

General Description

It is mainly suitable for use as a load switch in battery powered applications.

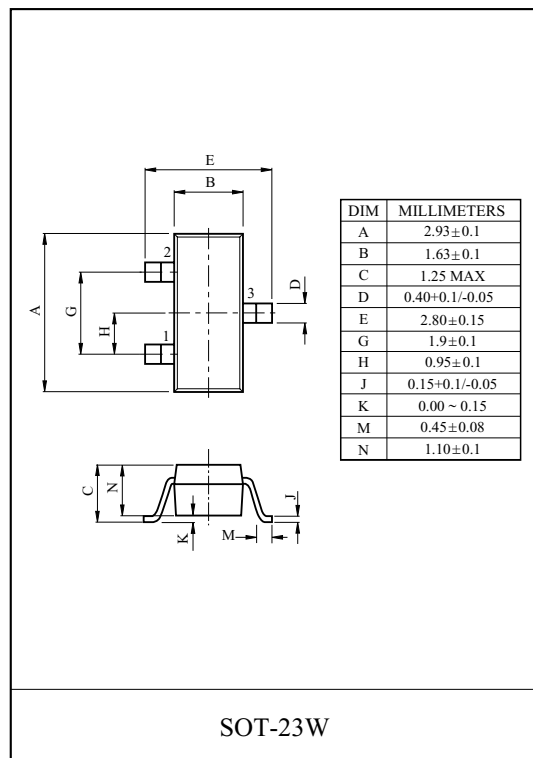
FEATURES

- $V_{DS} = -20V$, $I_D = -2.3A$.
- Drain-Source ON Resistance.
 - : $R_{DS(ON)} = 130m\ \Omega$ (Max.) @ $V_{GS} = -4.5V$.
 - : $R_{DS(ON)} = 190m\ \Omega$ (Max.) @ $V_{GS} = -2.5V$.

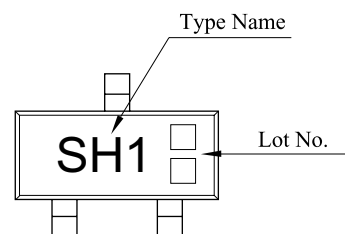
MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 10	V
Drain Current	DC	I_D^*	-2.3	A
	Pulsed (Note1)	I_{DP}^*	-8	
Source-Drain Diode Current		I_S^*	-1.25	A
Drain Power Dissipation	Ta=25 °C	P_D^*	1.25	W
Maximum Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55 ~ 150	°C
Thermal Resistance, Junction to Ambient		R_{thJA}^*	100	°C/W

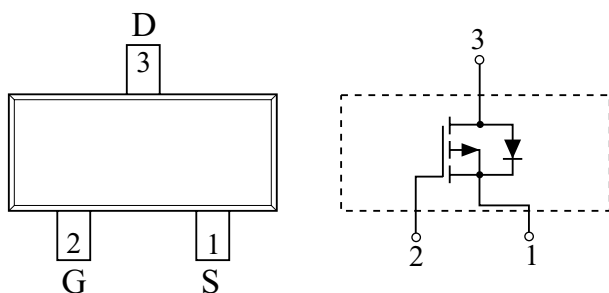
* : Surface Mounted on 1" × 1" FR4 Board



Marking



PIN CONNECTION (TOP VIEW)



KMA2D3P20S

ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = -250\mu A$, $V_{GS} = 0V$,	-20	-	-	V
Drain Cut-off Current	I_{DSS}	$V_{GS} = 0V$, $V_{DS} = -16V$	-	-	-1	μA
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 10V$, $V_{DS} = 0V$	-	-	± 100	nA
Gate Threshold Voltage	V_{th}	$V_{DS} = V_{GS}$, $I_D = -250\mu A$ (Note 1)	-0.5	-0.8	-1.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	$V_{GS} = -4.5V$, $I_D = -2.3A$ (Note 1)	-	115	130	m Ω
		$V_{GS} = -2.5V$, $I_D = -1.0A$ (Note 1)	-	175	190	
ON State Drain Current	$I_{D(ON)}$	$V_{GS} = -4.5V$, $V_{DS} = -5V$ (Note 1)	-5	-	-	A
Forward Transconductance	g_{fs}	$V_{DS} = -5V$, $I_D = -2.3A$ (Note 1)	-	6	-	S
Source-Drain Diode Forward Voltage	V_{SD}	$V_{GS} = 0V$, $I_S = -1.25A$ (Note 1)	-	-0.85	-1.2	V
Dynamic (Note 2)						
Total Gate Charge	Q_g	$V_{DS} = -10V$, $I_D = -2.3A$ $V_{GS} = -4.5V$ (Fig.1)	-	3.2	-	nC
Gate-Source Charge	Q_{gs}		-	0.7	-	
Gate-Drain Charge	Q_{gd}		-	0.8	-	
Turn-on Delay time	$t_{d(on)}$	$V_{DS} = -10V$, $I_D = -1A$ $V_{GS} = -4.5V$, $R_G = 6\Omega$ (Fig.2)	-	9.8	-	ns
Turn-on Rise time	t_r		-	10.8	-	
Turn-off Delay time	$t_{d(off)}$		-	79.1	-	
Turn-off Fall time	t_f		-	41.3	-	
Input Capacitance	C_{iss}	$V_{DS} = -20V$, $V_{GS} = 0V$ $f = 1.0MHz$	-	290	-	pF
Output Capacitance	C_{oss}		-	60	-	
Reverse Trancefer Capacitance	C_{rss}		-	45	-	

Note 1) Pulse test : Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Note 2) Guaranteed by design. Not subject to production testing.

Fig1. $I_D - V_{DS}$

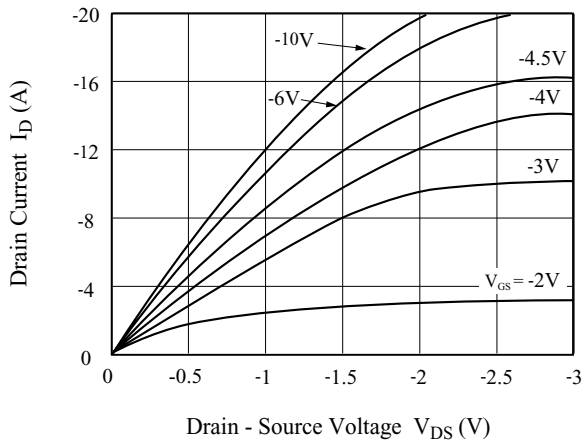


Fig2. $I_D - V_{GS}$

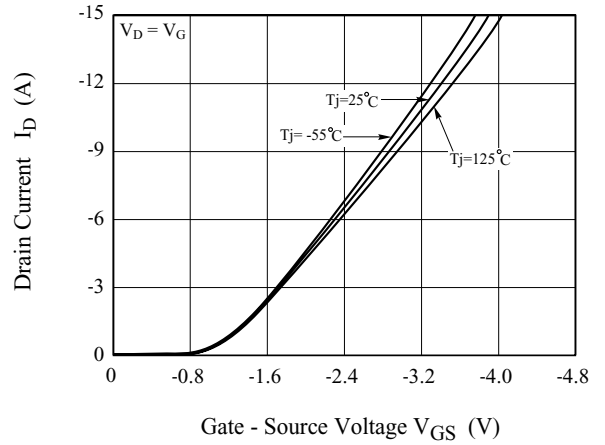


Fig3. $V_{th} - T_J$

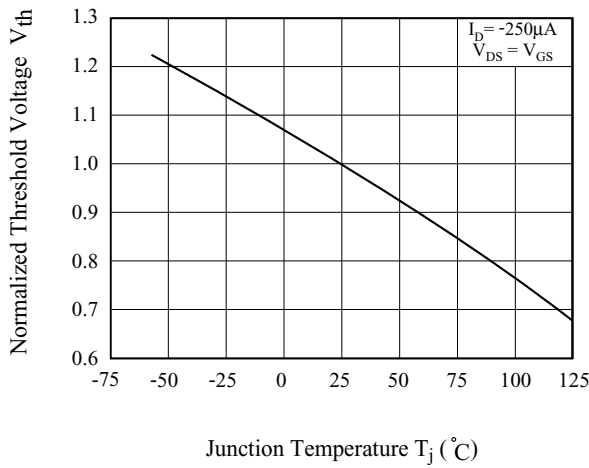


Fig4. $I_S - V_{SD}$

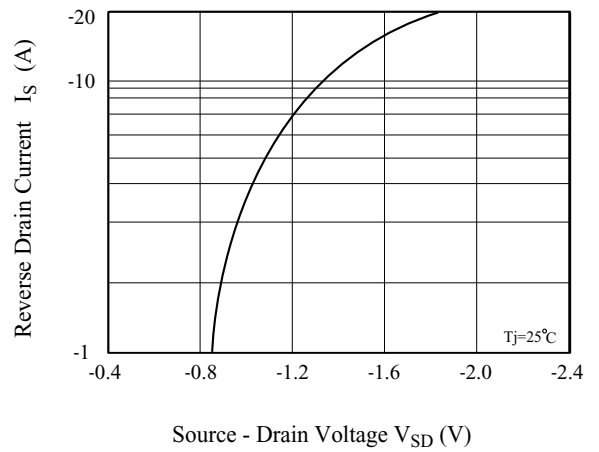


Fig5. $R_{DS(ON)} - T_J$

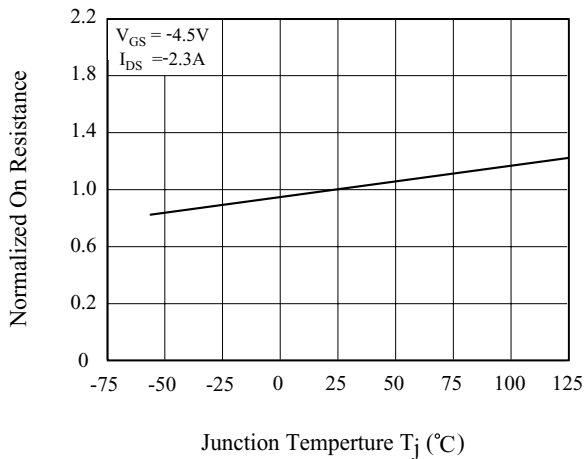
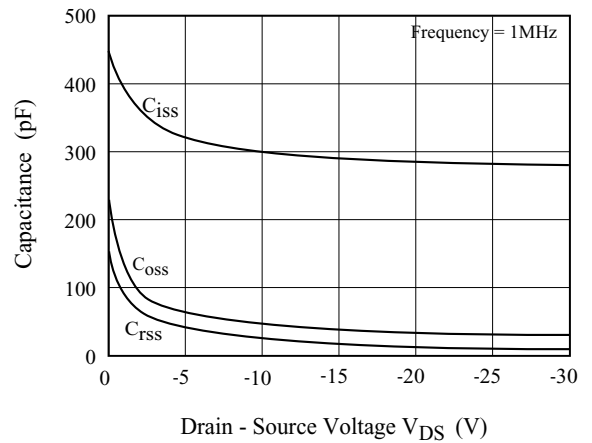


Fig6. $C - V_{DS}$



KMA2D3P20S

Fig7. $Q_g - V_{GS}$

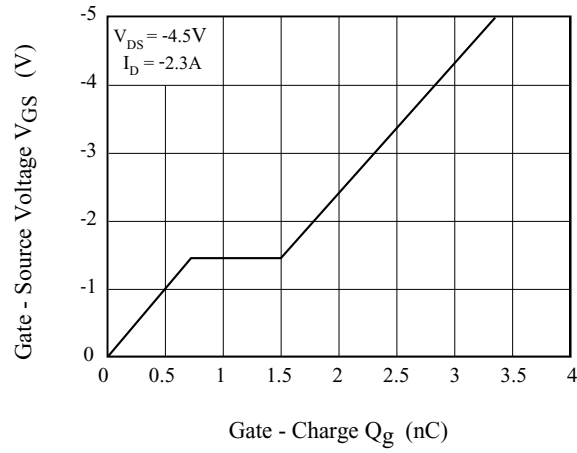


Fig8. Safe Operation Area

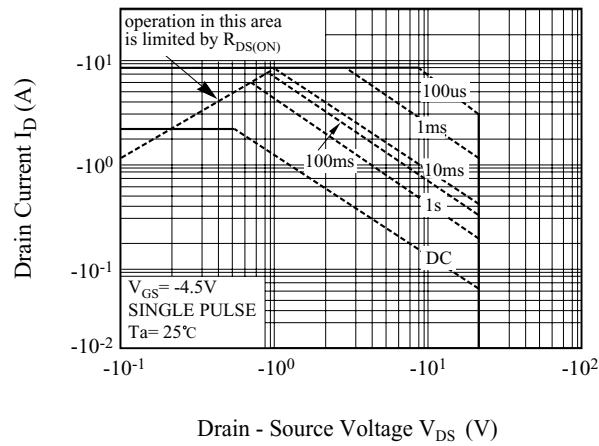


Fig9. Transient Thermal Response Curve

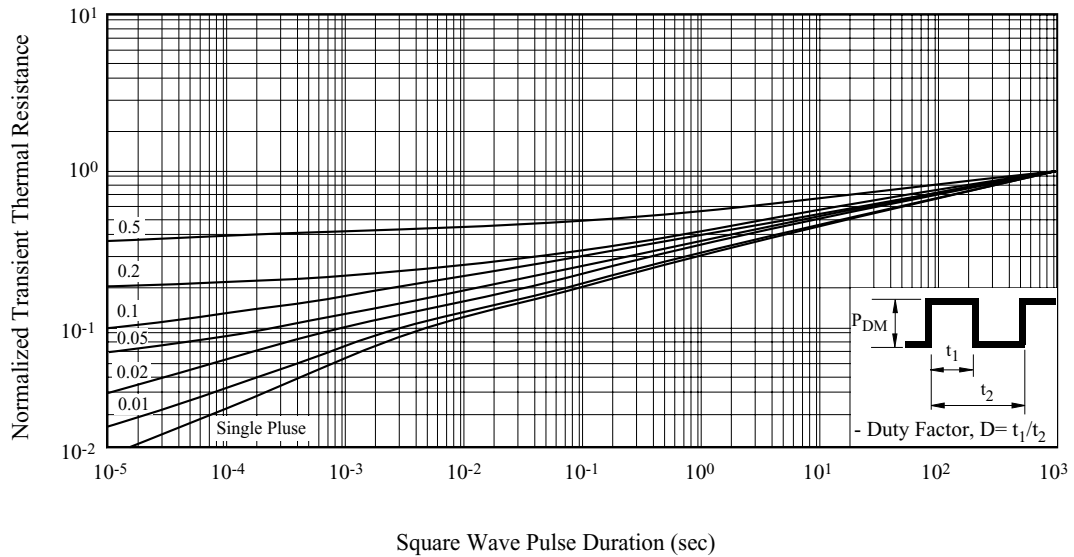


Fig10. Gate Charge

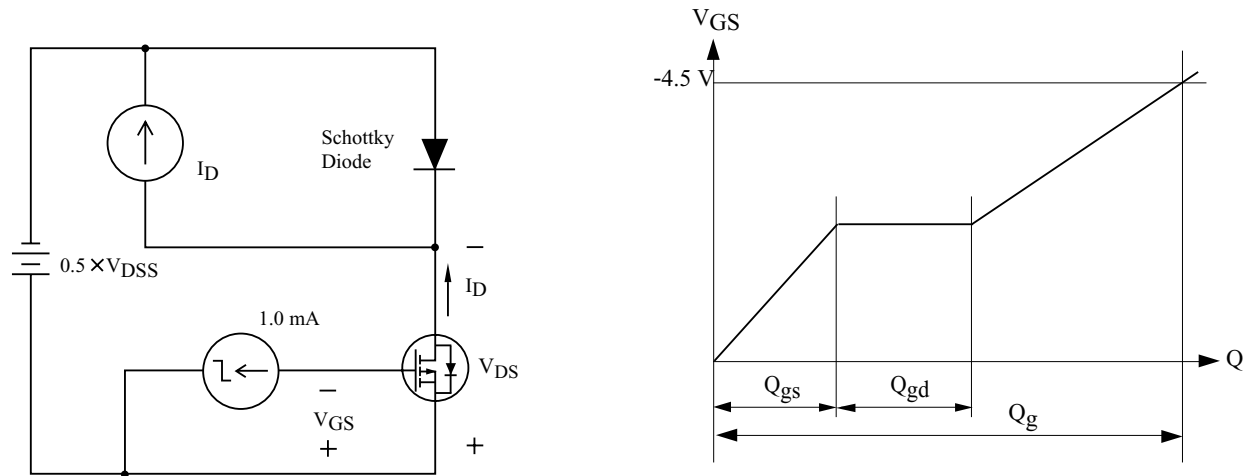


Fig11. Resistive Load Switching

