KMC6D5CN20CA

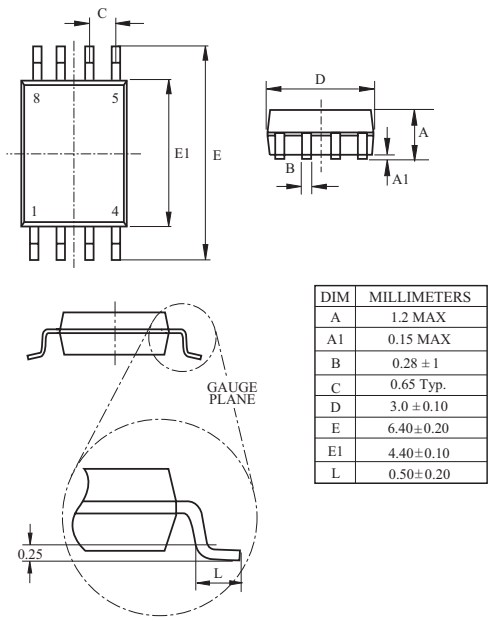
Common N-Ch Trench MOSFET

General Description

This Device is a Dual N-Channel MOSFET designed for use as a bi-directional load switch, facilitated by its commom-drain configuration.
It 's mainly suitable for Li-ion battery pack.

FEATURES

· V_{DSS}=20V, I_D=6.5A.
· Low Drain to Source On Resistance.
: $R_{DS(ON)}$=24.0m Ω (Max.) @ V_{GS}=4.5V
: $R_{DS(ON)}$=25.0m Ω (Max.) @ V_{GS}=4.0V
: $R_{DS(ON)}$=27.0m Ω (Max.) @ V_{GS}=3.1V
: $R_{DS(ON)}$=32.0m Ω (Max.) @ V_{GS}=2.5V
· ESD Protection.
· Super High Dense Cell Design.



DIM	MILLIMETERS
A	1.2 MAX
A1	0.15 MAX
B	0.28 ± 1
C	0.65 Typ.
D	3.0 ± 0.10
E	6.40± 0.20
E1	4.40± 0.10
L	0.50± 0.20

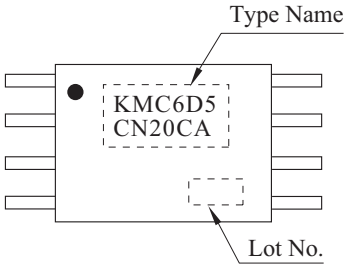
TSSOP-8

MAXIMUM RATING (Ta=25℃)

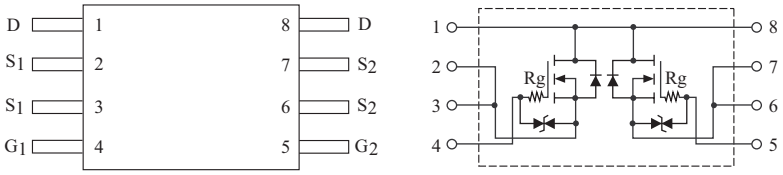
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain to Source Voltage		V_{DSS}	20	V
Gate to Source Voltage		V_{GSS}	±12	V
Drain Current	DC@Ta = 25℃(Note1)	I_D	6.5	A
	Pulsed	I_{DP}	26	
Drain Power Dissipation	@Ta = 25℃(Note1)	P_D	1.5	W
Maximum Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	-55～150	℃
Thermal Resistance, Junction to Ambient(Note1)		R_{thJA}	83.3	℃/W

Note 1) Surface Mounted on 1 ″ × 1 ″ FR4 Board, t≤10sec

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㎂	20	-	-	V
Drain Cut-off Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	㎂
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±10	㎂
Gate Threshold Voltage	V_{th}	V_{DS}=V_{GS}, I_D=250㎂	0.5	-	1.5	V
Drain to Source On Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=3.0A (Note2)	-	21.5	24.0	mΩ
		V_{GS}=4.0V, I_D=3.0A (Note2)	-	22.5	25.0	
		V_{GS}=3.1V, I_D=3.0A (Note2)	-	24.5	27.0	
		V_{GS}=2.5V, I_D=3.0A (Note2)	-	28.5	32.0	
Gate Resistance	R_g	f=1MHz	-	2.5	-	kΩ
Forward Transconductance	g_{fs}	V_{DS}=5V, I_D=6.5A (Note2)	-	28	-	S
Dynamic						
Total Gate Charge	Q_g	V_{DS}=10V, I_D=6.5A V_{GS}=4.0V (Note2)	-	4.6	-	nC
Gate to Source Charge	Q_{gs}		-	1.0	-	
Gate to Drain Charge	Q_{gd}		-	2.6	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=10V, V_{GS}=4.0V I_D=4.0A, R_G=6Ω (Note2)	-	1.0	-	㎲
Turn-On Rise Time	t_r		-	1.8	-	
Turn-Off Delay Time	$t_{d(off)}$		-	7.0	-	
Turn-Off Fall Time	t_f		-	6.0	-	
Source to Drain Diode Ratings						
Source to Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1.7A (Note2)	-	0.8	1.2	V

Note2) Pulse test : Pulse width ≤300㎲, Duty Cycle ≤2%.

Fig 1. I_D - V_{DS}

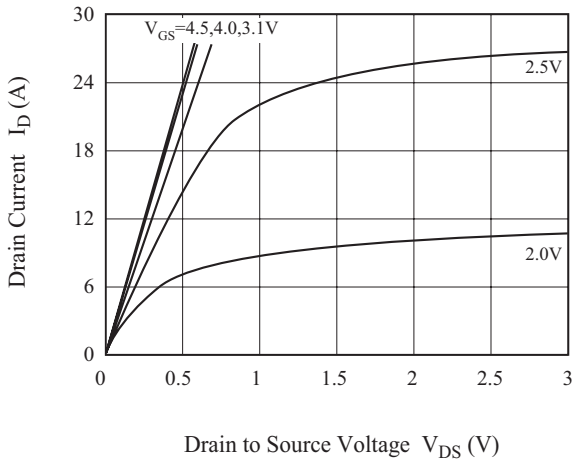


Fig 2. $R_{DS(ON)}$ - I_D

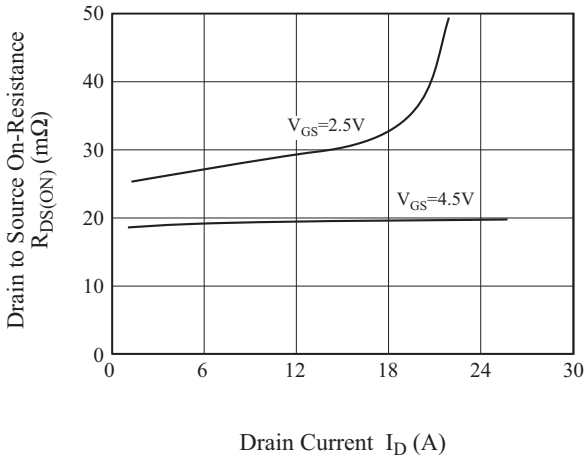


Fig 3. I_D - V_{GS}

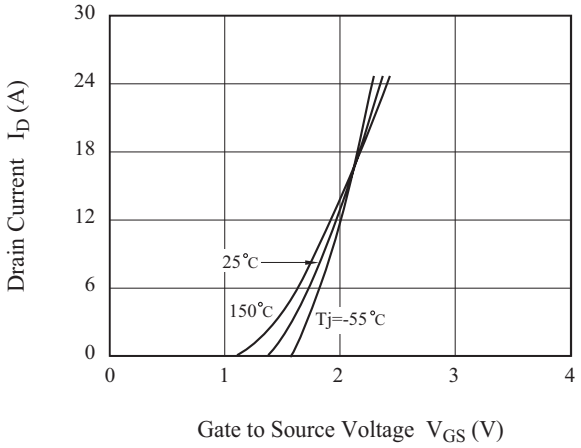


Fig 4. $R_{DS(ON)}$ - T_j

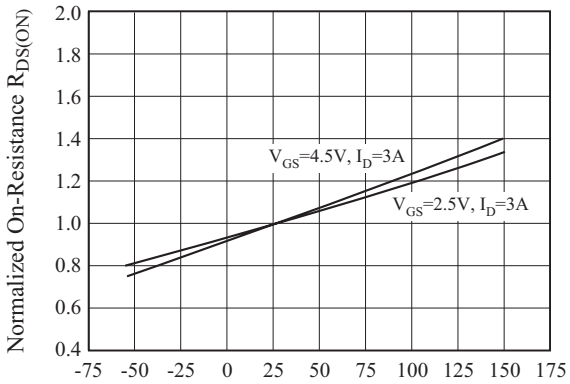


Fig 5. V_{th} - T_j

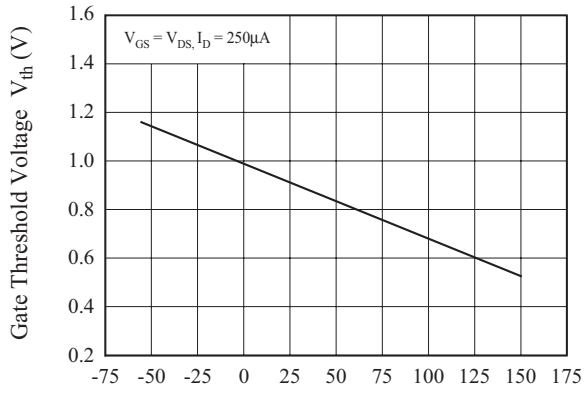


Fig 6. I_S - V_{SD}

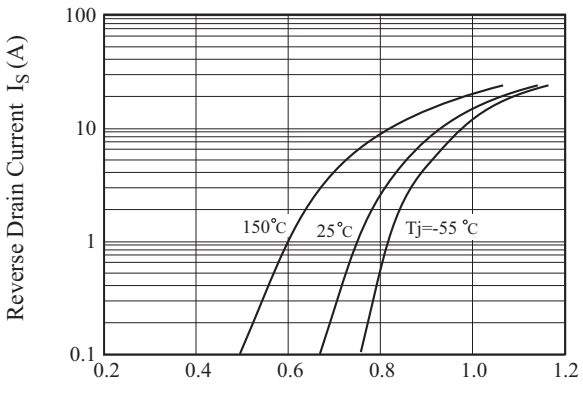


Fig7. $R_{DS(ON)}$ - V_{GS}

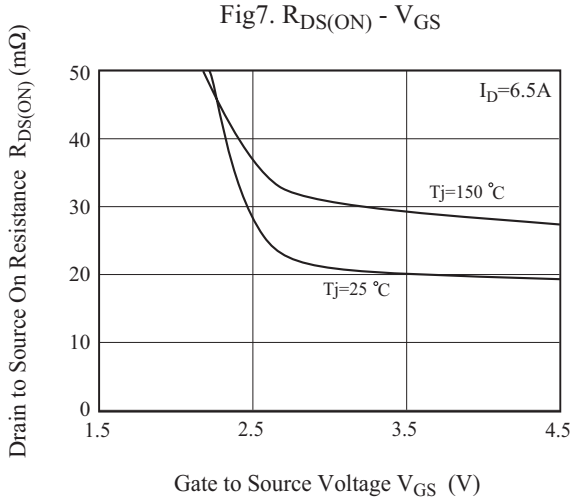


Fig8. C - V_{DS}

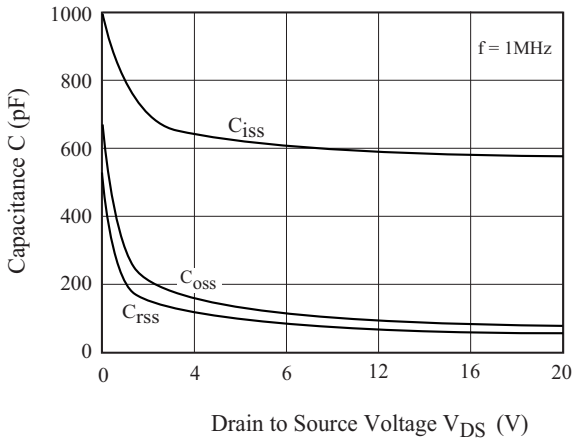


Fig9. Q_g - V_{GS}

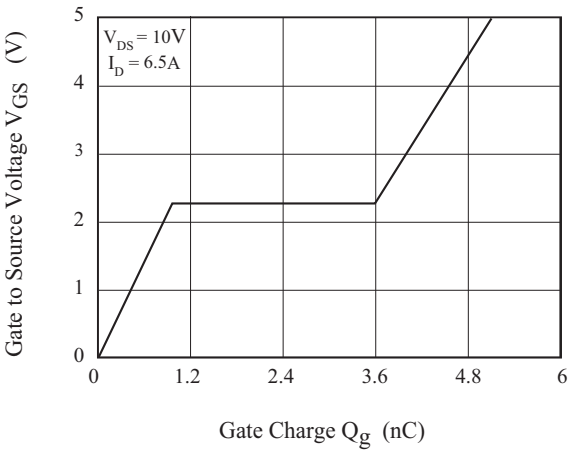


Fig10. Safe Operation Area

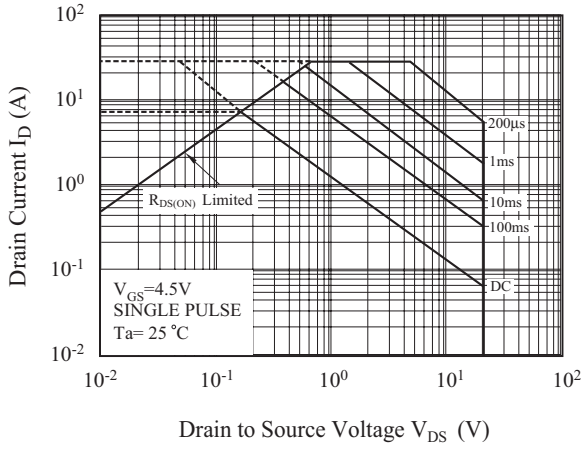


Fig10. Transient Thermal Response Curve