

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 Load Switch and Battery pack.

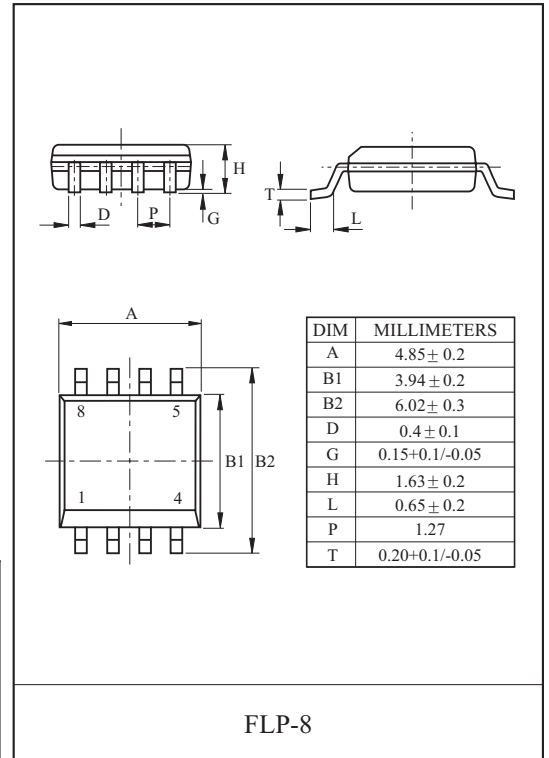
FEATURES

- $V_{DSS} = -30V$, $I_D = -8A$.
- Drain to Source On Resistance.
 - $R_{DS(ON)} = 20m\ \Omega$ (Max.) @ $V_{GS} = -10V$
 - $R_{DS(ON)} = 35m\ \Omega$ (Max.) @ $V_{GS} = -4.5V$

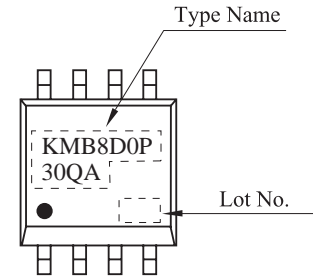
MOSFET Maximum Ratings ($T_a = 25\ ^\circ C$ Unless otherwise noted)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain to Source Voltage		V_{DSS}	30	V
Gate to Source Voltage		V_{GSS}	± 20	V
Drain Current	DC @ $T_a = 25\ ^\circ C$ (Note 1)	I_D	-8	A
	Pulsed	I_{DP}	-40	A
Drain Power Dissipation	@ $T_a = 25\ ^\circ C$ (Note 1)	P_D	2.5	W
Maximum Junction Temperature		T_j	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55~150	$^\circ C$
Thermal Resistance, Junction to Ambient (Note 1)		R_{thJA}	50	$^\circ C/W$

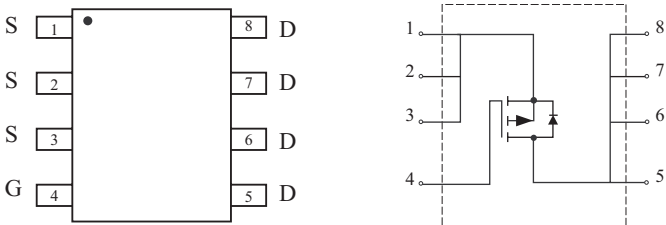
Note1) Surface Mounted on 1 × 1 FR4 Board, $t \leq 10sec$.



Marking



PIN CONNECTION (TOP VIEW)



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ELECTRICAL CHARACTERISTICS (Ta=25 °C) UNLESS OTHERWISE NOTED

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT		
Static								
Drain to Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V		
Drain Cut-off Current	I_{DSS}	$V_{GS}=0V, V_{DS}=-24V$	-	-	-1	μA		
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA		
Gate to Source Threshold Voltage	V_{th}	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-	-3.0	V		
Drain to Source On Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-8A$ (Note2)	-	15	20	m Ω		
		$V_{GS}=-4.5V, I_D=-5A$ (Note2)	-	25	35			
Forward Transconductance	g_{fs}	$V_{DS}=-5V, I_D=-8A$ (Note2)	-	6	-	S		
Dynamic								
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$ (Note2)	-	1371	-	pF		
Output Capacitance	C_{oss}		-	295	-			
Reverse Transfer Capacitance	C_{rss}		-	176	-			
Total Gate Charge	$V_{GS}=10V$	$V_{DS}=-15V, V_{GS}=-10V, I_D=-8A$ (Note2)	-	28.2	-	nC		
	$V_{GS}=4.5V$		-	15.0	-			
Gate to Source Charge	Q_{gs}		-	5.0	-			
Gate to Drain Charge	Q_{gd}		-	6.4	-			
Turn-On Delay Time	$t_{d(on)}$		$V_{DS}=-15V, V_{GS}=-10V$ $I_D=-8A, R_G=1.6\Omega$ (Note2)	-	11.2		-	ns
Turn-On Rise Time	t_r			-	5.8		-	
Turn-Off Delay Time	$t_{d(off)}$	-		65.0	-			
Turn-Off Fall Time	t_f	-		25.0	-			
Source to Drain Diode Ratings								
Source to Drain Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-1.7A$ (Note2)	-	-0.75	-1.2	V		
Note2) Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$								

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Fig1. $I_D - V_{DS}$

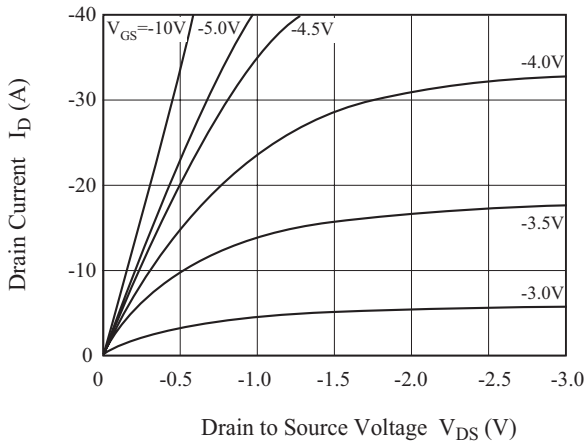


Fig2. $R_{DS(on)} - I_D$

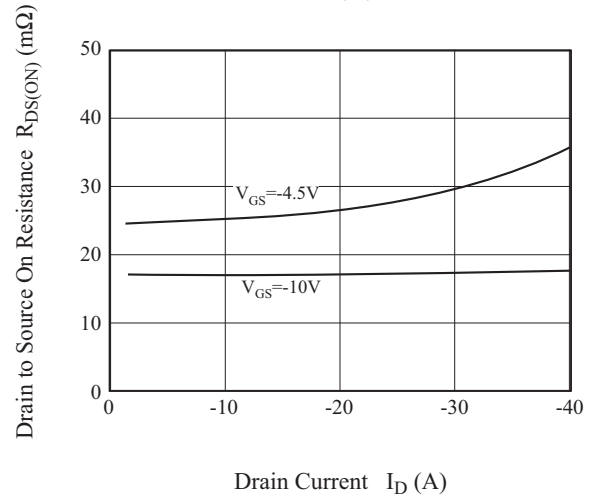


Fig3. $I_D - V_{GS}$

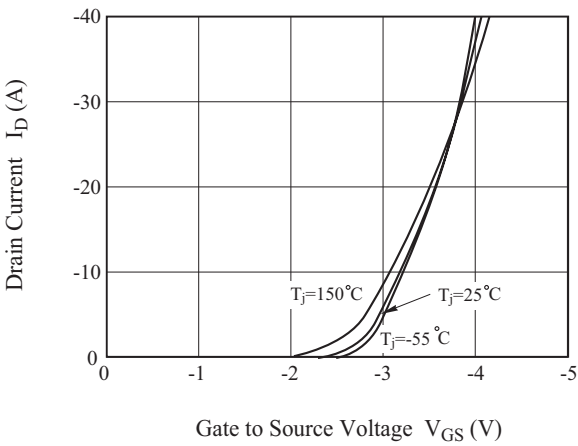


Fig4. $R_{DS(ON)} - T_j$

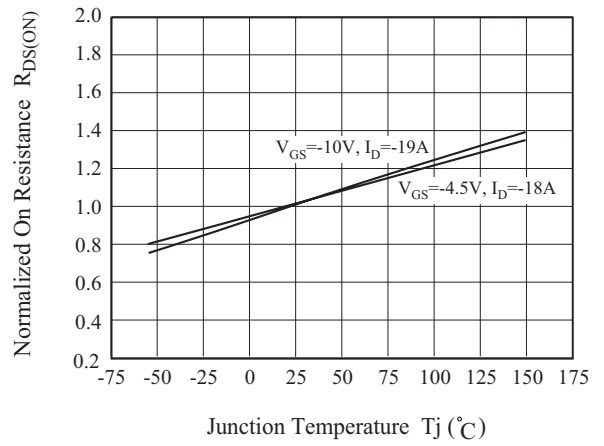


Fig5. $V_{th} - T_j$

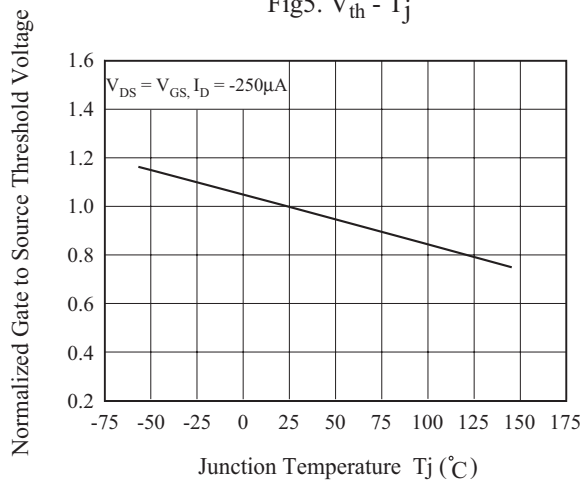
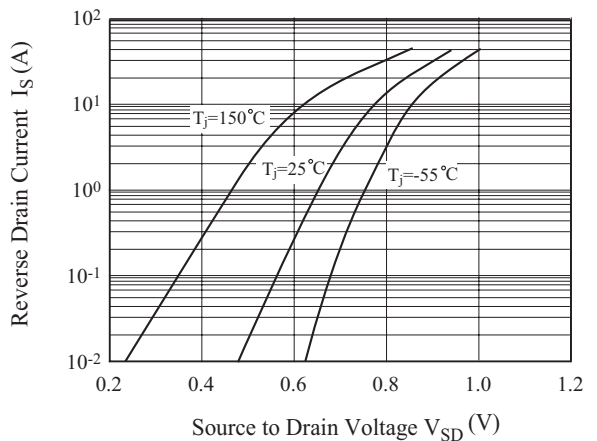


Fig6. $I_S - V_{SD}$



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