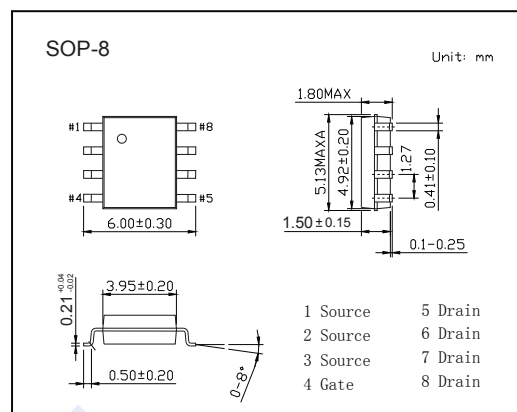
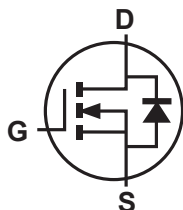


N-Channel MOSFET

KI10N06DY

■ Features

- $V_{DS} (V) = 60V$
- $R_{DS(ON)} < 18m\Omega$ ($V_{GS} = 10V$), $I_D = 9.2 A$
- $R_{DS(ON)} < 28m\Omega$ ($V_{GS} = 4.5V$), $I_D = 7.5 A$
- Low Input Capacitance
- Fast Switching Speed

■ Absolute Maximum Ratings ($T_A = 25^\circ C$, unless otherwise specified.)

Parameter			Symbol	Rating	Unit
Drain-Source Voltage			V _{DS}	60	V
Gate-Source Voltage			V _{GS}	±20	
Continuous Drain Current (Note 2), V _{GS} = 10V	Steady State	T _A =25℃ T _A =70℃	I _D	9.2 7.4	A
	t<10s	T _A =25℃ T _A =70℃		11.9 9.5	
Continuous Drain Current (Note 2), V _{GS} = 4.5V	Steady State	T _A =25℃ T _A =70℃		7.5 6.0	
	t<10s	T _A =25℃ T _A =70℃		9.7 7.7	
Pulsed Drain Current (10μs pulse, duty cycle = 1%)			I _{DM}	60	
Maximum Continuous Body Diode Forward Current (Note 2)			I _S	2	
Avalanche Current (Note 3) L = 0.1mH			I _{AS}	15.3	A
Avalanche Energy (Note 3) L = 0.1mH			E _{AS}	11.7	mJ
Total Power Dissipation (Note 1)			P _D	1.5	W
Total Power Dissipation (Note 2)				2.1	
Thermal Resistance, Junction to Ambient (Note 1)	Steady State		R _{thJA}	85	℃/W
	t<10s			45	
Thermal Resistance, Junction to Ambient (Note 2)	Steady State		R _{thJA}	74	
	t<10s			37	
Thermal Resistance, Junction to Case			R _{thJC}	13	
Junction Temperature			T _J	150	
Storage Temperature Range			T _{stg}	-55 to 150	

N-Channel MOSFET

KI10N06DY

■ Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$, unless otherwise specified.)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1		2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$, $I_D=10\text{A}$			18	m Ω
		$V_{GS}=4.5\text{V}$, $I_D=6\text{A}$			28	
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=30\text{V}$, $f=1\text{MHz}$		864		pF
Output Capacitance	C_{oss}			282		
Reverse Transfer Capacitance	C_{rss}			27		
Gate resistance	R_g	$V_{DS}=0\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$		1.3		Ω
Turn-On DelayTime	$t_{d(on)}$	$V_{DS}=30\text{V}$, $I_D=10\text{A}$, $R_G=6\Omega$, $V_{GS}=10\text{V}$		3.4		ns
Turn-On Rise Time	t_r			5.2		
Turn-Off DelayTime	$t_{d(off)}$			13		
Turn-Off Fall Time	t_f			7		
Total Gate Charge ($V_{GS}=4.5\text{V}$)	Q_g	$V_{DS}=30\text{V}$, $I_D=10\text{A}$		8.4		nC
Total Gate Charge ($V_{GS}=10\text{V}$)				17		
Gate Source Charge	Q_{gs}			3.1		
Gate Drain Charge	Q_{gd}			4.3		
Body Diode Reverse Recovery Time	t_{rr}			22		ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=10\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		11		nC
Diode Forward Voltage (Note 3)	V_{SD}	$I_{SD}=1\text{A}$, $V_{GS}=0\text{V}$			1.2	V

Notes: 1. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.

2. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.

3. I_{AS} and E_{AS} rating are based on low frequency and duty cycles to keep $T_J = +25^\circ\text{C}$.

■ Marking

Marking	10N06 KC***
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N-Channel MOSFET

KI10N06DY

■ Typical Characteristics

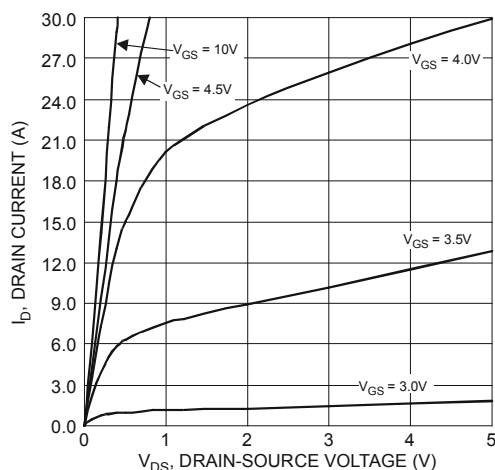


Figure 1 Typical Output Characteristics

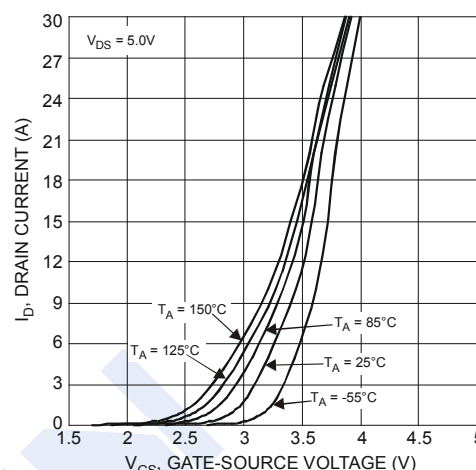


Figure 2 Typical Transfer Characteristics

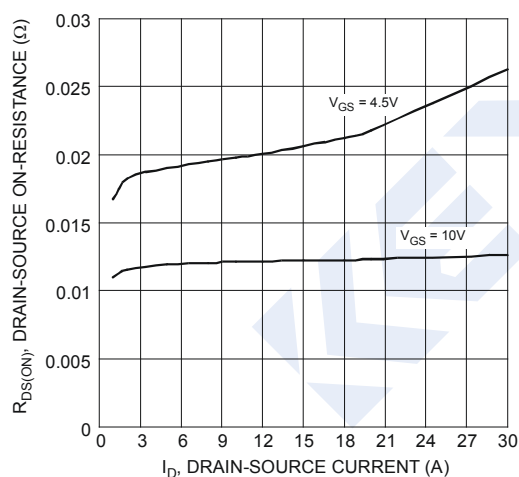


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

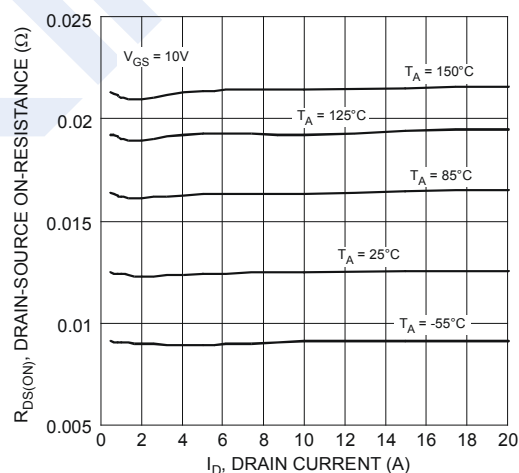


Figure 4 Typical On-Resistance vs. Drain Current and Temperature

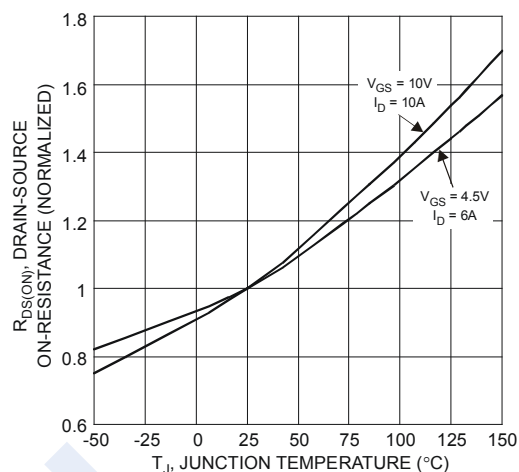


Figure 5 On-Resistance Variation with Temperature

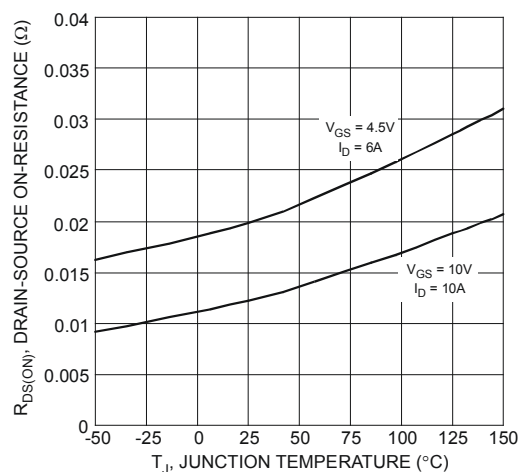


Figure 6 On-Resistance Variation with Temperature

N-Channel MOSFET

KI10N06DY

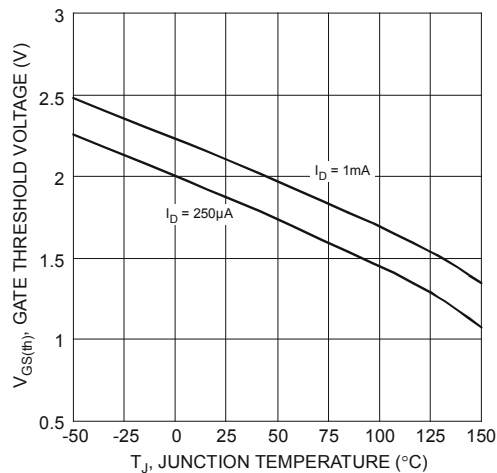


Figure 7 Gate Threshold Variation vs. Ambient Temperature

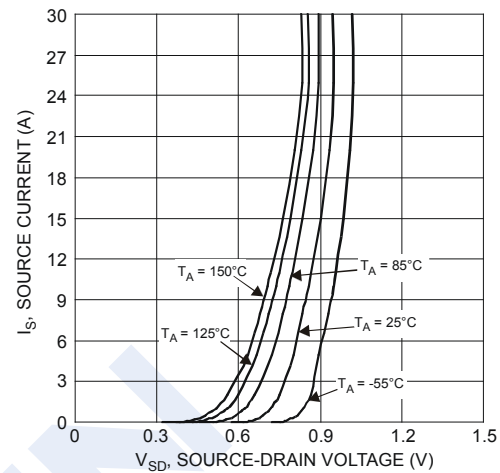


Figure 8 Diode Forward Voltage vs. Current

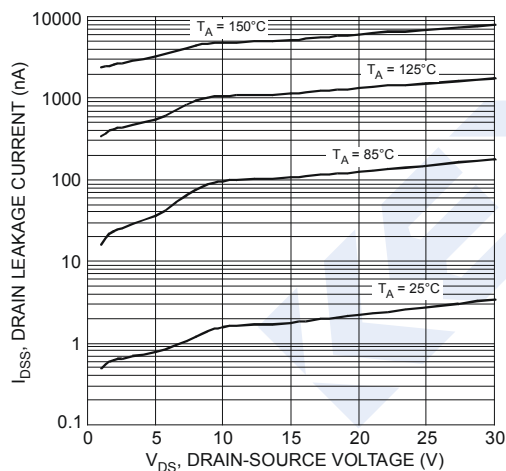


Figure 9 Typical Drain-Source Leakage Current vs. Voltage

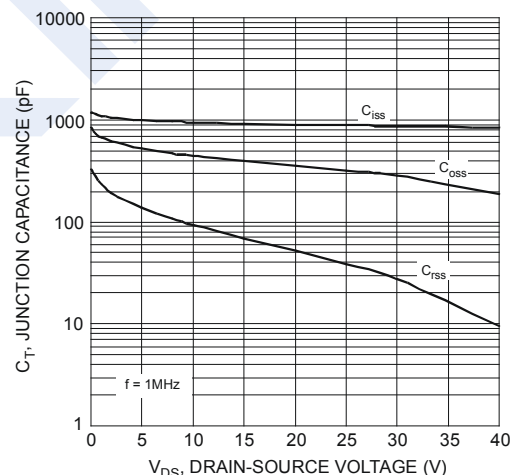


Figure 10 Typical Junction Capacitance

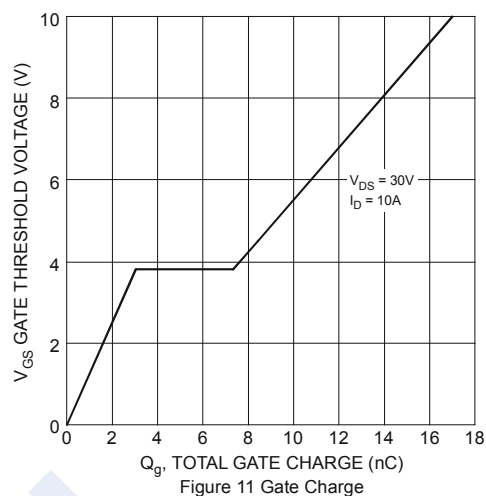


Figure 11 Gate Charge

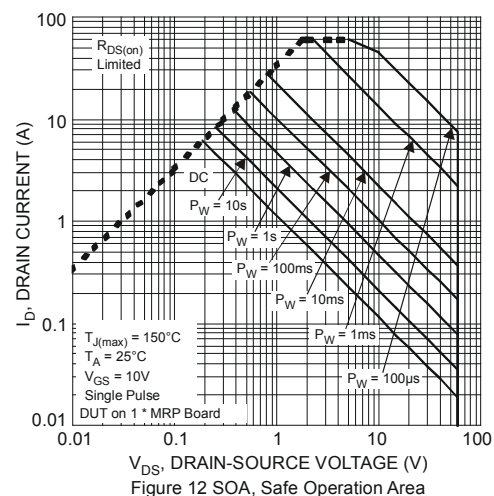


Figure 12 SOA, Safe Operation Area

N-Channel MOSFET

KI10N06DY

