

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 DC/DC Converter and Battery pack..

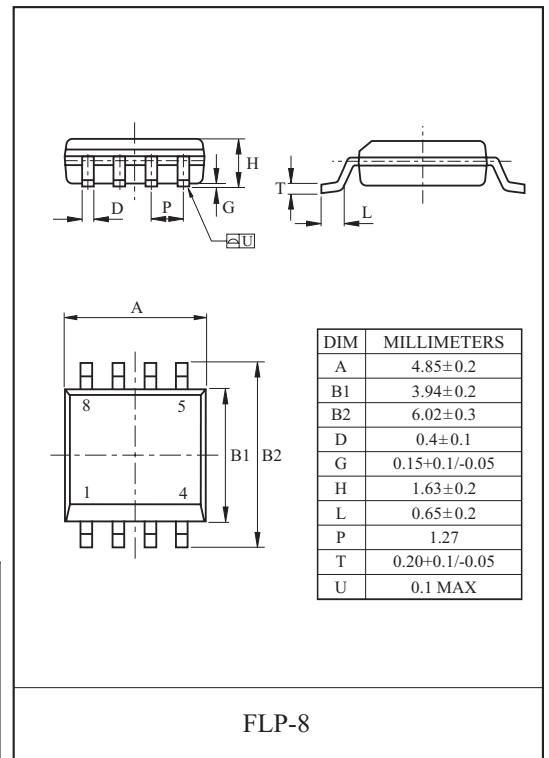
FEATURES

- $V_{DSS}=30V$, $I_D=12A$.
- Drain to Source On Resistance.
 - $R_{DS(ON)}=7m\Omega$ (Max.) @ $V_{GS}=10V$
 - $R_{DS(ON)}=11m\Omega$ (Max.) @ $V_{GS}=4.5V$

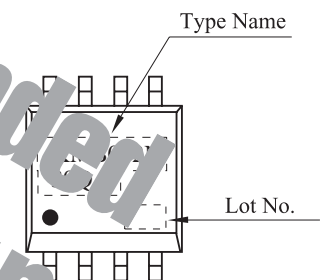
MOSFET Maximum Ratings (Ta=25°C Unless otherwise noted)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain to Source Voltage		V_{DSS}	30	V
Gate to Source Voltage		V_{GSS}	± 20	V
Drain Current	DC @ $T_J=25^\circ C$ (Note 1)	I_D	12	A
	Pulsed (Note 1)	I_{Dp}		A
Drain Power Dissipation	@ $T_a=25^\circ C$ (Note 1)	P_D		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	$^\circ C/W$

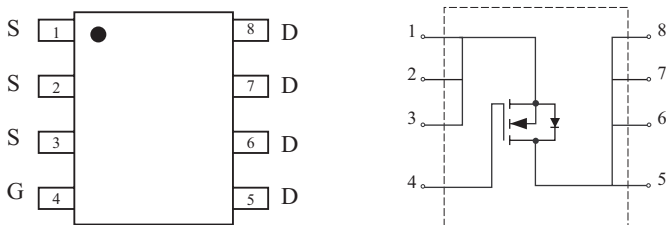
Note1) Surface Mounted on 1" x 1" FR4 Board, $t \leq 10sec$.



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 =250μA	30	-	-	V	
Drain Cut-off Current	I _{DSS}	V _{GS} =0V, V _{DS} =30V	-	-	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 =250μA	1.0	-	3.0	V	
Drain to Source On Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =12A (Note2)	-	6.0	7.0	mΩ	
		V _{GS} =4.5V, I _D =10A (Note2)	-	8.5	11.0		
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =12A (Note2)	-	48	-	S	
Dynamic							
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz (Note2)	-	1310	-	pF	
Output Capacitance	C _{oss}						
Reverse Transfer Capacitance	C _{rss}						
Total Gate Charge	V _{GS} =10V	V _{GS} =10V, V _{DS} =15V, I _D =12A (Note2)	-	27.0	-	nC	
	V _{GS} =4.5V		-	-	-		
Gate to Source Charge	Q _{gs}		-	4.8	-		
Gate to Drain Charge	Q _{gd}		-	6.6	-		
Turn-On Delay Time	t _{d(on)}		-	7.0	-		ns
Turn-On Rise Time	t _r		V _{DS} =15V, V _{GS} =10V	-	7.5		
Turn-Off Delay Time	t _{d(off)}	I _D =12A, R _{DS(ON)} =6Ω (Note2)	-	28.3	-		
Turn-Off Fall Time	t _f	-	-	9	-		
Source to Drain Diode Ratings							
Continuous Source Current	I _S	-	-	-	1.7	A	
Pulsed Source Current	I _{SP}	-	-	-	48		
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 ≤ 300μs, Duty Cycle ≤ 2%							

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Fig1. $I_D - V_{DS}$

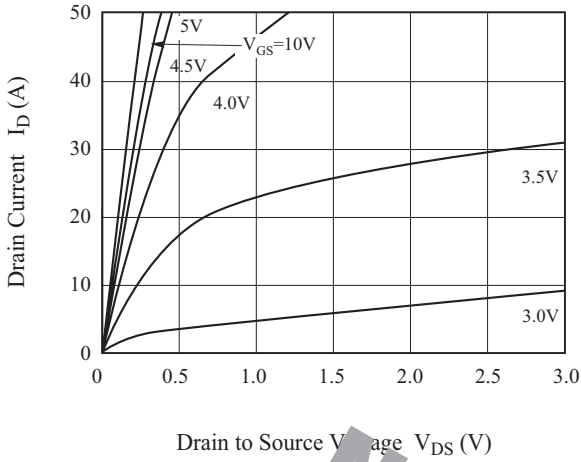


Fig2. $R_{DS(on)} - I_D$

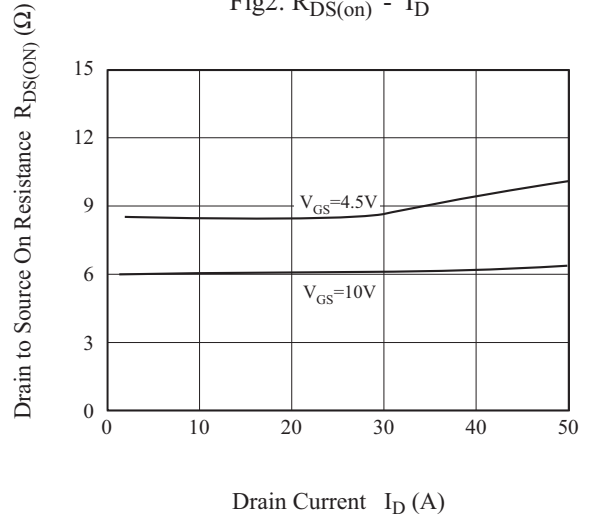


Fig3. $I_D - V_{GS}$

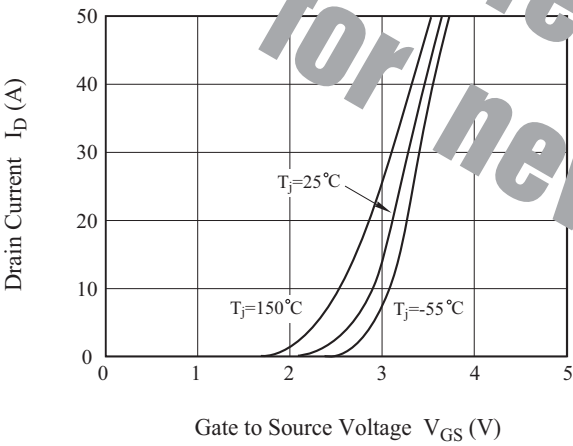


Fig4. $R_{DS(ON)} - T_j$

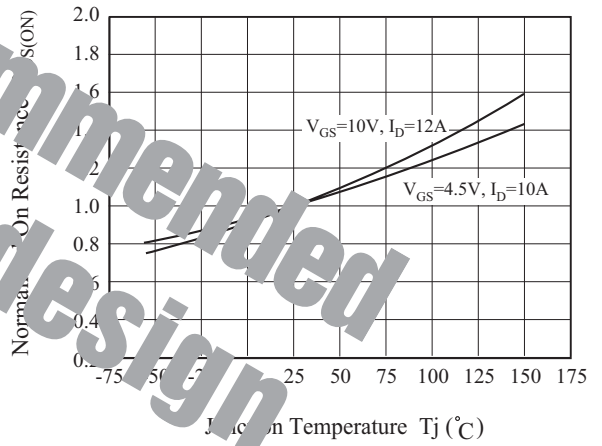


Fig5. $V_{th} - T_j$

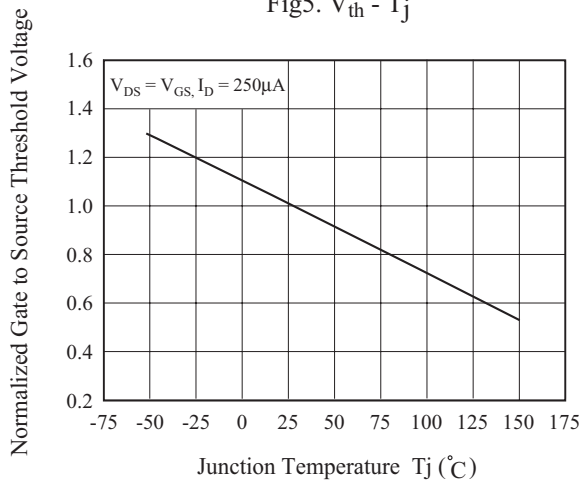
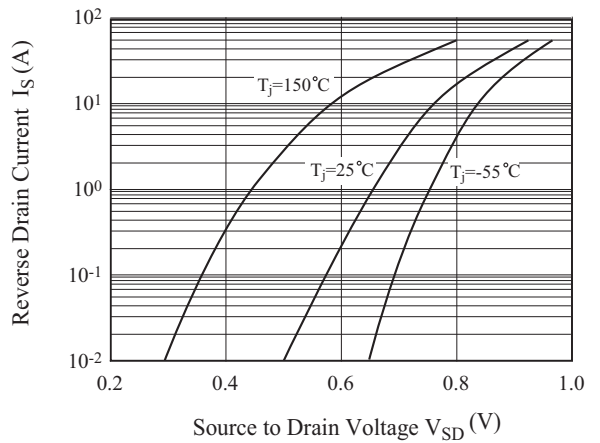


Fig6. $I_S - V_{SD}$



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