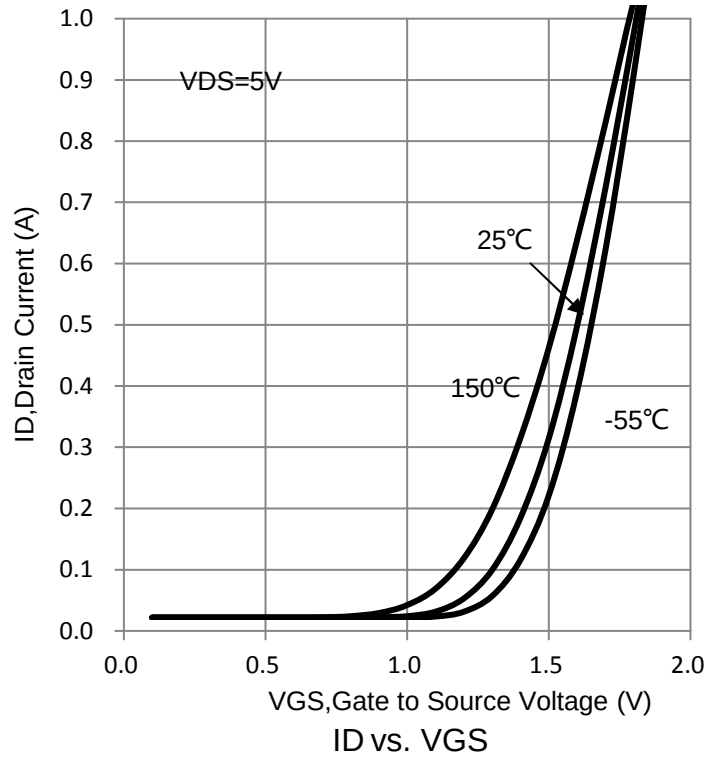
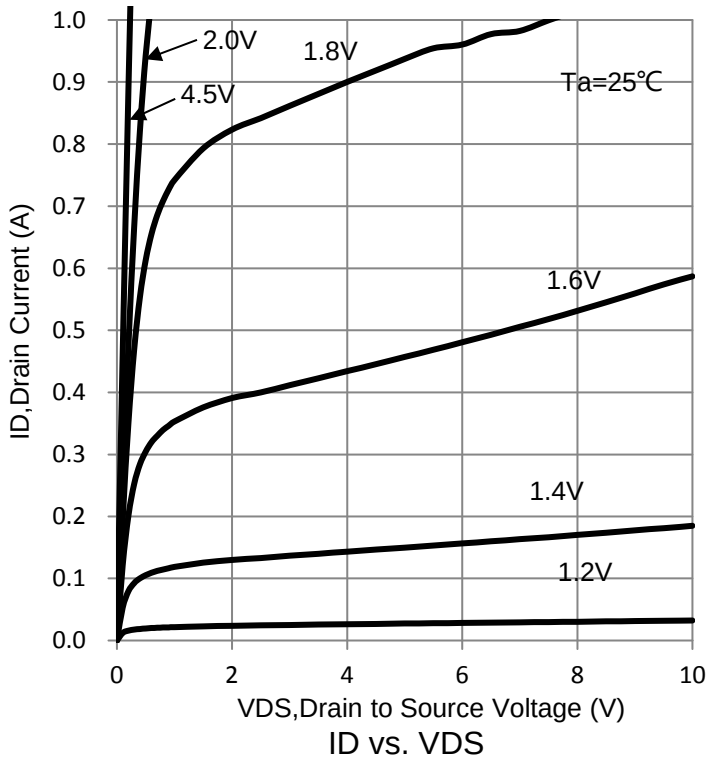
Note 1: Surface-mounted on FR4 board using 1 in sq pad size (Cu area = 1.127 in sq [1 oz] including traces)

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

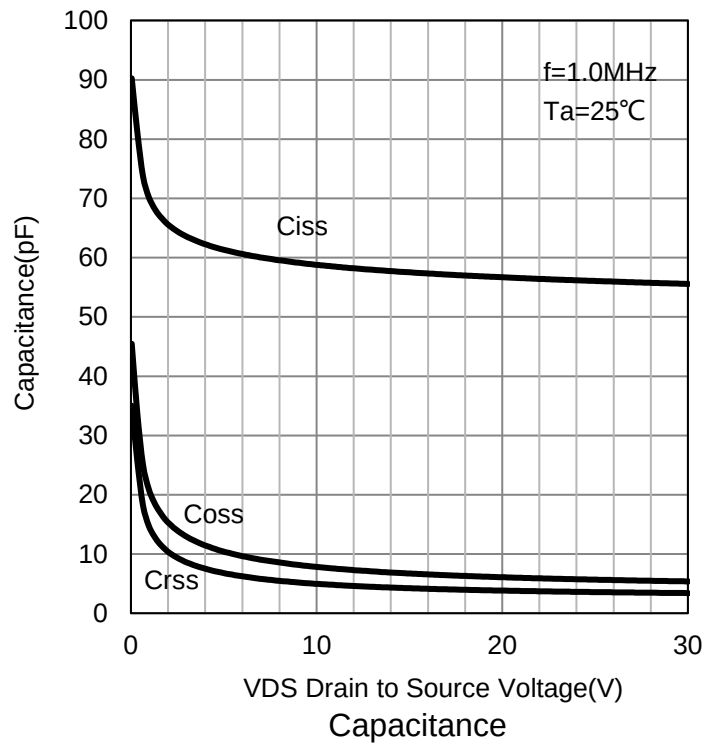
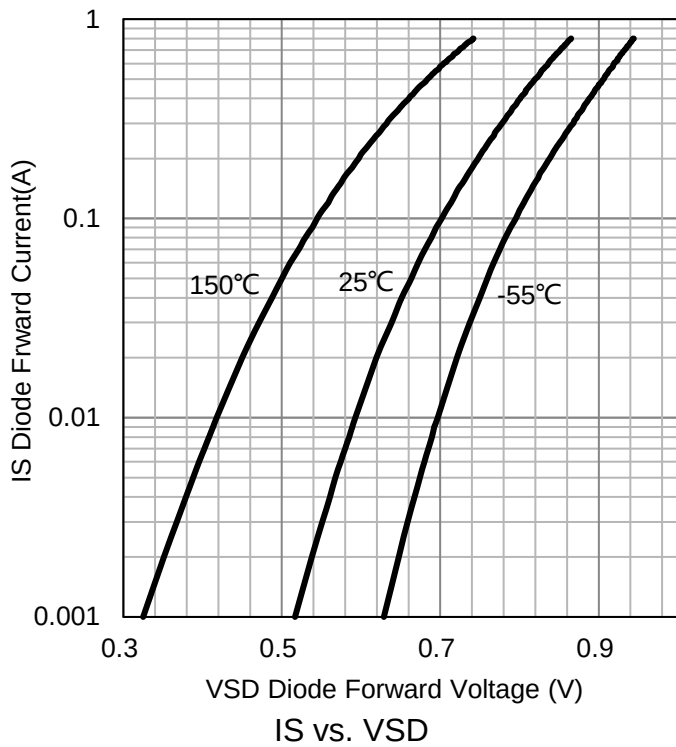
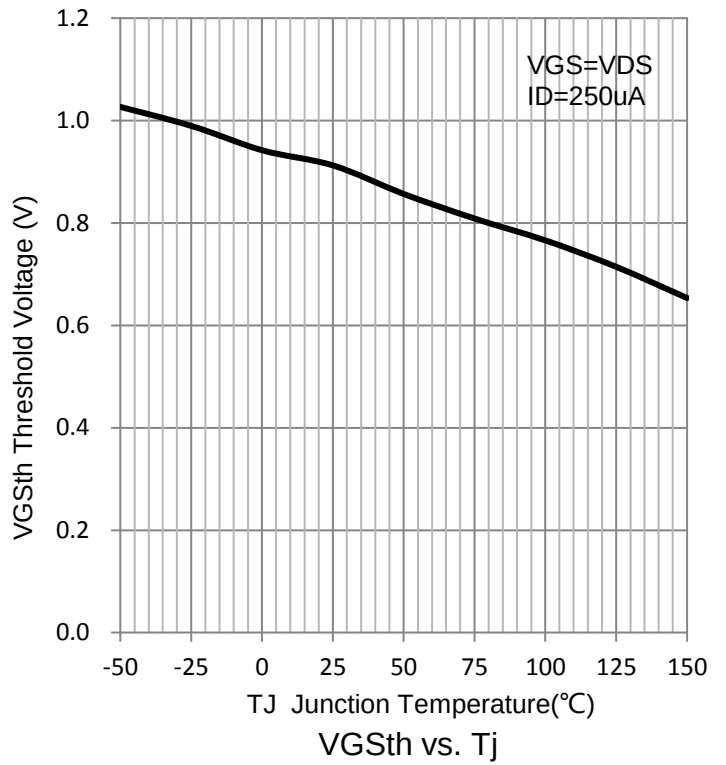
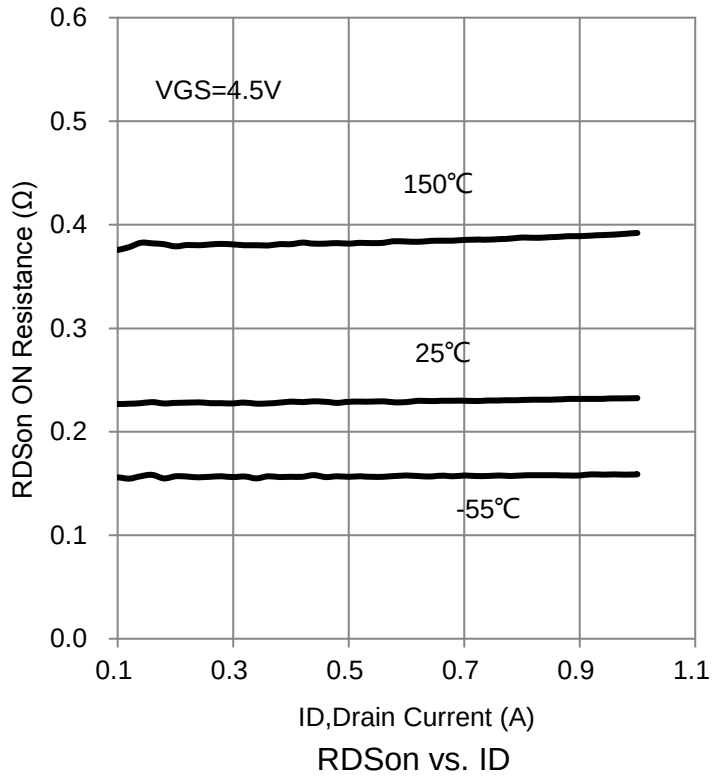
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage (VGS =0V, ID =250μA)	V(BR)DSS	30	-	-	V	
Gate Threshold Voltage (VDS =VGS , ID =250μA)	VGS(th)	0.7	1.0	1.5		
Gate-Body Leakage Current (VDS =0V, VGS =±10V)	IGSS	-	-	±10	μA	
Zero Gate Voltage Drain Current (VDS =30V, VGS =0V)	IDSS	-	-	1		
Drain-Source On-Resistance (VGS =4.5V, ID = 200mA)	RDS(ON)	-	0.27	0.4	Ω	
Drain-Source On-Resistance (VGS =2.5V, ID = 200mA)		-	0.4	0.6		
Diode Forward Voltage (IS =300mA, VGS =0V)	VSD	-	-	1.2	V	
DYNAMIC PARAMETERS						
Total Gate Charge	(VDS =15V, VGS =4.5V, ID =1.0A)	Qg	-	0.65	0.87	nC
Gate-Source Charge		Qgs	-	0.14	-	
Gate-Drain Charge		Qgd	-	0.18	-	
Input Capacitance	(VDS =25V, VGS =0V, f=1MHz)	Ciss	-	37	56	pF
Output Capacitance		Coss	-	8.6	-	
Reverse Transfer Capacitance		Crss	-	5.4	-	
Turn-On Delay Time	(VDS =15V, RL =15Ω, VGEN =4.5V, RG =6 Ω)	td(on)	-	6.5	13	ns
Rise Time		tr	-	9.5	-	
Turn-Off Delay Time		td(off)	-	14	28	
Fall Time		tf	-	5.5	-	

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

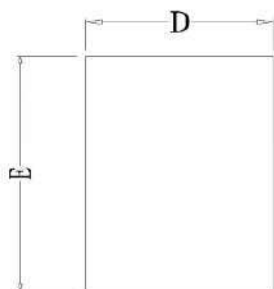
ELECTRICAL CHARACTERISTICS CURVES



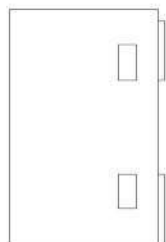
ELECTRICAL CHARACTERISTICS CURVES(Con.)



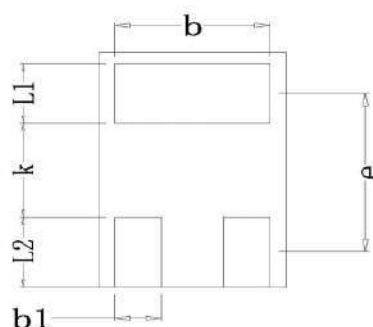
OUTLINE AND DIMENSIONS



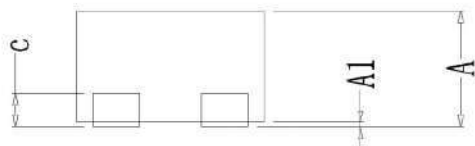
Top View



Side View



Bottom View



Side View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.425	0.475	0.525
A1	—	0.02	0.05
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
c	0.127 REF		
D	0.50	0.60	0.70
e	0.675 BSC		
E	0.90	1.00	1.10
k	0.35	0.40	0.45
L1	0.20	0.25	0.30
L2	0.25	0.30	0.35