

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.

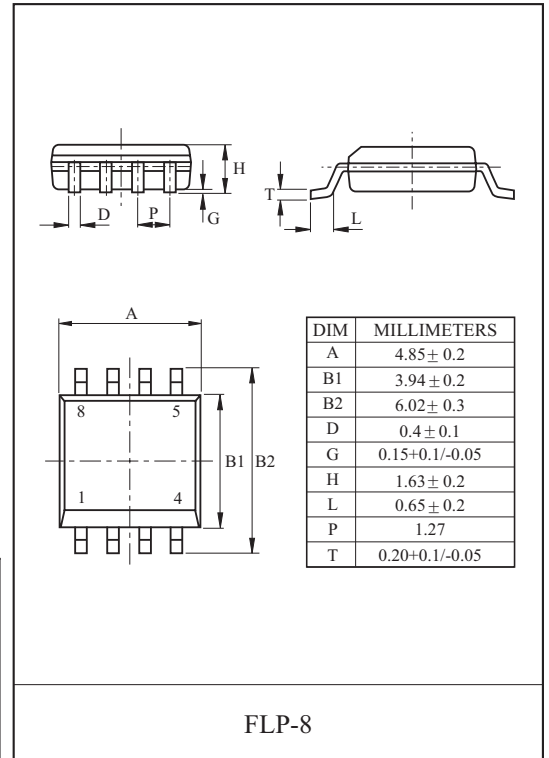
FEATURES

- $V_{DSS}=30V$, $I_D=14A$.
- Drain to Source On Resistance.
 - $R_{DS(ON)}=8.2m\ \Omega$ (Max.) @ $V_{GS}=10V$
 - $R_{DS(ON)}=14.7m\ \Omega$ (Max.) @ $V_{GS}=4.5V$

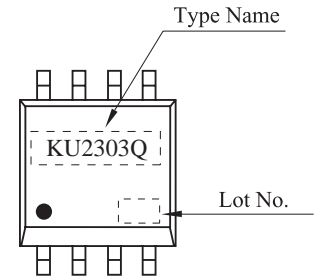
MOSFET Maximum Ratings (Ta=25 °C Unless otherwise noted)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain to Source Voltage		V_{DSS}	30	V
Gate to Source Voltage		V_{GSS}	± 20	V
Drain Current	DC@Ta=25 °C (Note 1)	I_D	14	A
	Pulsed	I_{DP}	56	A
Drain Power Dissipation	@Ta=25 °C (Note 1)	P_D	2.5	W
Maximum Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C
Thermal Resistance, Junction to Ambient (Note 1)		R_{thJA}	50	°C/W

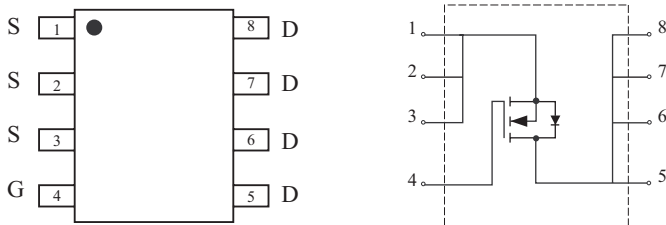
Note1) Surface Mounted on 1 × 1 FR4 Board, $t \leq 10sec$.



Marking



PIN CONNECTION (TOP VIEW)



KU2303Q

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}	$V_{GS}=0V, V_{DS}=30V$	-	-	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	$R_{DS(ON)}$	$V_{GS}=10V, I_D=14A$ (Note2)	-	6.8	8.2	m Ω
		$V_{GS}=4.5V, I_D=11A$ (Note2)	-	12.3	14.7	
Forward Transconductance	g_{fs}	$V_{DS}=5V, I_D=14A$ (Note2)	-	46	-	S
Dynamic						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$ (Note2)	-	937	-	pF
Output Capacitance	C_{oss}		-	311	-	
Reverse Transfer Capacitance	C_{rss}		-	154	-	
Gate Resistance	R_g	$f=1MHz$	-	1.3	-	
Total Gate Charge	$V_{GS}=10V$	$V_{DS}=15V, V_{GS}=10V, I_D=14A$ (Note2)	-	18.4	-	nC
	$V_{GS}=4.5V$		-	9.6	-	
Gate to Source Charge	Q_{gs}		-	3.0	-	
Gate to Drain Charge	Q_{gd}		-	4.9	-	
Turn-On Delay Time	$t_{d(on)}$		-	6.2	-	
Turn-On Rise Time	t_r	$V_{DS}=15V, V_{GS}=10V$	-	7.0	-	
Turn-Off Delay Time	$t_{d(off)}$	$I_D=14A, R_G=1.6 \Omega$ (Note2)	-	20.3	-	
Turn-Off Fall Time	t_f	-	-	6.0	-	
Source to Drain Diode Ratings						
Source to Drain Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=14A$ (Note2)	-	0.8	1.2	V
Reverse Recovery Time	t_{rr}	$I_S=14A, dI/dt=100A/\mu s$	-	17.7	-	ns
Reverse Recovered Charge	Q_{rr}	$I_S=14A, dI/dt=100A/\mu s$	-	8.4	-	nC
Note2) Pulse Test : Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2\%$						

Fig1. $I_D - V_{DS}$

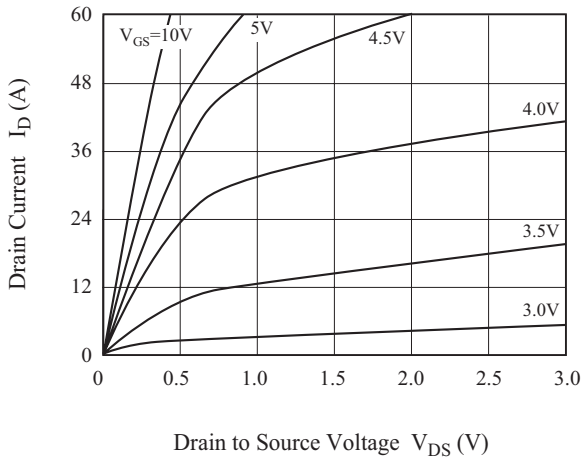


Fig2. $R_{DS(on)} - I_D$

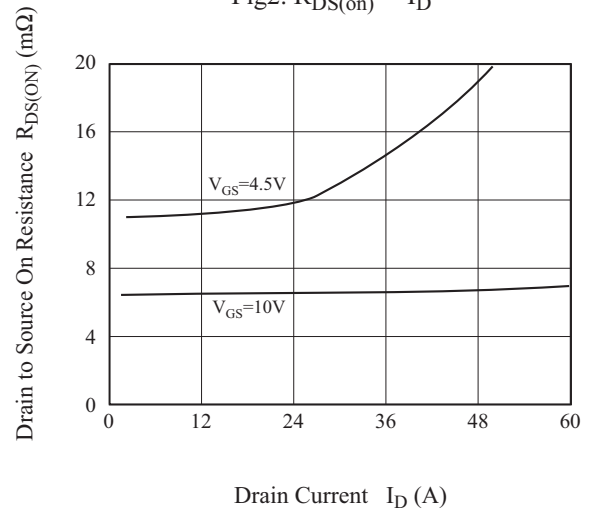


Fig3. $I_D - V_{GS}$

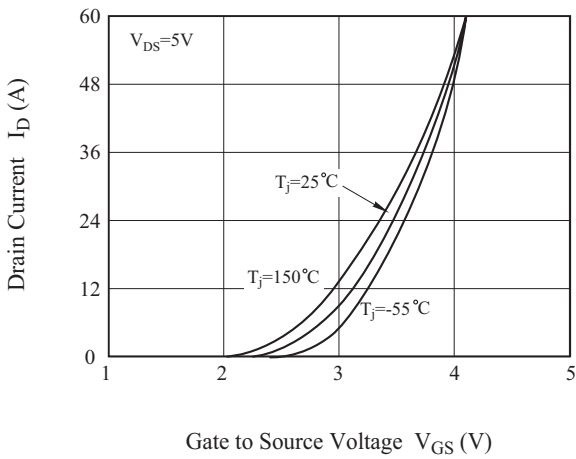


Fig4. $R_{DS(on)} - T_j$

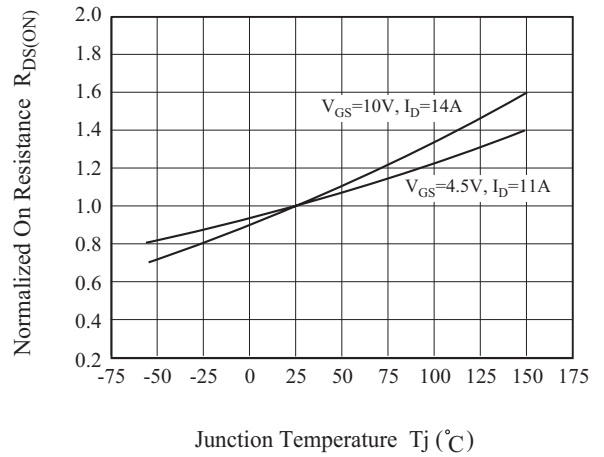


Fig5. $V_{th} - T_j$

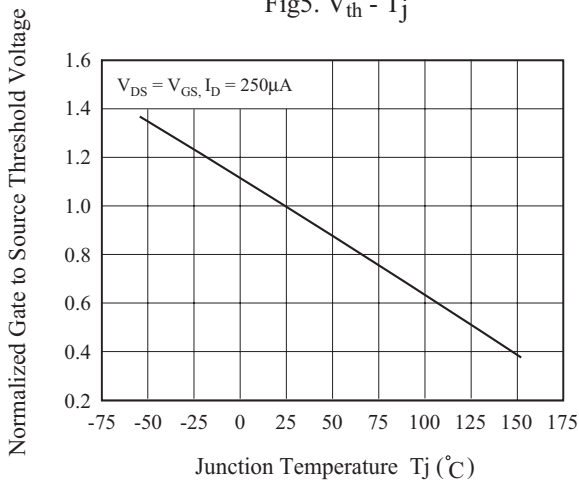


Fig6. $I_S - V_{SD}$

