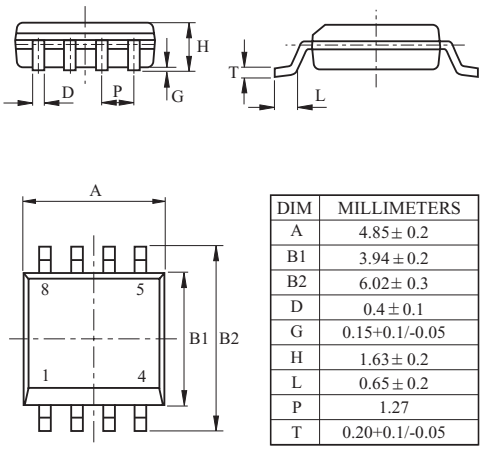
KMD7D5P40QA

P-Ch Trench MOSFET

GENERAL DESCRIPTION

This Trench MOSFET has better characteristics, such as low on resistance, low gate charge and excellent avalanche characteristiscs. It is mainly suitable for battery protection circuit.



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

FLP-8

FEATURES

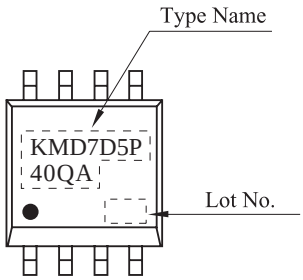
- V_{DSS}=-40V, I_D=-7.5A.
- Drain-Source ON Resistance.
  $R_{DS(ON)}$=30mΩ(Max.) @ V_{GS}=-10V
  $R_{DS(ON)}$=37mΩ(Max.) @ V_{GS}=-4.5V
- Super High Dense Cell Design

MOSFET Maximum Ratings (Ta=25℃ Unless otherwise noted)

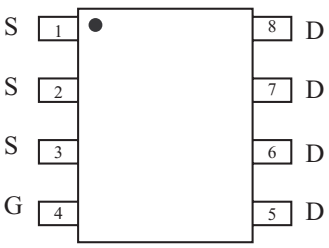
CHARACTERISTIC		SYMBOL	PATING	UNIT
Drain Source Voltage		V_{DSS}	-40	V
Gate Source Voltage		V_{GSS}	±20	V
Drain Current	DC@Ta=25℃	I_D*	-7.5	A
	Pulsed	I_{DP}	-30	A
Drain Source Diode Forward Current		I_S	-30	A
Drain Power Dissipation	DC@Ta=25℃	P_D*	2.0	W
Maximum Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	-55~150	℃
Thermal Resistance, Junction to Ambient		R_{thJA}*	62.5	℃/W

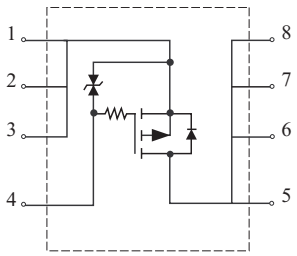
Note : *Surface Mounted on 1”× 1” FR4 Board, t≤10sec

Marking



PIN CONNECTION (TOP VIEW)





ELECTRICAL CHARACTERISTICS (Ta=25℃) UNLESS OTHERWISE NOTED

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_{DS}=-250 μA	-40	-	-	V
Drain Cut-off Current	I_{DSS}	V_{DS}=-40V, V_{GS}=0V	-	-	-10	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±10	μA
Gate Threshold Voltage	V_{th}	V_{DS}=$V_{GS,}$ I_D=-250 μA	-1.0	-	-3.0	V
Drain-Source ON Resistance	$R_{DS(ON)*}$	V_{GS}=-10V, I_D=-3.8A	-	24	30	mΩ
		V_{GS}=-4.5V, I_D=-3.8A	-	29	37	
Forward Transconductance	g_{fs*}	V_{DS}=-10V, I_D=-3.8A	-	1.2	-	S
Dynamic						
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	-	6	-	kΩ
Total Gate Charge	Q_{g*}	V_{DS}=-32V, V_{GS}=-10V, I_D=-7.5A	-	27	-	nC
Gate-Source Charge	Q_{gs*}		-	3.2	-	
Gate-Drain Charge	Q_{gd*}		-	8.1	-	
Turn-On Delay Time	$t_{d(on)*}$	V_{DD}=-20V, V_{GS}=-10V I_D=-7.5A, R_g=4.7Ω	-	3.4	-	μs
Turn-On Rise Time	t_{r*}		-	3.9	-	
Turn-Off Delay Time	$t_{d(off)*}$		-	1.4	-	
Turn-Off Fall Time	t_{f*}		-	7.7	-	
Source-Drain Diode Ratings						
Source-Drain Forward Voltage	V_{SDF*}	V_{GS}=0V, I_{DR}=-7.5A,	-	-	-1.2	V
Note) *Pulse Test : Pulse width ≤ 300μs , Duty cycle ≤ 2%						

Fig1. I_D - V_{DS}

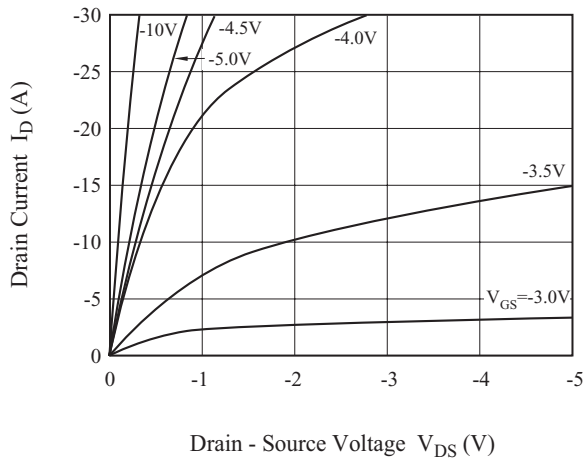


Fig2. $R_{DS(ON)}$-I_D

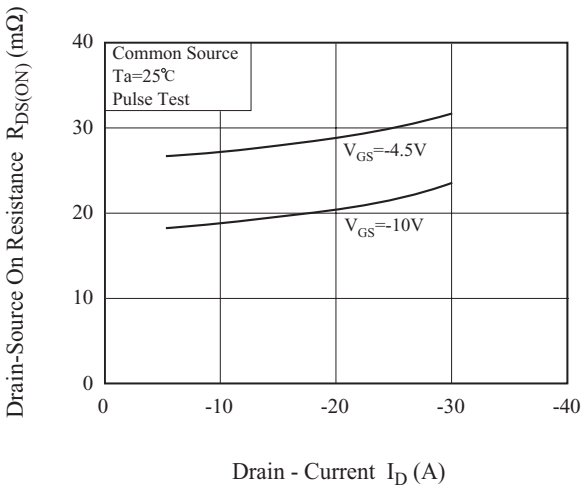


Fig3. I_D - V_{GS}

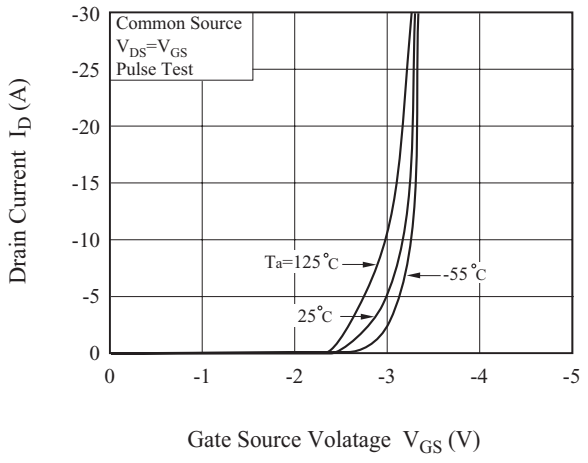


Fig4. $R_{DS(on)}$ - T_j

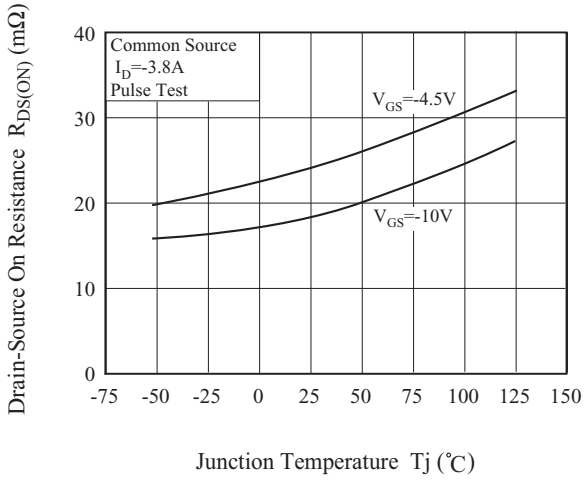


Fig5. V_{th} - T_j

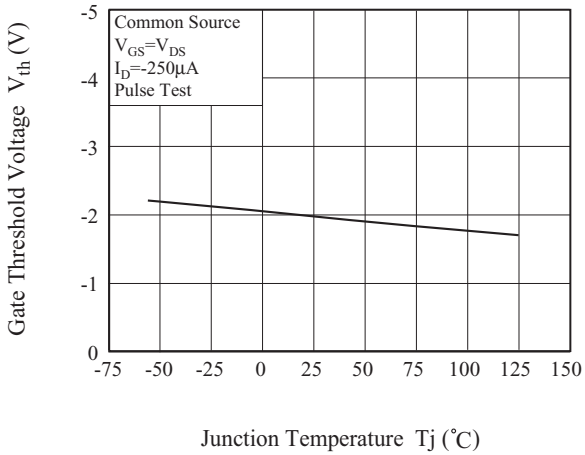


Fig6. I_S - V_{SDF}

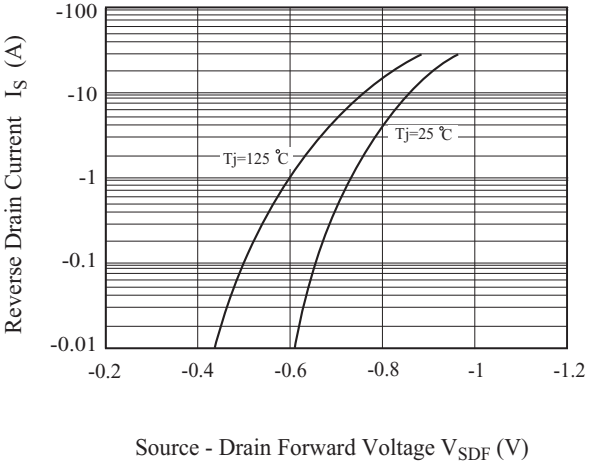


Fig7. Q_g - V_{GS}

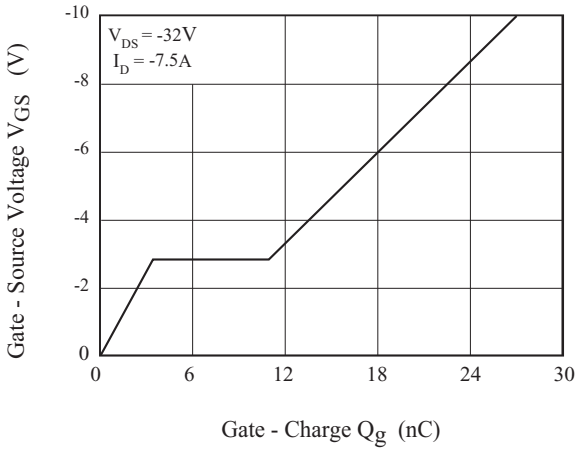


Fig8. Safe Operation Area

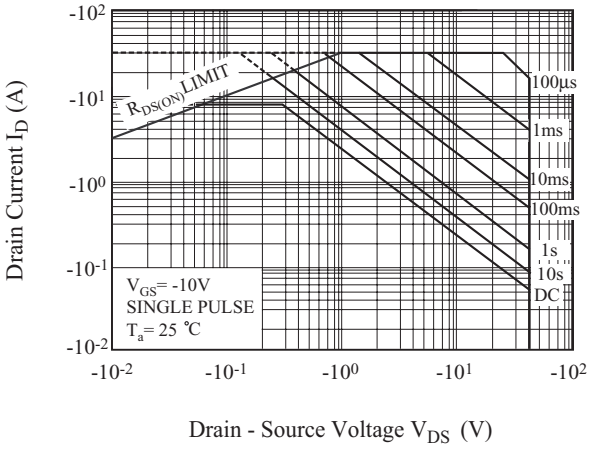


Fig9. Transient Thermal Response Curve