

General Description

It is mainly suitable for Load Switching Mobile Phones, Battery Powered Systems and Level-Shifter.

FEATURES

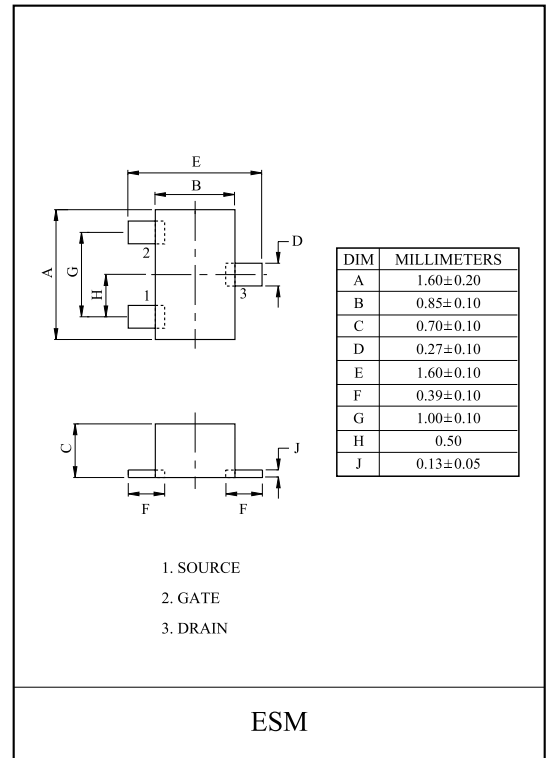
- $V_{DSS}=20V$, $I_D=0.4A$
- Drain-Source ON Resistance
 - : $R_{DS(ON)}=0.70$ @ $V_{GS}=4.5V$
 - : $R_{DS(ON)}=0.85$ @ $V_{GS}=2.5V$
 - : $R_{DS(ON)}=1.25$ @ $V_{GS}=1.8V$
- Super High Dense Cell Design
- Suffix U: Qualified to AEC-Q101.
ex) KML0D4N20E-RTK/HU

MAXIMUM RATING (Ta=25 °C)

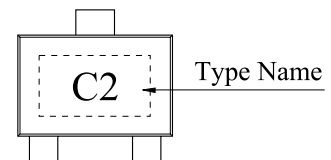
CHARACTERISTIC		SYMBOL	N-Ch	UNIT
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	± 6	V
Drain Current	DC @ $T_A=25$ (Note 1)	I_D	400	mA
	DC @ $T_A=85$ (Note 1)		330	
	Pulsed (Note 1)	I_{DP}	1600	
Drain Power Dissipation (Note 2)		P_D	210	mW
Maximum Junction Temperature		T_j	150	
Storage Temperature Range		T_{stg}	-55 150	
Thermal Resistance, Junction to Ambient (Note 2)		R_{thJA}	600	/W

Note 1) Drain current limited by maximum junction temperature.

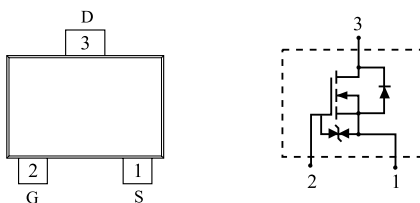
Note 2) Surface Mounted on 1" x 1" FR4 Board.



Marking



PIN CONNECTION (TOP VIEW)



KML0D4N20E

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}	$V_{GS}=0V, V_{DS}=20V$	-	-	100	nA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 4.5V, V_{DS}=0V$	-	-	± 1.0	μA
Gate Threshold Voltage	V_{th}	$V_{DS}=V_{GS}, I_D=250\ \mu A$	0.45	-	1.0	V
Drain-Source ON Resistance	$R_{DS(ON)}^*$	$V_{GS}=4.5V, I_D=400mA$ (Note 3)	-	0.41	0.70	
		$V_{GS}=2.5V, I_D=350mA$ (Note 3)	-	0.53	0.85	
		$V_{GS}=1.8V, I_D=300mA$ (Note 3)	-	0.70	1.25	
Forward Transconductance	g_{fs}^*	$V_{DS}=5V, I_D=400mA$ (Note 3)	-	1.0	-	S
Source-Drain Diode Forward Voltage	V_{SD}^*	$I_S=150mA, V_{GS}=0V$ (Note 3)	-	0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g^*	$V_{DS}=10V, I_D=400mA, V_{GS}=4.5V$ (Note 3)	-	555	-	pC
Gate-Source Charge	Q_{gs}^*		-	50	-	
Gate-Drain Charge	Q_{gd}^*		-	100	-	
Turn-on Delay time	$t_{d(on)}^*$	$V_{DD}=10V, I_D=400mA, V_{GS}=4.5V, R_G=10$ (Note 3)	-	5	-	ns
Turn-on Rise time	t_r		-	3	-	
Turn-off Delay time	$t_{d(off)}^*$		-	13	-	
Turn-off Fall time	t_f		-	7	-	
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1.0MHz$	-	43	-	pF
Output Capacitance	C_{oss}		-	15	-	
Reverse Transfer Capacitance	C_{rss}		-	6	-	

Note 3) *Pulse test : Pulse width 300 μs , Duty Cycle 2%.

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Fig 1. $I_D - V_{DS}$

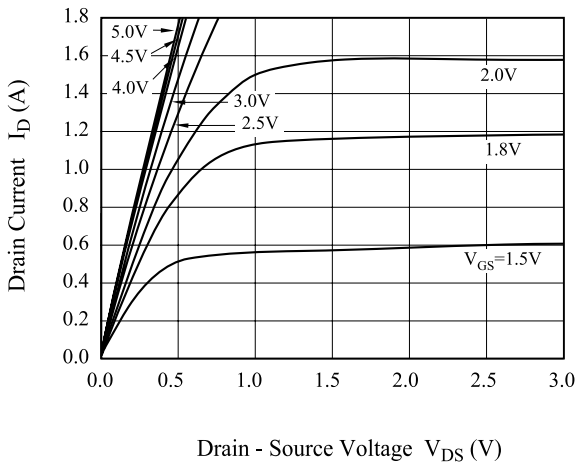


Fig 2. $R_{DS(on)} - I_D$

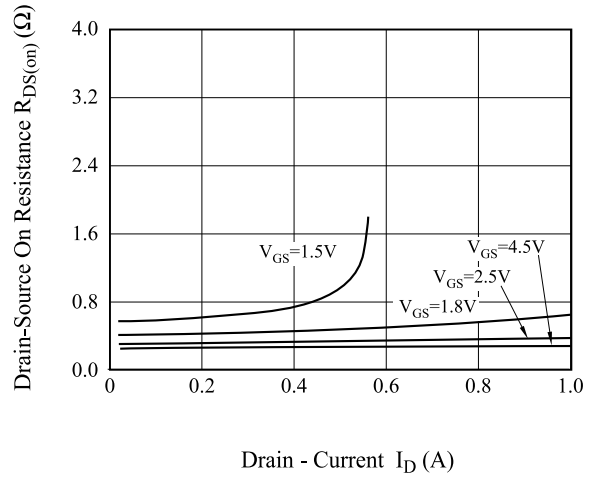


Fig 3. $I_D - V_{GS}$

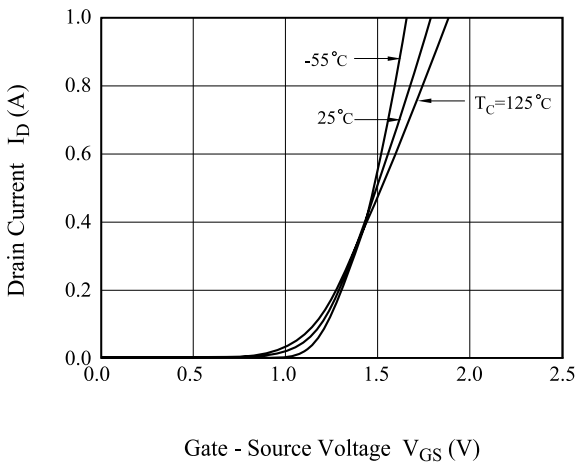


Fig 4. $R_{DS(ON)} - T_j$

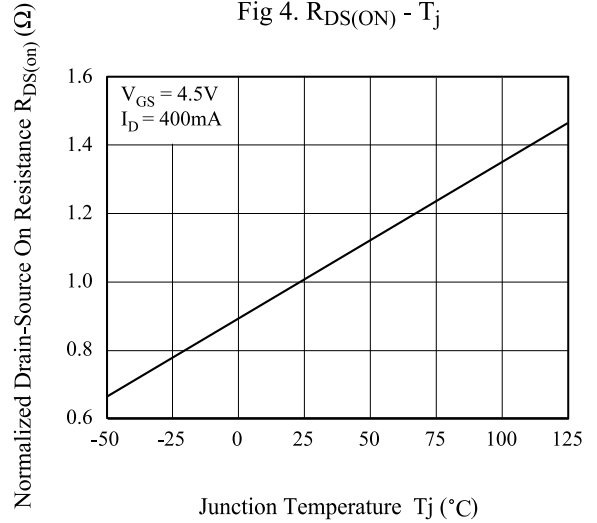


Fig 5. $V_{th} - T_j$

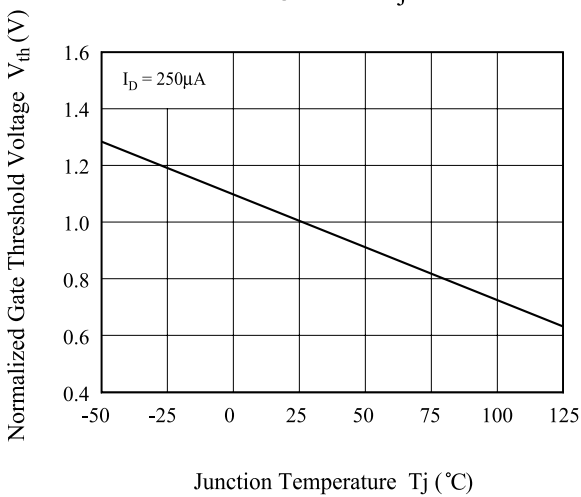
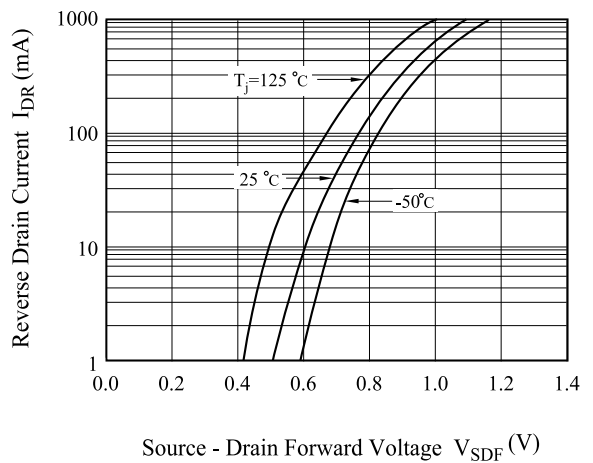


Fig 6. $I_{DR} - V_{SDF}$



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Fig 7. $V_{GS} - Q_g$

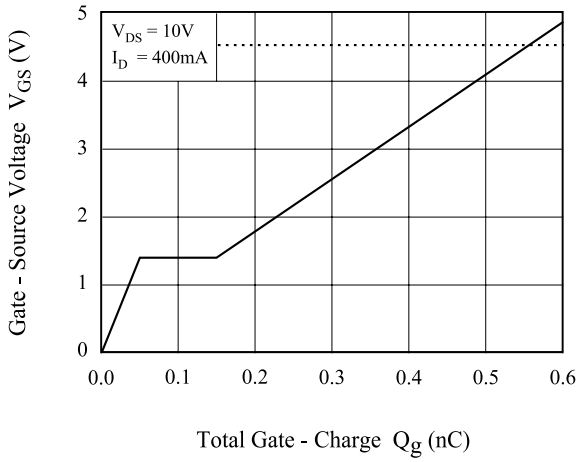


Fig 8. $C - V_{DS}$

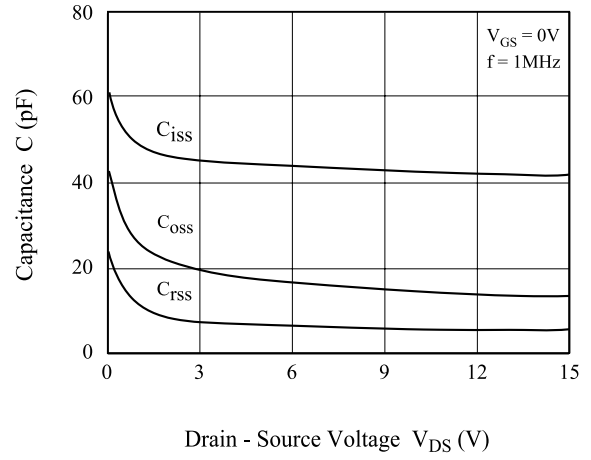


Fig 9. Transient Thermal Response Curve

