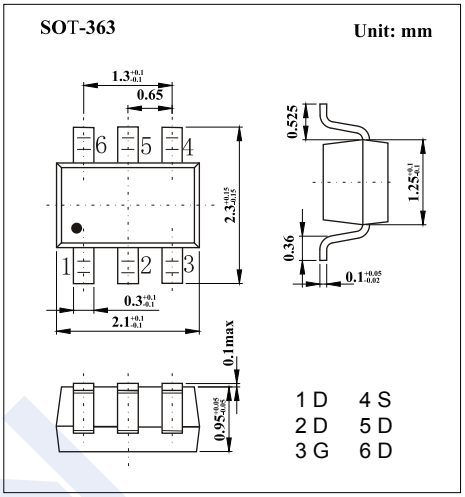
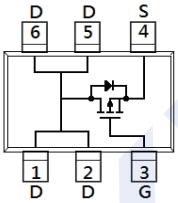
P-Channel MOSFET

2KJ6039

■ Features

- V_{DS} (V) = -20V
- I_D = -2.5A
- $R_{DS(ON)}$ < 85mΩ @ V_{GS} = -4.5V, I_D = -2.5A
- $R_{DS(ON)}$ < 115mΩ @ V_{GS} = -2.5V, I_D = -1.8A
- $R_{DS(ON)}$ < 150mΩ @ V_{GS} = -1.8V, I_D = -1.3A
- $R_{DS(ON)}$ < 250mΩ @ V_{GS} = -1.5V, I_D = -0.5A
- Advanced Trench Process Technology





■ Absolute Maximum Ratings (T_A = 25℃ Unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	-2.5	A
Pulsed Drain Current (Note 1)	I_{DM}	-10	
Power Dissipation	P_D	750	mW
Thermal Resistance, Junction- to-Ambient (Note 2)	$R_{\theta JA}$	167	℃/W
Junction Temperature	T_J	150	℃
Junction Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

1. The maximum current rating is package limited.
2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper.

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■ Electrical Characteristics (T_A = 25℃ Unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA, V_{GS}=0V	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=-250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance (Note 3)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-2.5A			85	mΩ
		V_{GS}=-2.5V, I_D=-1.8A			115	
		V_{GS}=-1.8V, I_D=-1.3A			150	
		V_{GS}=-1.5V, I_D=-0.5A			250	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, f=1MHz		522		pF
Output Capacitance	C_{oss}			55		
Reverse Transfer Capacitance	C_{rss}			40		
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-2.2A, V_{GS} = –4.5V (Note 3,4)		7		nC
Gate Source Charge	Q_{gs}			1		
Gate Drain Charge	Q_{gd}			1.8		
Switching Characteristics						
Turn-On DelayTime	$t_{d(on)}$	V_{DD}=-10V, I_D=-2.2A, V_{GS} =-4.5V, R_G=6Ω (Note 3,4)		10		ns
Turn-On Rise Time	t_r			4		
Turn-Off DelayTime	$t_{d(off)}$			34		
Turn-Off Fall Time	t_f			5		
Drain-Source Diode Characteristics						
Maximum Body-Diode Continuous Current	I_S				-1.0	A
Diode Forward Voltage	V_{SD}	I_{SD} = -1.0 A,V_{GS}=0V			-1.2	V

Notes

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%
4. Essentially independent of operating temperature typical characteristics.
5. Guaranteed by design, not subject to production testing

■ Marking

Marking	JAU

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■ Typical Characterisitics

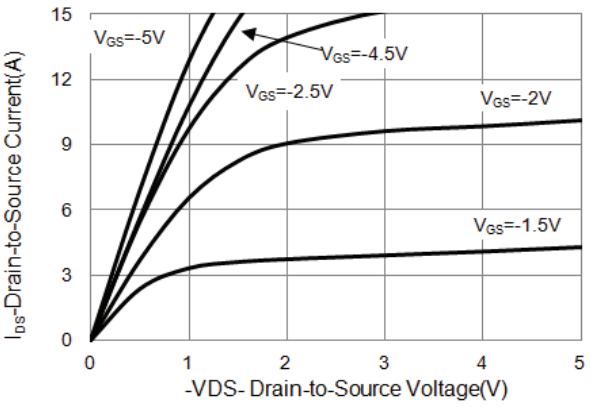

Fig.1 On Region Characteristics

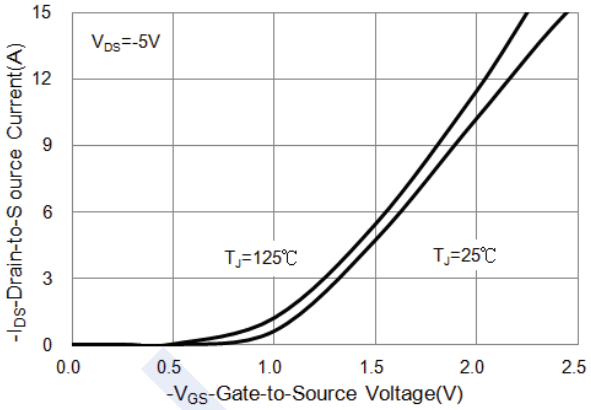

Fig.2 Transfer Characteristics

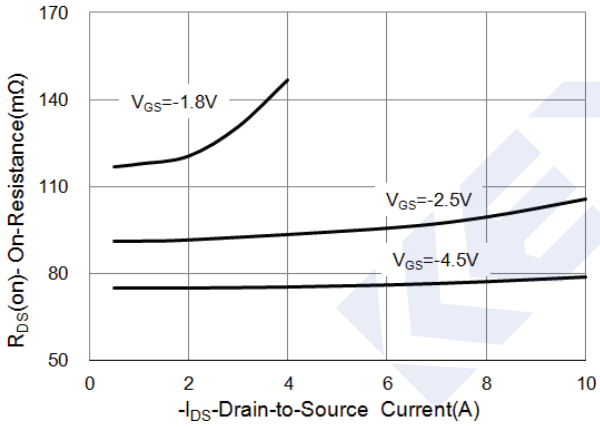

Fig.3 On-Resistance vs. Drain Current

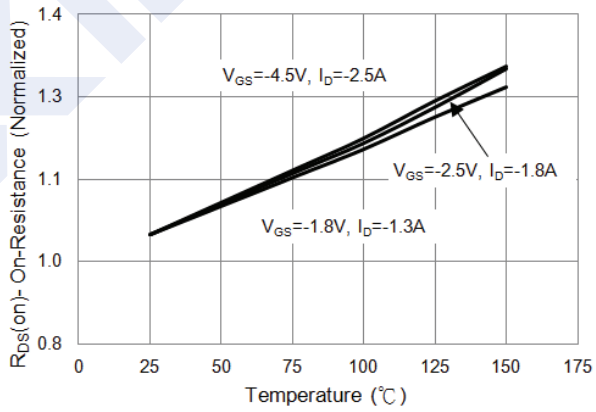

Fig.4 On-Resistance vs. Junction temperature

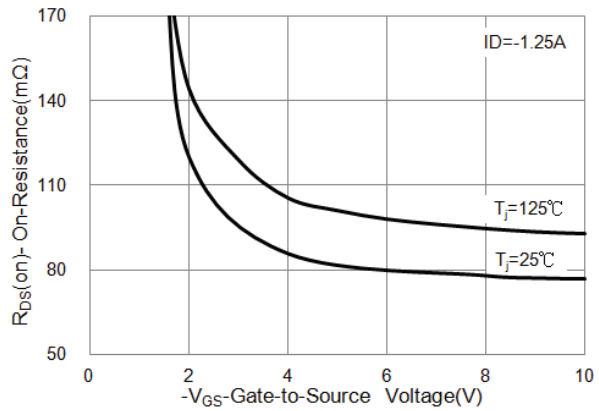

Fig.5 On-Resistance Variation with VGS.

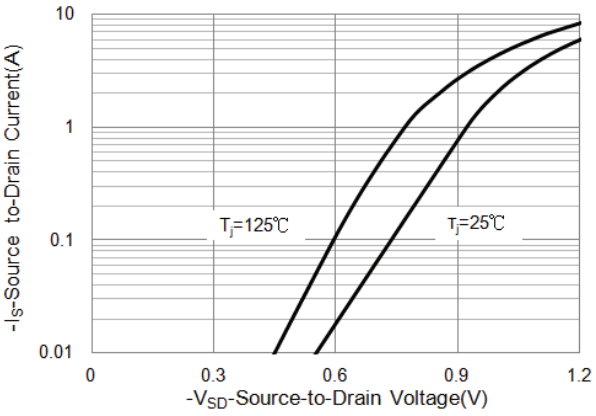

Fig.6 Body Diode Characteristics

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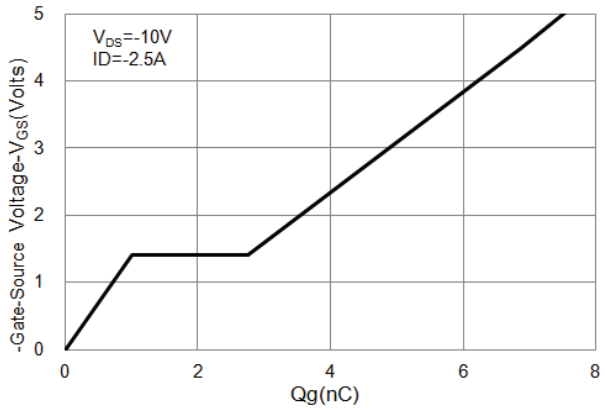

Fig.7 Gate-Charge Characteristics

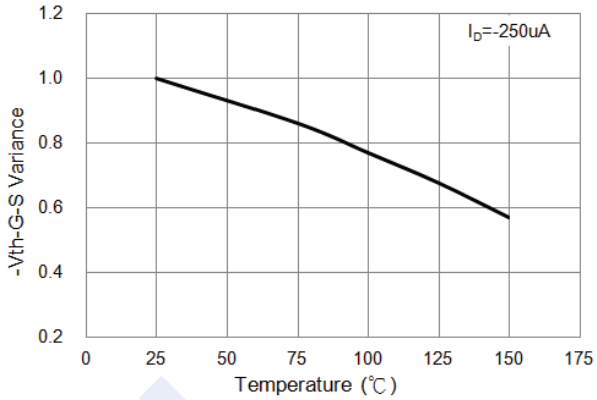

Fig.8 Threshold Voltage Variation with Temperature

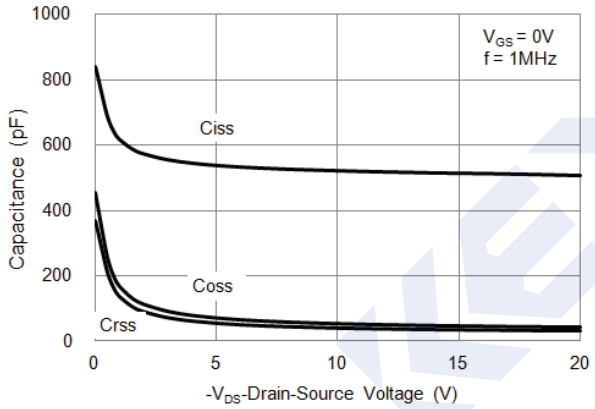

Fig.9 Capacitance vs. Drain-Source Voltage.