

## N-Channel Enhancement Mode MOSFET

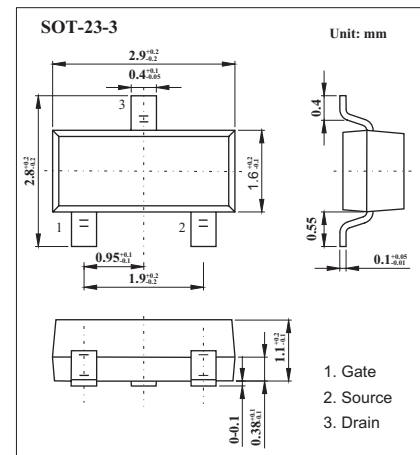
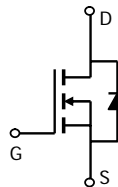
### KI2306

#### Features

$R_{DS(ON)}=0.030$  @  $V_{GS}=10V$

$R_{DS(ON)}=0.035$  @  $V_{GS}=4.5V$

$R_{DS(ON)}=0.052$  @  $V_{GS}=2.5V$



#### Absolute Maximum Ratings $T_a = 25$ Unless Otherwise Noted

Parameter	Symbol	5sec	Steady State	Unit
Drain-source voltage	$V_{DS}$	30		V
Gate-source voltage	$V_{GS}$	$\pm 12$		
Continuous drain current @ $T_A=25$	$I_D$	4	3.16	A
@ $T_A=70$		3.5	2.7	
Pulsed drain current	$I_{DM}$	20		
Maximum Power dissipation @ $T_A=25$	$P_D$	1.25	0.75	W
@ $T_A=70$		0.8	0.48	
Maximum Body-Diode Continuous Current	$I_S$	1.04	0.62	A
Thermal Resistance-Junction to Case (Note 1)	$R_{JC}$	65		/W
Maximum Junction to Ambient (Note 1) t 10 sec	$R_{JA}$	70		
Steady State		95		
Operating junction and storage temperature range	$T_i, T_{stg}$	-55 to +150		

Note: 1. The device mounted on 1in2 FR4 board with 2 oz copper

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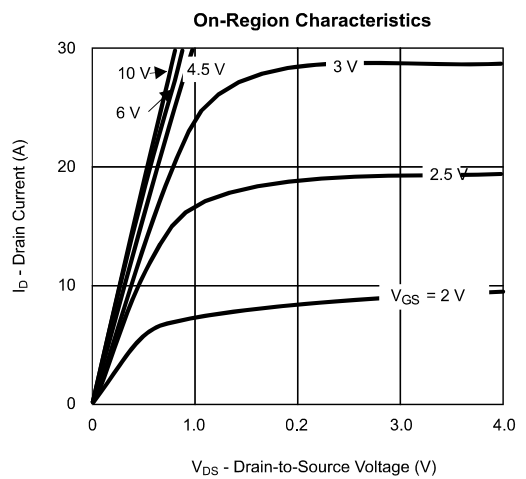
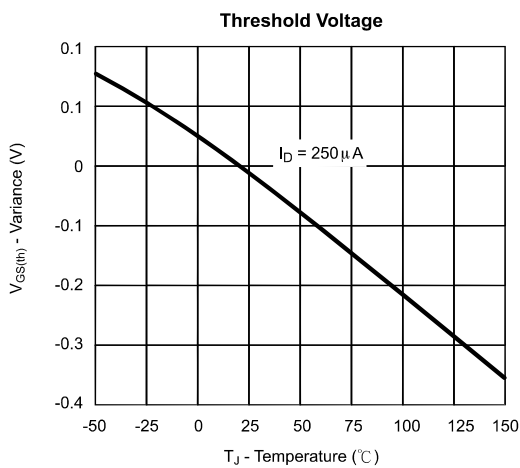
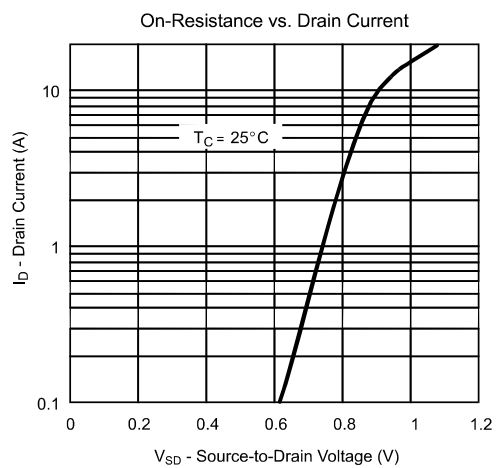
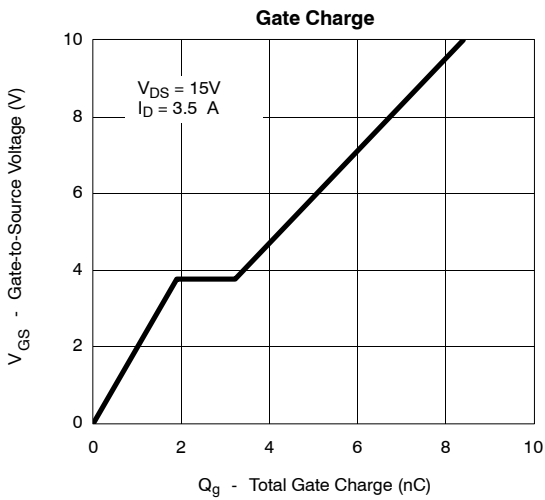
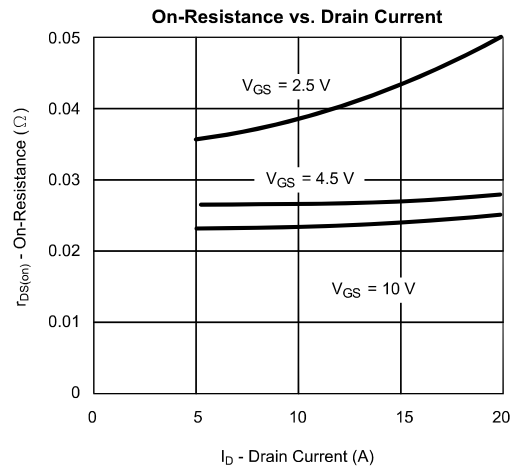
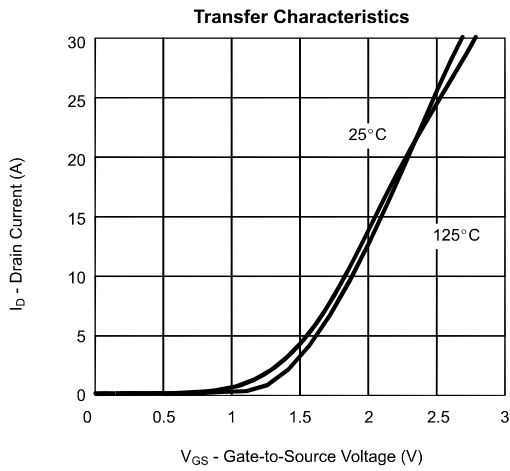
Electrical Characteristics Ta = 25 Unless Otherwise Noted

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-source breakdown voltage	V <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55			10	
Gate-body leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ± 12V			± 100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	0.7		1.4	V
Drain-source on-state resistance (Note 2)	R <sub>DSON</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 4.0 A		0.024	0.030	
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 3.5 A		0.027	0.035	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 2.8 A		0.037	0.052	
On-state drain current (Note 2)	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	20			A
Forward transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 4.5 V, I <sub>D</sub> = 4.0 A		6.9		S
gate charge	Q <sub>g</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 4.0A		13		nC
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 4.0 A		6.3		nC
Gate-source charge	Q <sub>gs</sub>			2.9		
Gate-drain charge	Q <sub>gd</sub>			2.4		
Gate Resistance	R <sub>g</sub>	f = 1 MHz		0.6		
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0, f = 1 MHz		380		pF
Output capacitance	C <sub>oss</sub>			64		
Reverse transfer capacitance	C <sub>rss</sub>			15		
Turn-on time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, R <sub>L</sub> = 15 Ω, I <sub>D</sub> = 1A, V <sub>GEN</sub> = -10V, R <sub>G</sub> = 6		9		ns
	t <sub>r</sub>			14		
Turn-off time	t <sub>d(off)</sub>			33		
	t <sub>f</sub>			3		
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 1.25A, V <sub>GS</sub> = 0V		0.8	1.2	V

Notes: 2. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%

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## Typical Characteristics



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