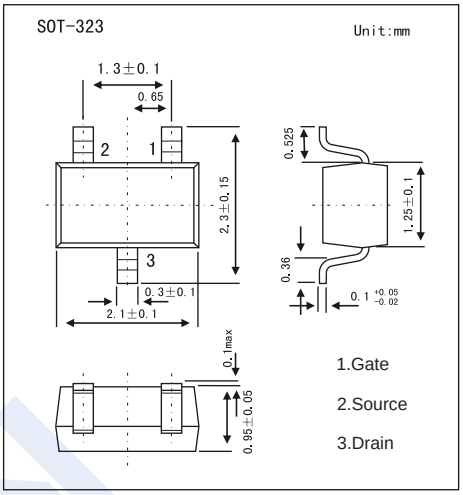
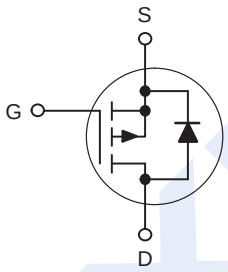
P-Channel MOSFET

2KJ6040

■ Features

- V_{DS} -20V
- I_D (at V_{GS} =-4.5V) -3.2A (Note 3)
- $R_{DS(ON)}$ (at V_{GS} =-4.5V) 83mΩ (Typ.)
- $R_{DS(ON)}$ (at V_{GS} =-3.6V) 88mΩ (Typ.)
- $R_{DS(ON)}$ (at V_{GS} =-2.5V) 104mΩ (Typ.)





■ Absolute Maximum Ratings (T_J = 25℃ unless otherwise noted.)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current	T_C=25℃	I_D	-3.2	A
	T_C=70℃		-2.2	
	T_A=25℃		-1.4 (Note 1,2)	
	T_A=70℃		-1.1 (Note 1,2)	
Pulsed Drain Current	t_p = 10μs	I_{DM}	-9	
Source Current (Body Diode), Continuous		I_S	-0.5	
Power Dissipation	T_C=25℃	P_D	0.5	W
	T_C=70℃		0.3	
	T_A=25℃		0.4 (Note 1,2)	
	T_A=70℃		0.3 (Note 1,2)	
Thermal Resistance, Junction- to-Ambient (Note 1)		$R_{\theta JA}$	300	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Notes:

1.Surface mounted on 1" x 1" FR4 board.

2. t = 10 s.

3. Based on T_C = 25℃.

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■ Electrical Characteristics (T_J = 25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = -250μA, V_{GS} = 0V	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -16V, V_{GS} = 0V			-1	μA
		V_{DS}= -16V, V_{GS} = 0V, T_J = 70℃			-5	
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V			±100	nA
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = -250μA	-0.45		-1.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = -4.5V, I_D = -1.4A		83	120	mΩ
		V_{GS} = -3.6V, I_D = -1.3A		88	130	
		V_{GS} = -2.5V, I_D = -1.2A		104	160	
Forward Transconductance	g_{FS}	V_{DS} = -5V, I_D = -1.3A		5.2		S
CHARGES AND CAPACITANCES						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS} = -20V, f = 1MHz		603	840	pF
Output Capacitance	C_{oss}			90	125	
Reverse Transfer Capacitance	C_{rss}			62	85	
Total Gate Charge	$Q_{g(TOT)}$	V_{DS} = -4.5V, I_D = -1.0A V_{GS} = -4.5V		6.4	9.0	nC
	$Q_{g(TH)}$			0.7		
Gate Source Charge	Q_{gs}			1.0		
Gate Drain Charge	Q_{gd}			1.5		
SWITCHING CHARACTERISTICS (Note 5)						
Turn-On DelayTime	$t_{d(on)}$	V_{GS} = -4.5V, V_{DD} = -4.0V, I_D = 1.0A, R_G = 6.2Ω		6.2	12	ns
Turn-On Rise Time	t_r			14.9	25	
Turn-Off DelayTime	$t_{d(off)}$			26	40	
Turn-Off Fall Time	t_f			18	30	
DRAIN−SOURCE DIODE CHARACTERISTICS						
Body Diode Reverse Recovery Time	t_{rr}	I_S= -1.0A, V_{GS} = 0V, dI/dt= 100A/μs		10.9	20	ns
Body Diode Reverse Recovery Charge	Q_{rr}			4.25		nC
Diode Forward Voltage	V_{SD}	I_S = -0.3 A,V_{GS} = 0V			-1.2	V

Notes:

4. Pulse Test: pulse width ≤ 300μs, duty cycle ≤ 2%.
5. Switching characteristics are independent of operating junction temperatures.

■ Marking

Marking	1B

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■ Typical Characterisitics

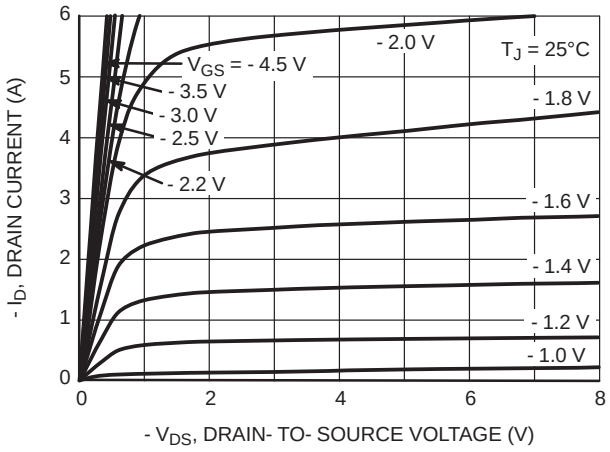

Figure 1. On - Region Characteristics

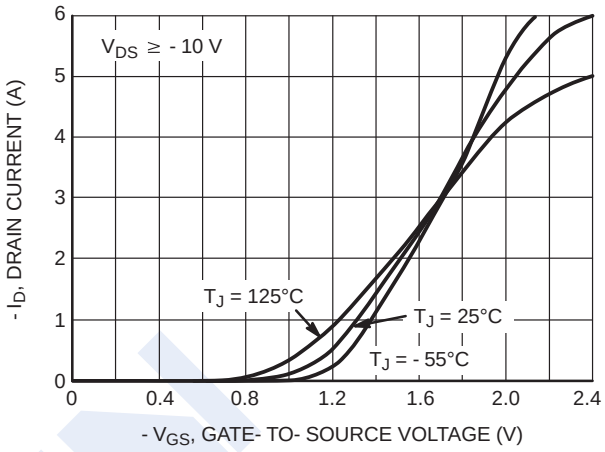

Figure 2. Transfer Characteristics

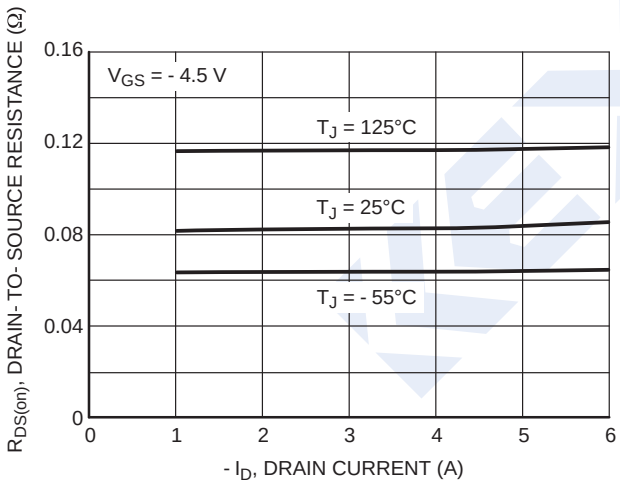

Figure 3. On - Resistance versus Drain Current and Temperature

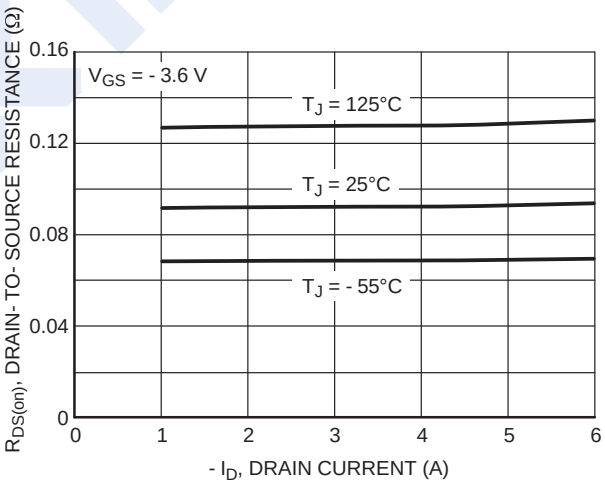

Figure 4. On - Resistance versus Drain Current and Temperature

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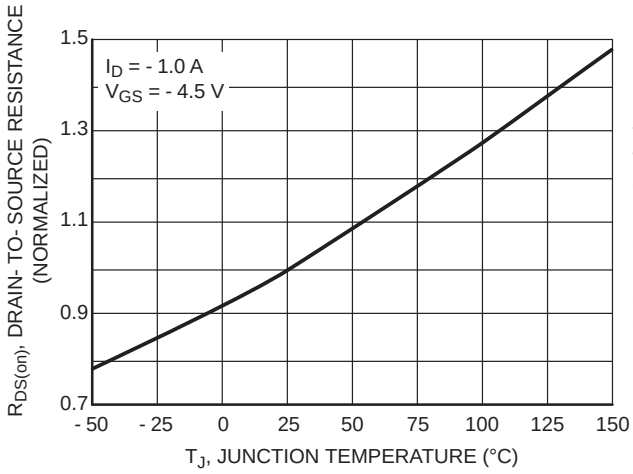

Figure 5. On - Resistance Variation with Temperature

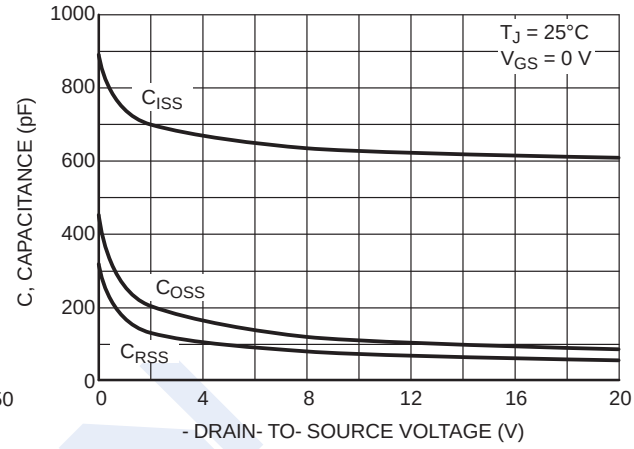

Figure 6. Capacitance Variation

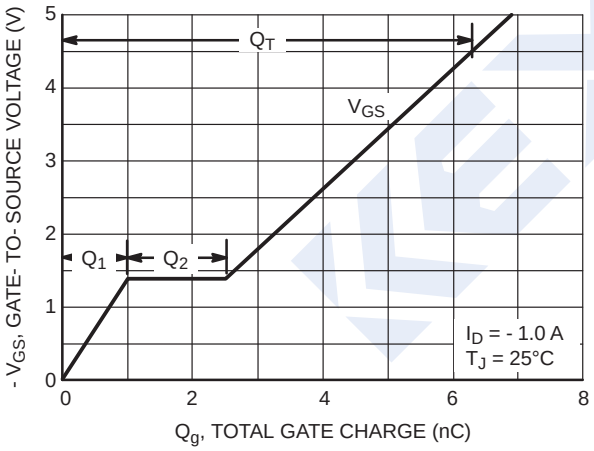

Figure 7. Gate - to- Source and Drain - to- Source Voltage versus Total Charge

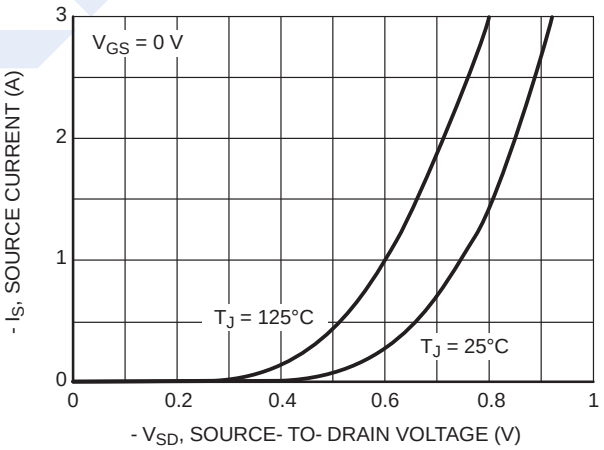

Figure 8. Diode Forward Voltage versus Current