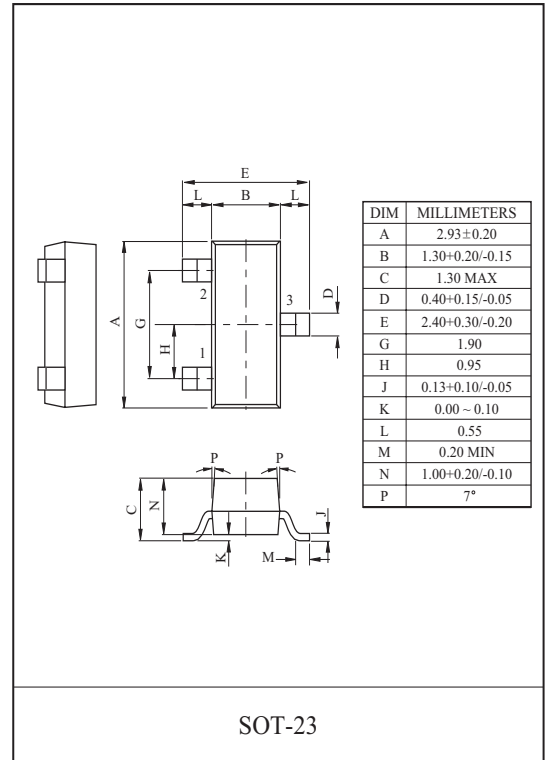


General Description

It is mainly suitable for use as a load switch.

FEATURES

- $V_{DSS} = -20V$, $I_D = -3.7A$.
- Drain to Source on-state Resistance.
 $R_{DS(ON)} = 76m \text{ (Max.) @ } V_{GS} = -4.5V$
 $R_{DS(ON)} = 112m \text{ (Max.) @ } V_{GS} = -2.5V$
- Suffix U : Qualified to AEC-Q101.
 ex) KMA3D7P20SA-RTK/HU

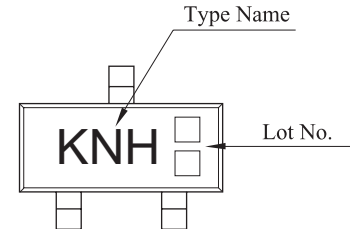


MAXIMUM RATING (Ta=25 °C)

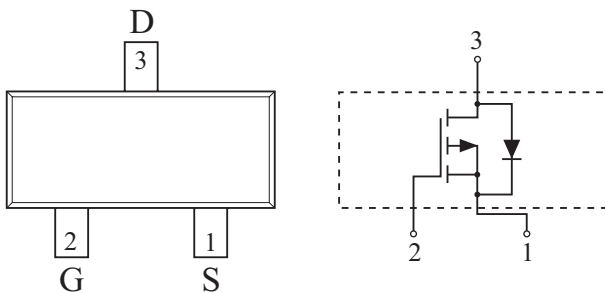
CHARACTERISTIC		SYMBOL	P-Ch	UNIT
Drain to Source Voltage		V_{DSS}	-20	V
Gate to Source Voltage		V_{GSS}	± 12	V
Drain Current	DC@Ta=25 (Note1)	I_D	-3.7	A
	Pulsed (Note1)	I_{DP}	-16	
Drain to Source Diode Forward Current		I_S	-16	A
Drain Power Dissipation	Ta=25 (Note1)	P_D	1.25	W
	Ta=100 (Note1)		0.6	
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)



KMA3D7P20SA

ELECTRICAL CHARACTERISTICS (Ta=25)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain to Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250 \mu A$	-20	-	-	V
Drain Cut-off Current	I_{DSS}	$V_{GS}=0V, V_{DS}=-20V$	-	-	-1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
Gate to Source Threshold Voltage	V_{th}	$V_{DS}=V_{GS}, I_D=-250 \mu A$	-0.55	-	-1.5	V
Drain to Source On Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-2.8A$ (Note2)	-	65	76	m
		$V_{GS}=-2.5V, I_D=-2.3A$ (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	$t_{d(on)}$	$V_{DD}=-10V, V_{GS}=-4.5V,$ $I_D=-2.8A, R_G=6$ (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 <300 μs , Duty cycle < 2%						

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Fig1. $I_D - V_{DS}$

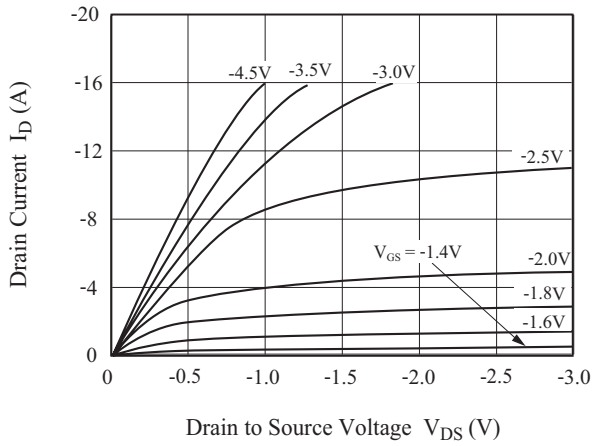


Fig2. $R_{DS(ON)} - I_D$

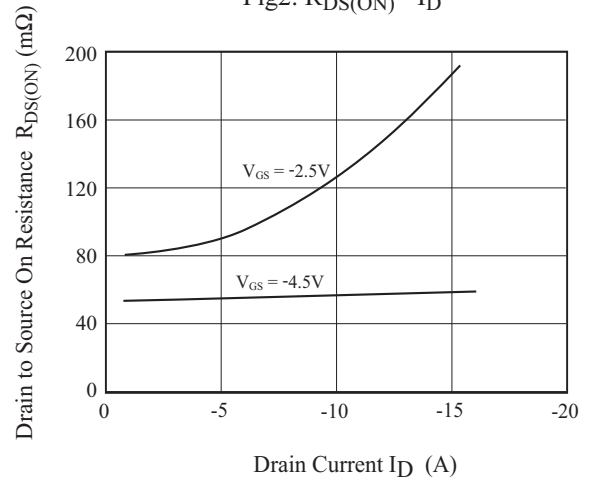


Fig3. $I_D - V_{GS}$

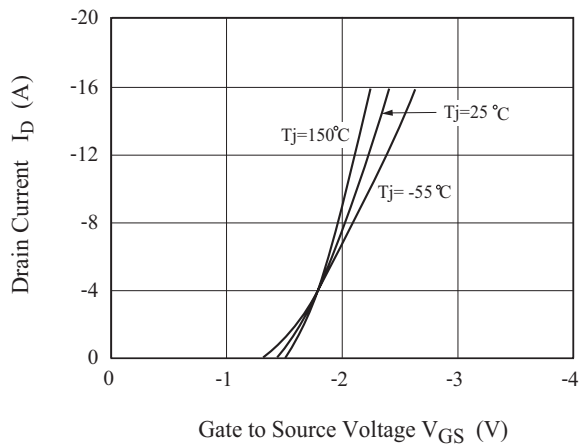


Fig4. $R_{DS(ON)} - T_j$

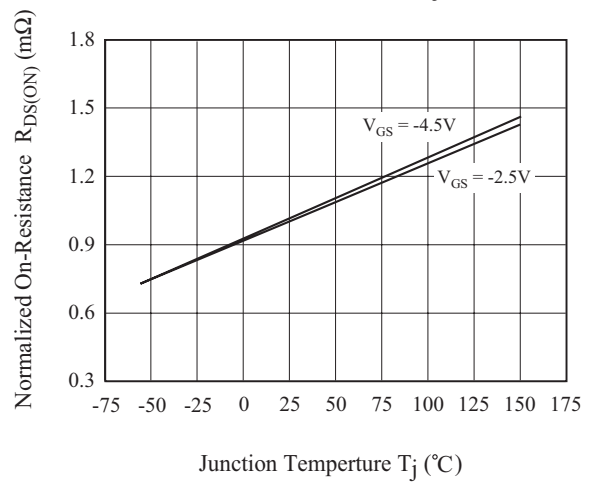


Fig5. $V_{th} - T_j$

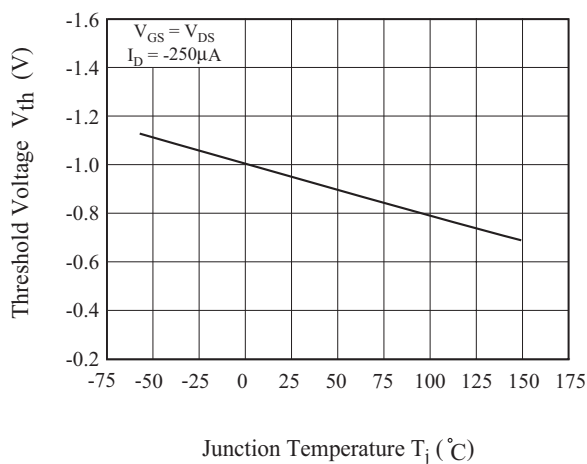
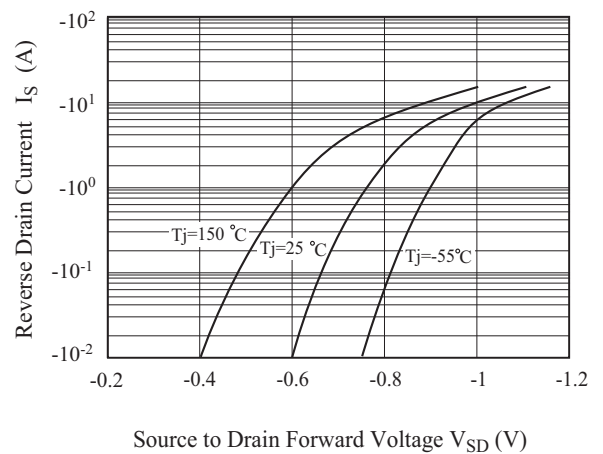


Fig6. $I_S - V_{SD}$



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

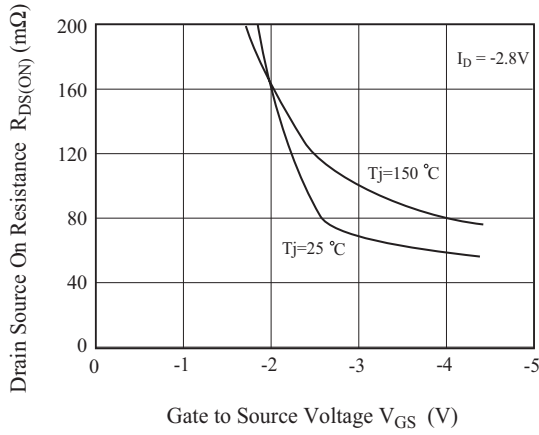


Fig8. $C - V_{DS}$

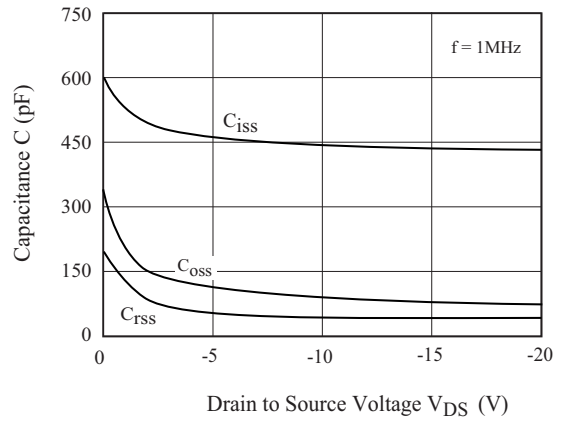


Fig9. $Q_g - V_{GS}$

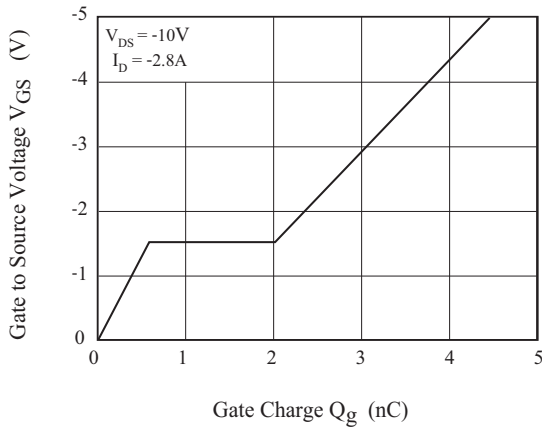


Fig10. Safe Operation Area

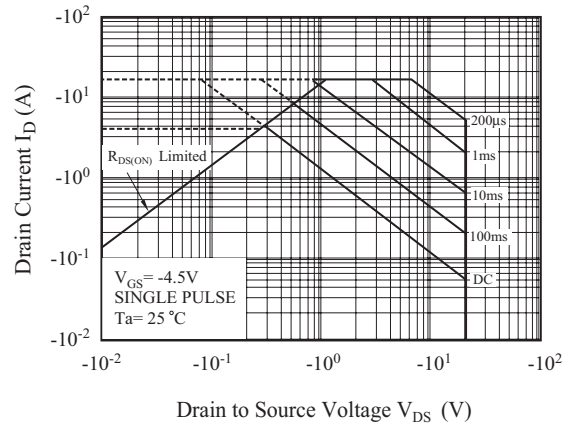


Fig10. Transient Thermal Response Curve

