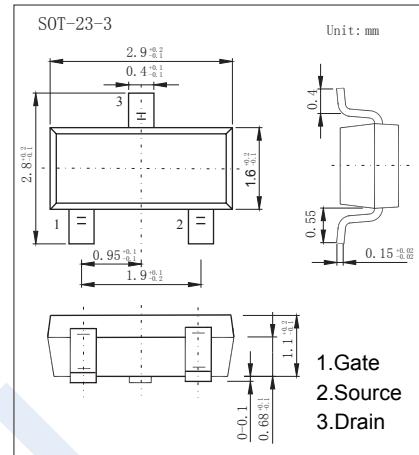
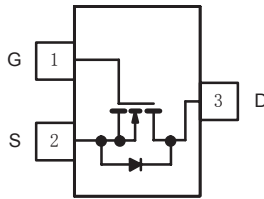


## N-Channel MOSFET

### KI3305DS

#### ■ Features

- $V_{DS} = 60V$
- $I_D = 2.3 A$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 156m\Omega$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 192m\Omega$  ( $V_{GS} = 4.5V$ )



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	$T_c=25^\circ C$	2.3
		$T_c=70^\circ C$	1.8
		$T_a=25^\circ C$	1.9
		$T_a=70^\circ C$	1.5
Pulsed Drain Current	$I_{DM}$	8	A
Avalanche Current	$I_{AS}$	6	
Single-Pulse Avalanche Energy	$E_{AS}$	1.8	mJ
Power Dissipation	$P_D$	$T_c=25^\circ C$	1.66
		$T_c=70^\circ C$	1.06
		$T_a=25^\circ C$	1.09
		$T_a=70^\circ C$	0.7
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	115	$^\circ C/W$
Thermal Resistance.Junction- to-Foot	$R_{thJF}$	75	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 to 150	$^\circ C$

Note.1: Surface Mounted on 1" x 1" FR4 board ( $t = 5 s$ ).

## N-Channel MOSFET

### KI3305DS

#### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	60			V	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA	
		V <sub>DS</sub> =60V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			10		
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1		3	V	
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =1.9A (Note.1)		130	156	mΩ	
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =1.7A (Note.1)		160	192		
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =5V, V <sub>DS</sub> =10V (Note.1)	8			A	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =1.9A (Note.1)		5		S	
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =30V, f=1MHz		190		pF	
Output Capacitance	C <sub>oss</sub>			26			
Reverse Transfer Capacitance	C <sub>rss</sub>			15			
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz	0.6	2.8	5.6	Ω	
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =30V, V <sub>DS</sub> =10V, I <sub>D</sub> =1.9A		4.5	6.8	nC	
				2.3	3.5		
Gate Source Charge	Q <sub>gs</sub>	V <sub>GS</sub> =30V, V <sub>DS</sub> =4.5V, I <sub>D</sub> =1.9A		0.8			
Gate Drain Charge	Q <sub>gd</sub>			1			
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, R <sub>L</sub> =20Ω, R <sub>G</sub> =1Ω, I <sub>D</sub> =1.5A		4	6	ns	
Turn-On Rise Time	t <sub>r</sub>			10	15		
Turn-Off DelayTime	t <sub>d(off)</sub>			10	15		
Turn-Off Fall Time	t <sub>f</sub>			7	10.5		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =30V, R <sub>L</sub> =20Ω, R <sub>G</sub> =1Ω, I <sub>D</sub> =1.5A		15	23	ns	
Turn-On Rise Time	t <sub>r</sub>			16	24		
Turn-Off DelayTime	t <sub>d(off)</sub>			11	17		
Turn-Off Fall Time	t <sub>f</sub>			11	17		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =1.5A, di/dt=100A/μs, T <sub>J</sub> =25°C		15	23	nC	
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			10	15		
Reverse Recovery Fall Time	t <sub>a</sub>			12			ns
Reverse Recovery Rise Time	t <sub>b</sub>			3			
Maximum Body-Diode Continuous Current	I <sub>S</sub>	T <sub>C</sub> =25°C			1.39	A	
Pulse Diode Forward Current	I <sub>SM</sub>				8		
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.5A, V <sub>GS</sub> =0V		0.8	1.2	V	

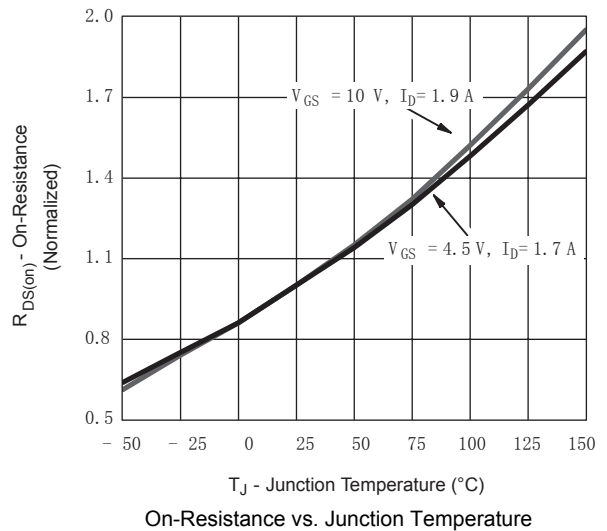
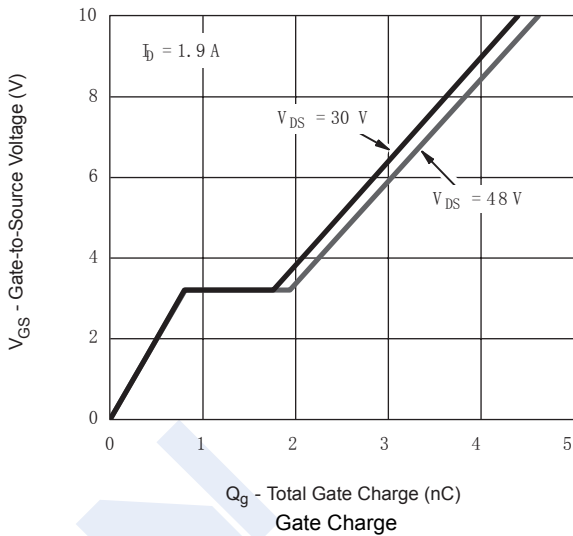
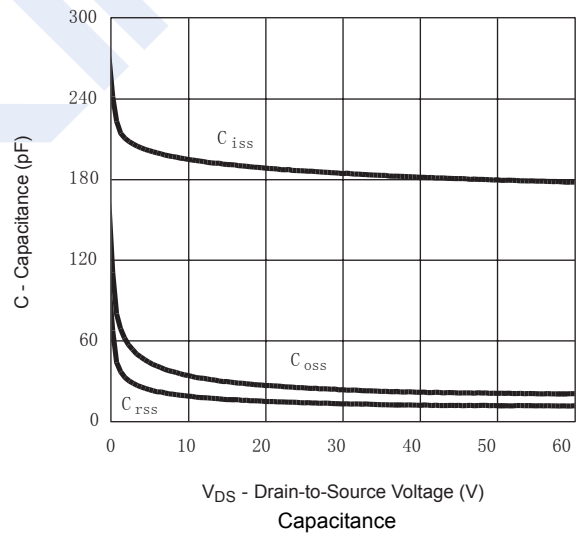
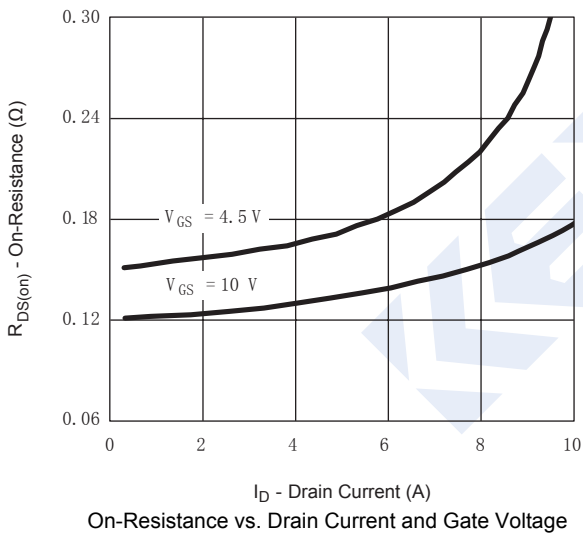
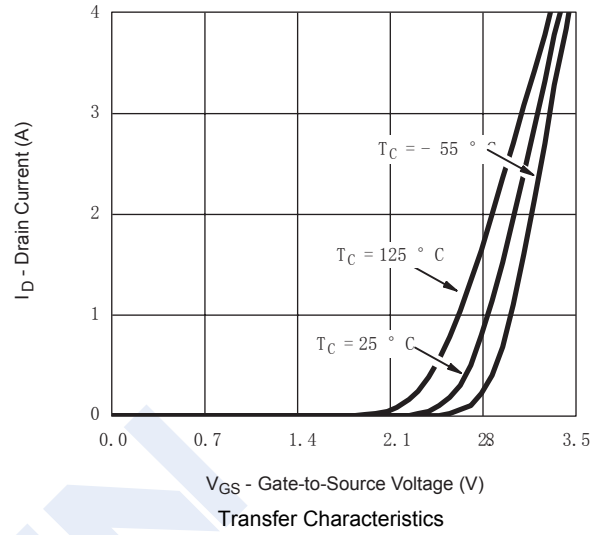
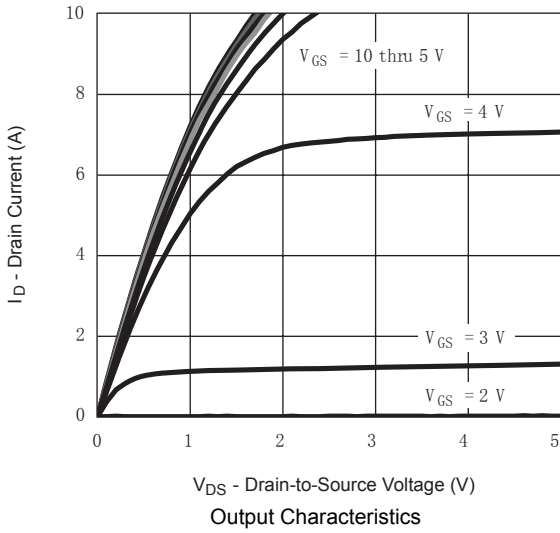
Note.1: Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.

#### ■ Marking

Marking	3055
---------	------

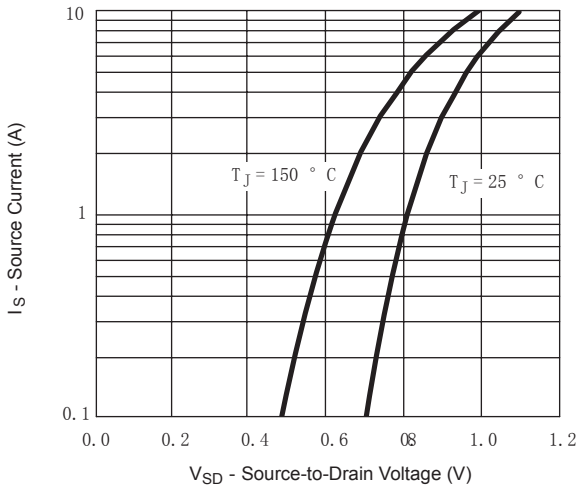
## N-Channel MOSFET KI3305DS

### Typical Characteristics

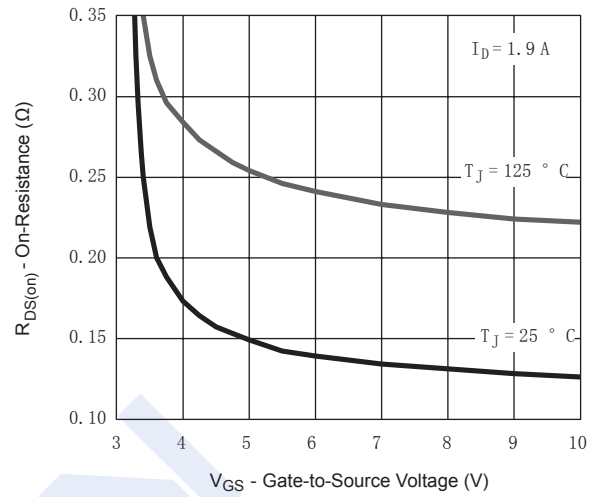


## N-Channel MOSFET KI3305DS

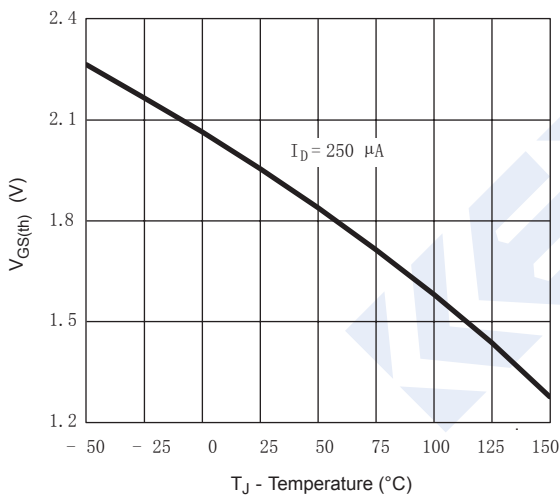
### Typical Characteristics



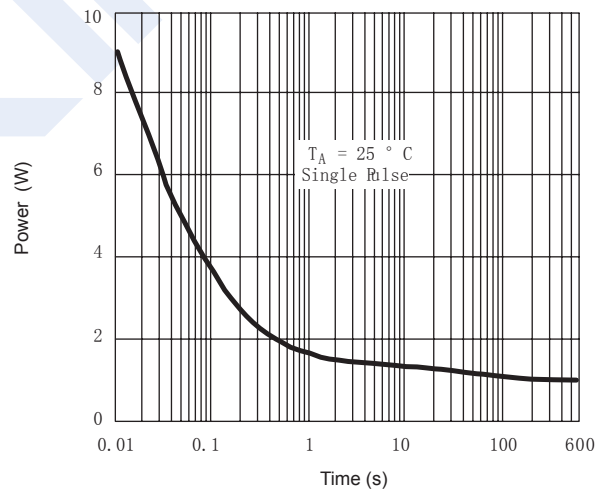
Source-Drain Diode Forward Voltage



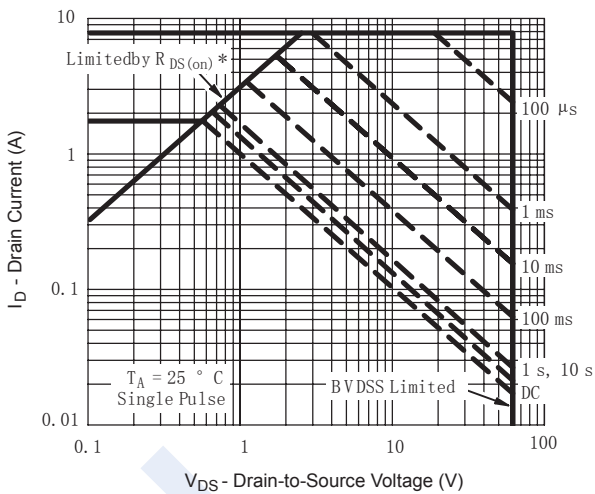
On-Resistance vs. Gate-to-Source Voltage



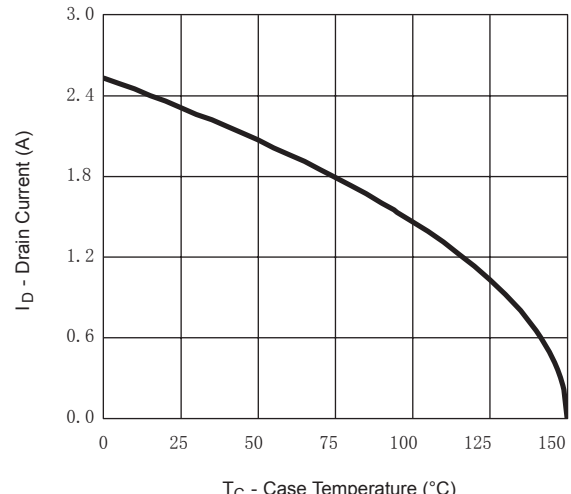
Threshold Voltage



Single Pulse Power



\*  $V_{GS} >$  minimum  $V_{GS}$  at which  $R_{DS(on)}$  is specified  
Safe Operating Area



Current Derating\*

## N-Channel MOSFET KI3305DS

### Typical Characteristics

