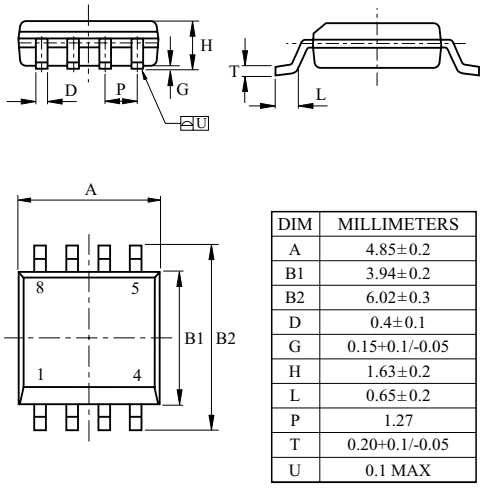
GENERAL DESCRIPTION

This Trench MOSFET has better characteristics, such as fast switching time, low on resistance, low gate charge and excellent avalanche characteristics. It is mainly suitable for power management in PC, portable equipment and battery powered systems.

FEATURES

- V_{DSS}=40V, I_D=7A.
- Drain to Source on Resistance.
  $R_{DS(ON)}$=25mΩ (Max.) @V_{GS}=10V
  $R_{DS(ON)}$=45mΩ (Max.) @V_{GS}=4.5V



DIM	MILLIMETERS
A	4.85±0.2
B1	3.94±0.2
B2	6.02±0.3
D	0.4±0.1
G	0.15+0.1/-0.05
H	1.63±0.2
L	0.65±0.2
P	1.27
T	0.20+0.1/-0.05
U	0.1 MAX

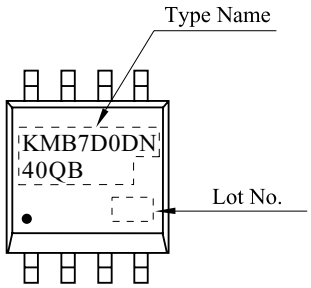
FLP-8

Maximum Ratings (Ta=25℃ Unless otherwise noted)

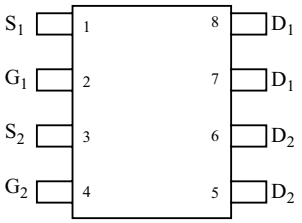
CHARACTERISTIC		SYMBOL	PATING	UNIT
Drain to Source Voltage		V_{DSS}	40	V
Gate to Source Voltage		V_{GSS}	±20	V
Drain Current	T_a=25℃ (Note1)	I_D	7	A
	Pulsed	I_{DP}	36	A
Drain to Source Diode Forward Current		I_S	7	A
Drain Power Dissipation	T_a=25℃ (Note1)	P_D	2	W
	T_a=100℃(Note1)		1.44	W
Maximum Junction Temperature		T_j	-55~150	℃
Storage Temperature Range		T_{stg}	-55~150	℃
Thermal Resistance, Junction to Ambient(Note1)		R_{thJA}	62.5	℃/W

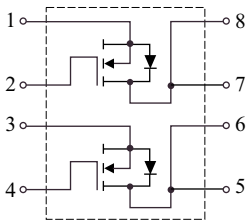
Note1) Surface Mounted on 1 ×1 FR4 Board., t≤10sec

Marking



PIN CONNECTION (TOP VIEW)





ELECTRICAL CHARACTERISTICS (Ta=25℃) **UNLESS OTHERWISE NOTED**

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain to Source Breakdown Voltage	BV_{DSS}	I_D=250 μA, V_{GS}=0V	40	-	-	V
Drain Cut-off Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V	-	-	1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Gate to Source Threshold Voltage	V_{th}	V_{DS}=V_{GS}, I_D=250 μA	1	1.8	2.5	V
Drain to Source on Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=7A (Note2)	-	20	25	mΩ
		V_{GS}=4.5V, I_D=7A (Note2)	-	35	45	
On-State Drain Current	$I_{D(ON)}$	V_{DS}=5V, V_{GS}=10V (Note2)	15	-	-	A
Forward Transconductance	g_{fs}	V_{DS}=5V, I_D=3.5A (Note2)	-	11	-	S
Dynamic						
Input Capaclitance	C_{iss}	V_{DS}=20V, f=1MHz, V_{GS}=0V	-	560	-	pF
Ouput Capacitance	C_{oss}		-	105	-	
Reverse Transfer Capacitance	C_{rss}		-	55	-	
Total Gate Charge	Q_g	V_{DS}=20V, V_{GS}=4.5V, I_D=7A (Note2)	-	7.8	-	nC
Gate to Source Charge	Q_{gs}		-	4.0	-	
Gate to Drain Charge	Q_{gd}		-	2.6	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=20V, V_{GS}=10V I_D=7A, R_G=3.3Ω (Note2)	-	13	-	ns
Turn-On Rise Time	t_r		-	11	-	
Turn-Off Delay Time	$t_{d(off)}$		-	26	-	
Turn-Off Fall Time	t_f		-	11	-	
Source to Drain Diode Ratings						
Source to Drain Forward Voltage	V_{SD}	I_S=7A, V_{GS}=0V (Note2)	-	0.85	1.2	V
Note2) Pulse Test : Pulse width ≤ 10μs , Duty cycle ≤ 1%						

Fig1. I_D - V_{DS}

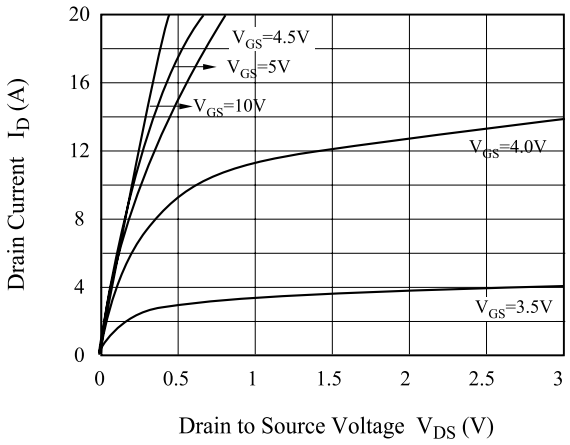


Fig2. $R_{DS(on)}$ - I_D

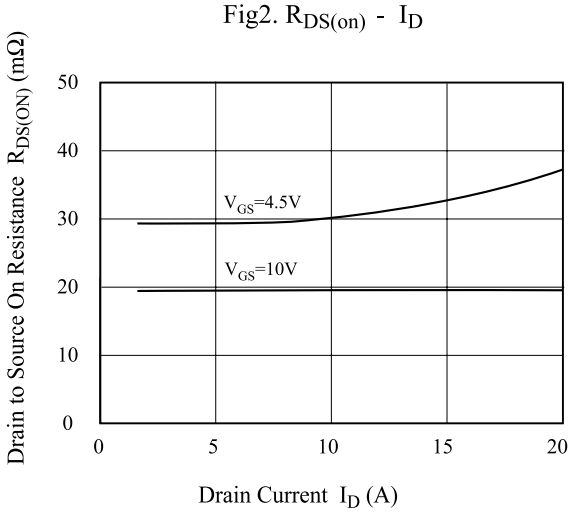


Fig3. I_D - V_{GS}

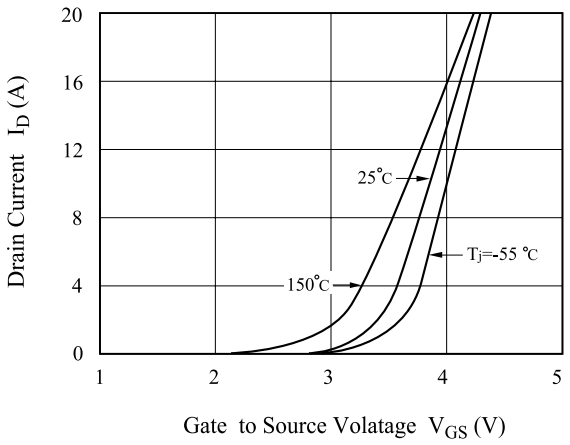


Fig4. $R_{DS(on)}$ - T_j

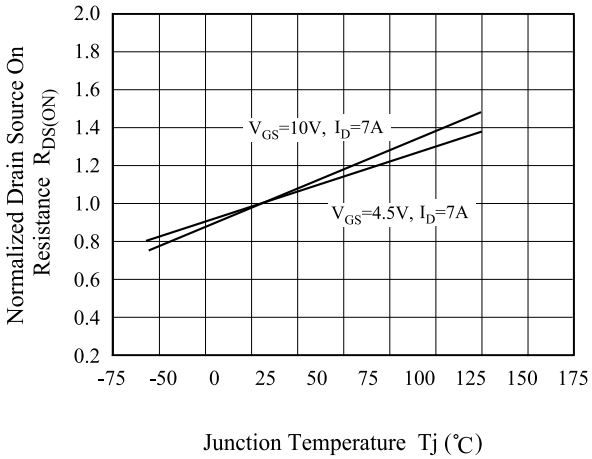


Fig5. V_{th} - T_j

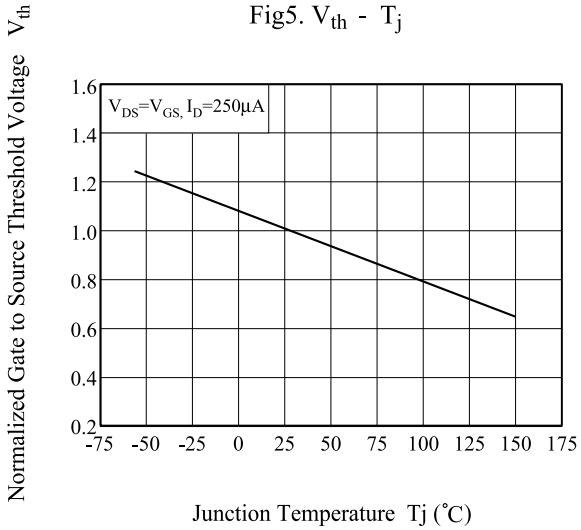


Fig6. I_S - V_{SD}

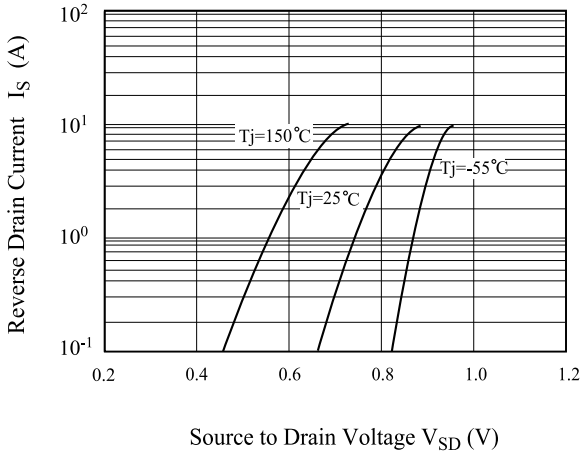


Fig 7. C - V_{DS}

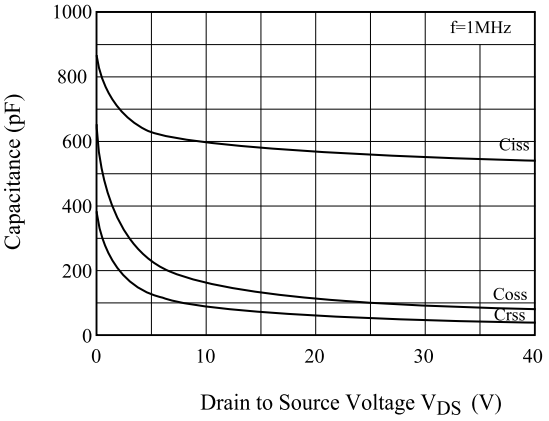


Fig 8. V_{GS} - Qg

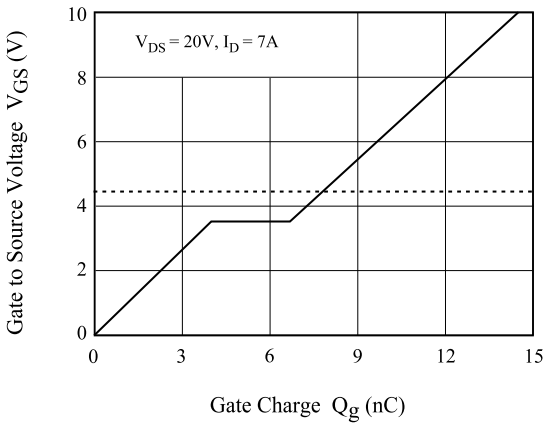


Fig9. Safe Operation Area

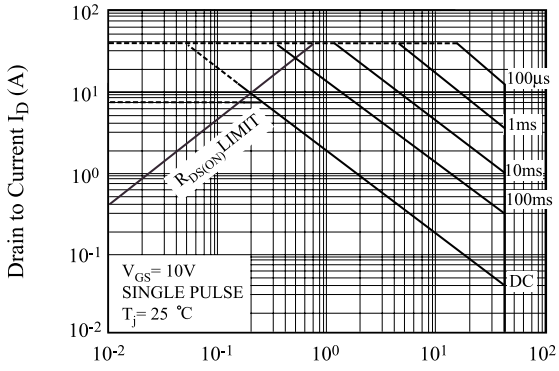


Fig10. Transient Thermal Response Curve

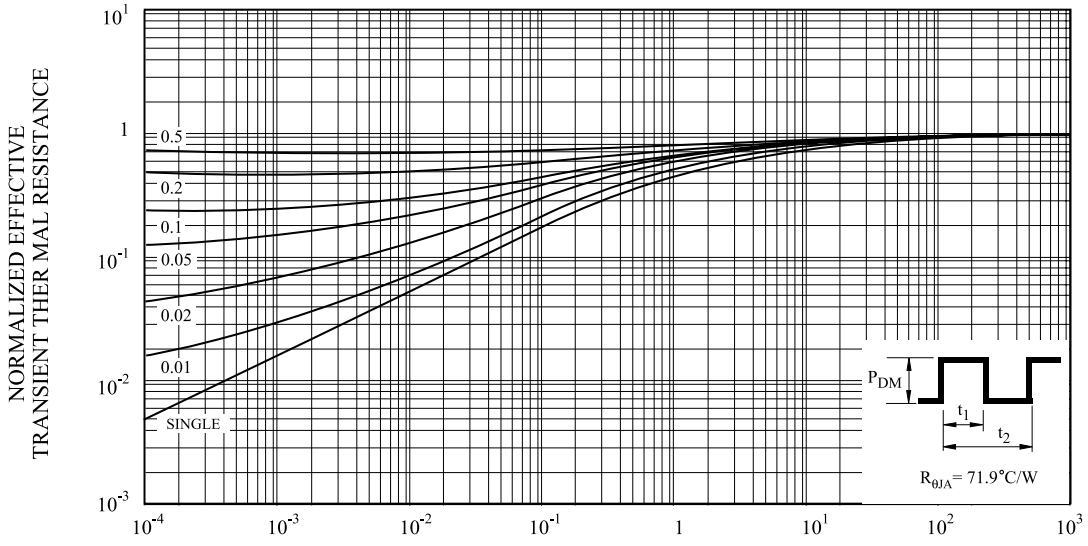
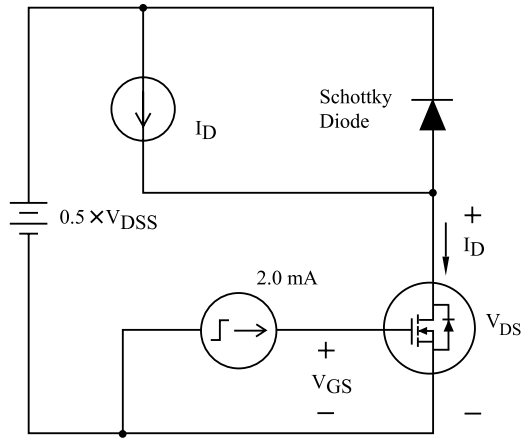


Fig.7 Gate Charge Circuit and Wave Form



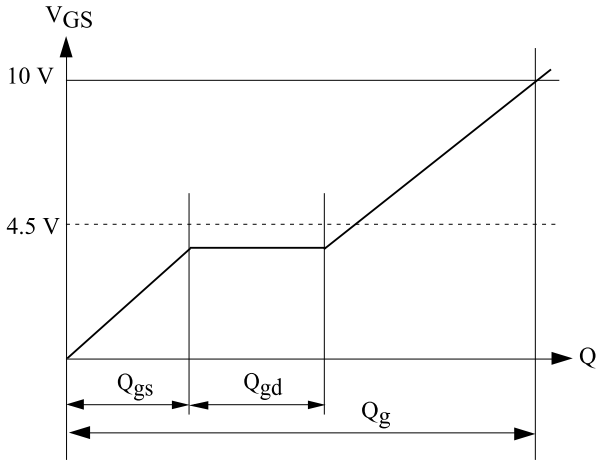


Fig.8 Resistive Load Switching