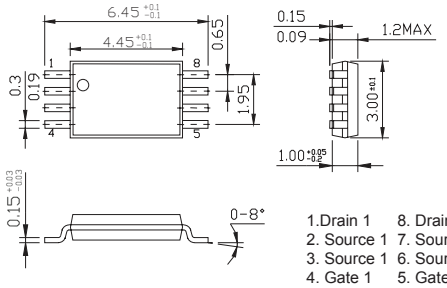
Dual N-channel MOSFET

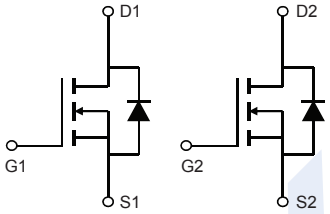
2KK7103

■ Features

- V_{DS} = 20V
- I_D = 6 A
- $R_{DS(on)}$ ⩽ 30mΩ (V_{GS}=4.5V)
- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

TSSOP-8 Unit:mm





■ 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	6	A
Pulsed Drain Current		I_{DM}	30	
Continuous Source Current (Diode Conduction) [a,b]		I_S	1.7	
Power Dissipation	T_a = 25℃	P_D	1.6	W
	T_a = 100℃		1.1	
Thermal Resistance, Junction- to-Case		$R_{\theta JC}$	30	℃/W
Thermal Resistance, Junction- to-Ambient (PCB mounted)		$R_{\theta JA}$	62.5	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	℃

Notes:

a. Pulse width limited by the Maximum junction temperature

b. Surface Mounted on FR4 Board, t ⩽ 5 sec.

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■ Electrical Characteristics (T_a = 25℃, unless otherwise specified)

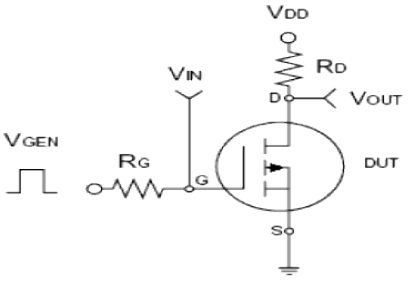
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	0.6		2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 6.0A			30	mΩ
		V_{GS} = 2.5V, I_D = 5.2A			40	
On-State Drain Current[a]	$I_{D(ON)}$	VDS =5V, VGS = 4.5V	30			A
Dynamic[b]						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=8V, f=1MHz		565		pF
Output Capacitance	C_{oss}			105		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	V_{DS}=10V, I_D=6A, V_{GS}=4.5V		5		nC
Gate Source Charge	Q_{gs}			1		
Gate Drain Charge	Q_{gd}			1.5		
Switching[c]						
Turn-On DelayTime	$t_{d(on)}$	V_{DD} = 10V, R_L = 10Ω , I_D = 1A, V_{GEN} = 4.5V, R_G = 6Ω		8	20	ns
Turn-On Rise Time	t_r			10	20	
Turn-Off DelayTime	$t_{d(off)}$			22	45	
Turn-Off Fall Time	t_f			6	15	

Notes:

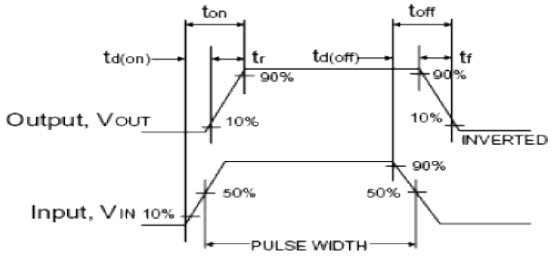
a. pulse test: PW ≤300μs, duty cycle ≤2%

b. For DESIGN AID ONLY, not subject to production testing.

c. Switching time is essentially independent of operating temperature.



Switching Test Circuit



Switchin Waveforms

■ Marking

Marking	K7103 KA****

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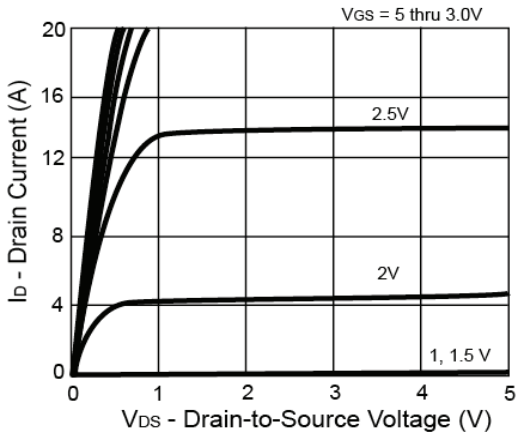
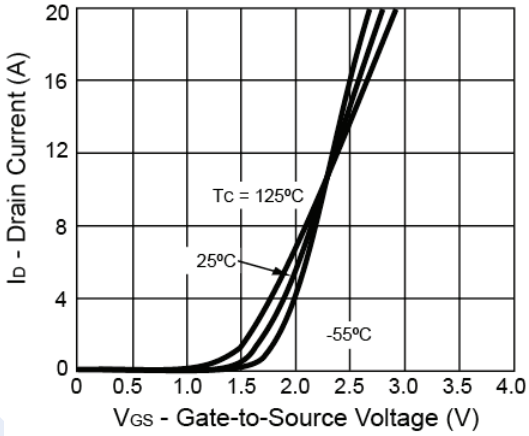
Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

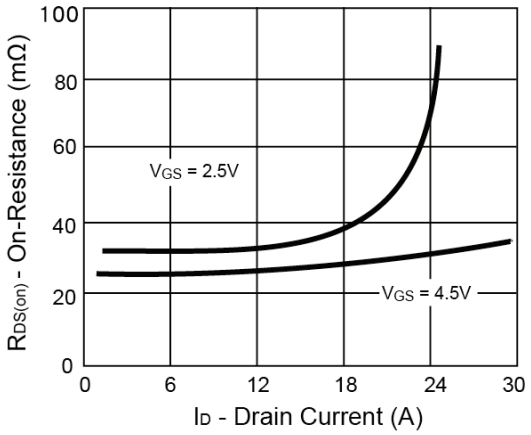
Output Characteristics



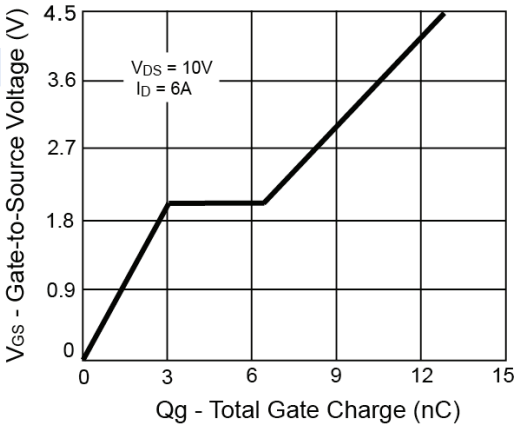
Transfer Characteristics



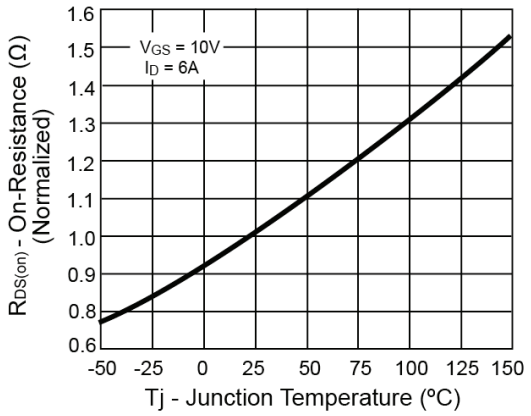
On-Resistance vs. Drain Current



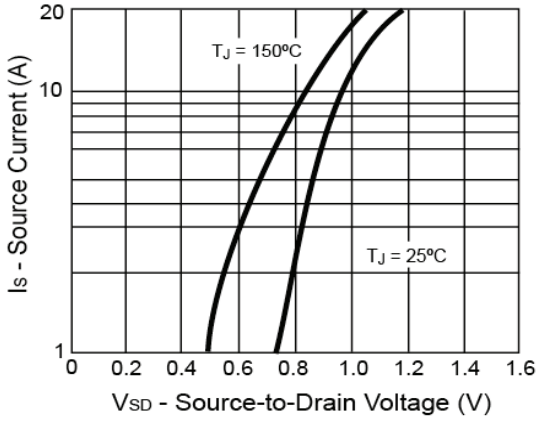
Gate Charge



On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



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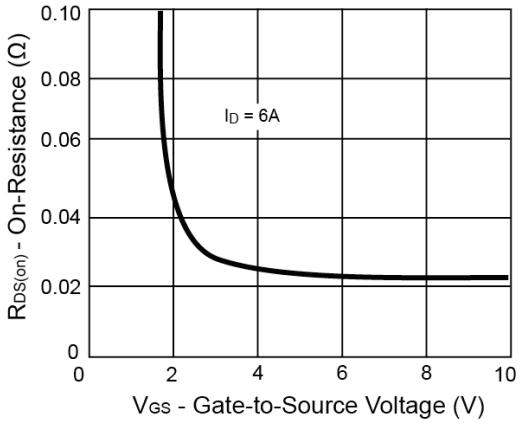
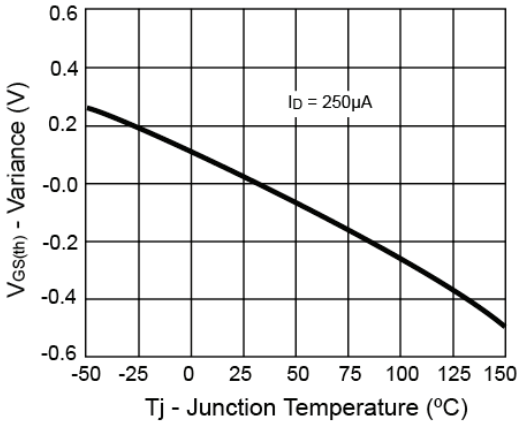
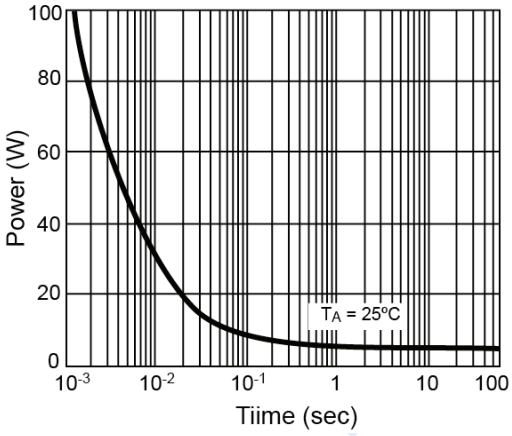
On-Resistance vs. Gate-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient