KMA3D7P20SA

P-Ch Trench MOSFET

General Description

It s mainly suitable for use as a load switch.

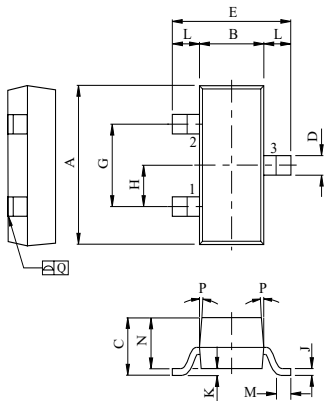
FEATURES

· V_{DSS}=-20V, I_D=-3.7A

· Drain to Source on-state Resistance

$R_{DS(ON)}$=76mΩ(Max.) @ V_{GS}=-4.5V

$R_{DS(ON)}$=112mΩ(Max.) @ V_{GS}=-2.5V



DIM	MILLIMETERS
A	2.93±0.20
B	1.30+0.20/-0.15
C	1.30 MAX
D	0.40+0.15/-0.05
E	2.40+0.30/-0.20
G	1.90
H	0.95
J	0.13+0.10/-0.05
K	0.00 ~ 0.10
L	0.55
M	0.20 MIN
N	1.00+0.20/-0.10
P	7°
Q	Max 0.1.

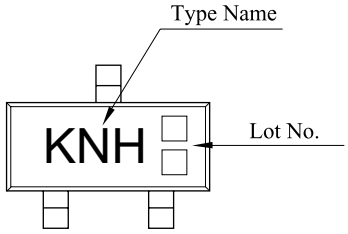
SOT-23

MAXIMUM RATING (Ta=25℃)

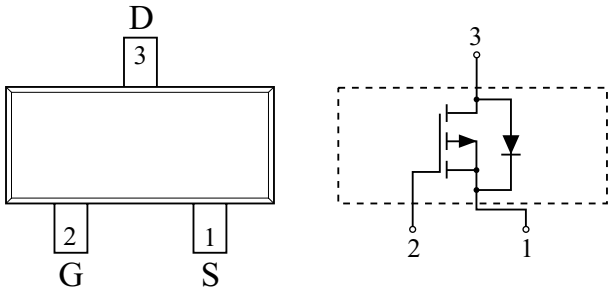
CHARACTERISTIC		SYMBOL	P-Ch	UNIT
Drain to Source Voltage		V_{DSS}	-20	V
Gate to Source Voltage		V_{GSS}	±12	V
Drain Current	DC@Ta=25℃ (Note1)	I_D	-3.7	A
	Pulsed (Note1)	I_{DP}	-16	
Drain to Source Diode Forward Current		I_S	-16	A
Drain Power Dissipation	Ta=25℃ (Note1)	P_D	1.25	W
	Ta=100℃ (Note1)		0.6	
Maximum Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	-55 150	℃
Thermal Resistance, Junction to Ambient (Note1)		R_{thJA}	100	℃/W

Note1) Surface Mounted on 1 ”×1 ”FR4 Board, t≤5sec.

Marking



PIN CONNECTION (TOP VIEW)



ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain to Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250 μA	-20	-	-	V
Drain Cut-off Current	I_{DSS}	V_{GS}=0V, V_{DS}=-20V	-	-	-1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Gate to Source Threshold Voltage	V_{th}	V_{DS}=V_{GS}, I_D=-250 μA	-0.55	-	-1.5	V
Drain to Source On Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-2.8A (Note2)	-	65	76	mΩ
		V_{GS}=-2.5V, I_D=-2.3A (Note2)	-	90	112	
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=-10V, f=1MHz, V_{GS}=0V	-	443	-	pF
Output Capacitance	C_{oss}		-	92	-	
Reverse Transfer Capacitance	C_{rss}		-	51	-	
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-2.8A, V_{GS}=-4.5V (Note2)	-	4.37	-	nC
Gate to Source Charge	Q_{gs}		-	0.54	-	
Gate to Drain Charge	Q_{gd}		-	1.54	-	
Turn-on Delay time	$t_{d(on)}$	V_{DD}=-10V, V_{GS}=-4.5V, I_D=-2.8A, R_G=6Ω (Note2)	-	6.2	-	ns
Turn-on Rise time	t_r		-	18	-	
Turn-off Delay time	$t_{d(off)}$		-	50	-	
Turn-off Fall time	t_f		-	33	-	
Source to Drain Diode Ratings						
Source to Drain Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-1.0A (Note2)	-	-0.8	-1.2	V
Note2) Pulse Test : Pulse width <300μs , Duty cycle < 2%						

Fig1. I_D - V_{DS}

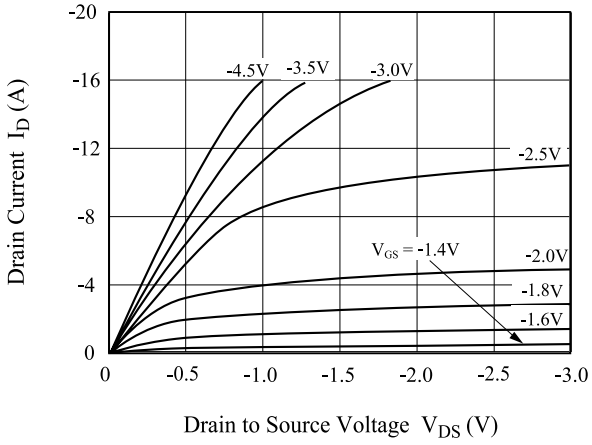


Fig2. $R_{DS(ON)}$ - I_D

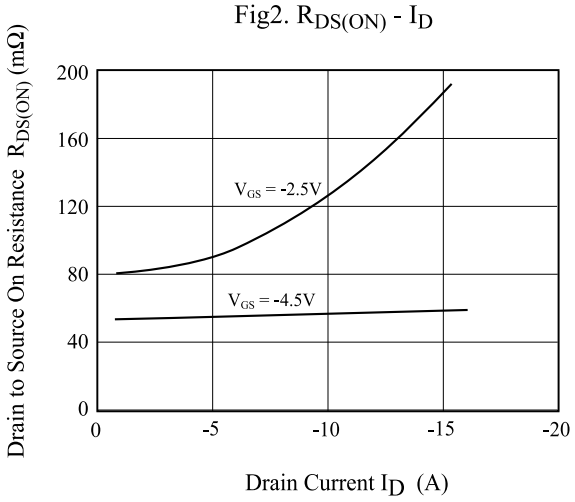


Fig3. I_D - V_{GS}

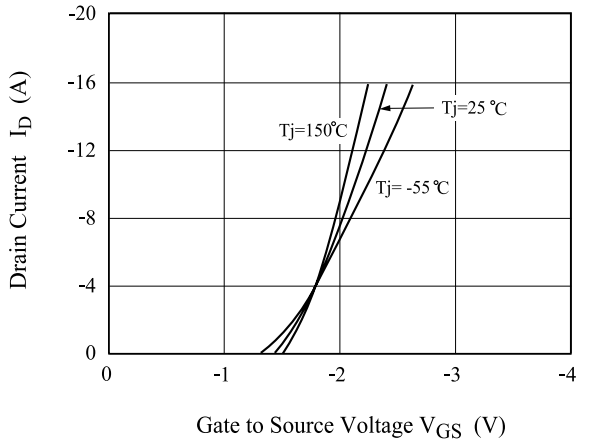


Fig4. $R_{DS(ON)}$ - T_j

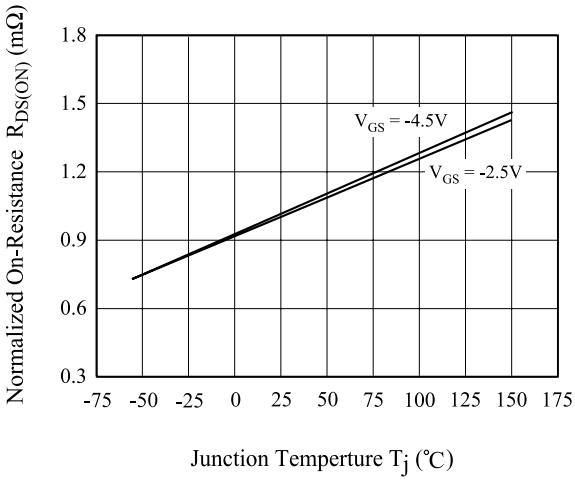


Fig5. V_{th} - T_j

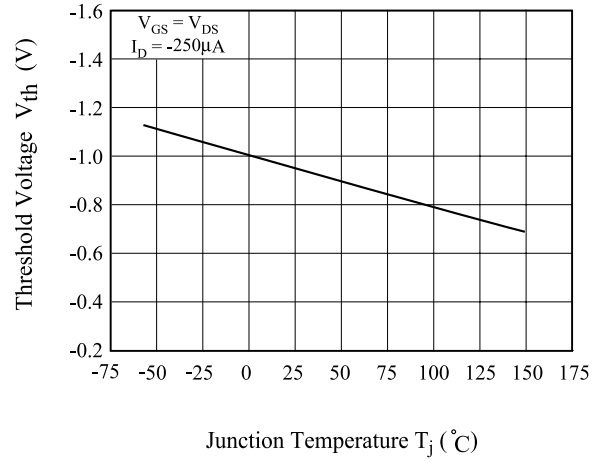


Fig6. I_S - V_{SD}

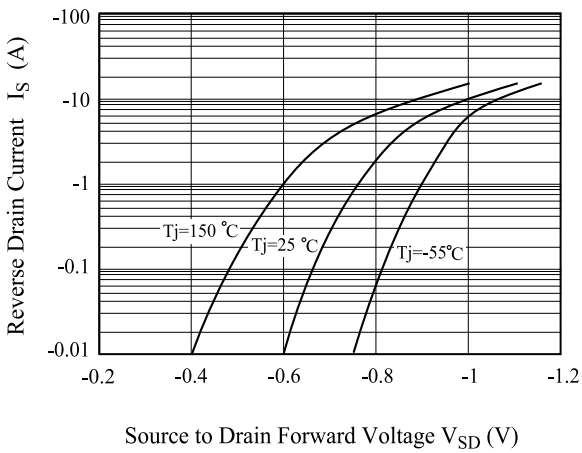


Fig7. $R_{DS(ON)}$ - V_{GS}

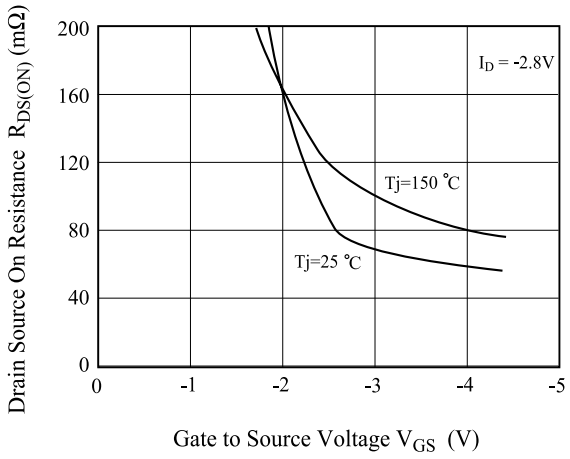


Fig8. C - V_{DS}

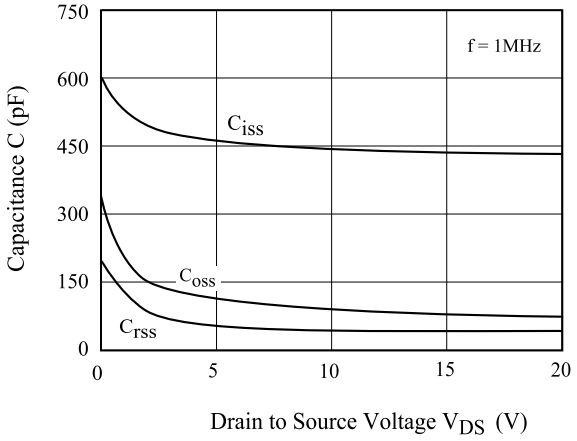


Fig9. Q_g - V_{GS}

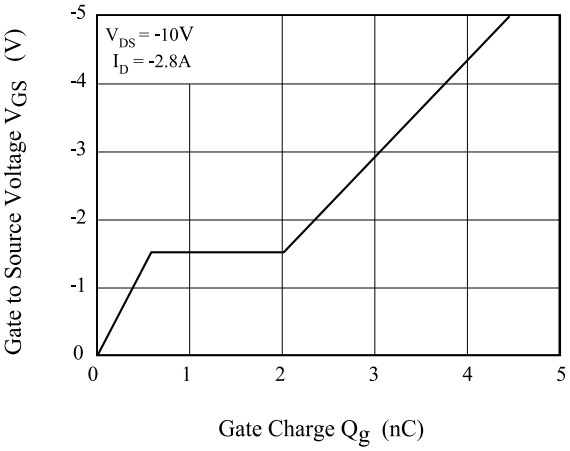


Fig10. Safe Operation Area

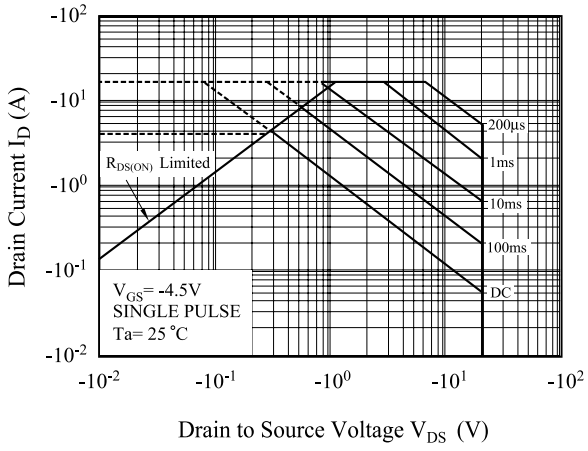


Fig10. Transient Thermal Response Curve