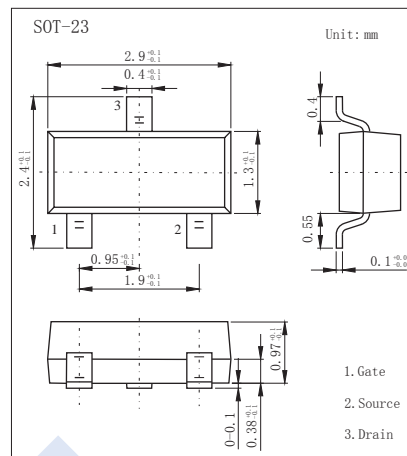
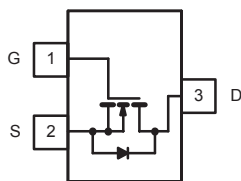


## N-Channel Enhancement MOSFET

## SI2302DS (KI2302DS)

## ■ Features

- $V_{DS}=20V$
- $R_{DS(on)}=85m\Omega@V_{GS}=4.5V, I_D=3.6A$
- $R_{DS(on)}=115m\Omega@V_{GS}=2.5V, I_D=3.1A$

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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	20	V	
Gate-Source Voltage	$V_{GS}$	$\pm 8$		
Continuous Drain Current *1	$I_D$	$T_a=25^\circ C$	3.6	A
		$T_a=70^\circ C$	2.8	
Pulsed Drain Current	$I_{DM}$	10		
Power Dissipation	$P_D$	$T_a=25^\circ C$	1.25	W
		$T_a=70^\circ C$	0.8	
Thermal Resistance.Junction- to-Ambient *1	$R_{thJA}$		100	$^\circ C/W$
		*2	166	
Junction Temperature	$T_J$	150	$^\circ C$	
Storage Temperature Range	$T_{stg}$	-55 to 150		

Notes:

\*1.Surface Mounted on FR4 Board,  $t \leq 5$  sec.

\*2.Surface Mounted on FR4 Board.

## N-Channel Enhancement MOSFET

## SI2302DS (KI2302DS)

## ■ 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	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =20V, 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> =±8V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	0.62	0.95	1.9	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A		45	85	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3.1A		70	115	
Forward Transconductance *	g <sub>fs</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3.6A		8		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =10V, f=1MHz		300		pF
Output Capacitance	C <sub>oss</sub>			120		
Reverse Transfer Capacitance	C <sub>rss</sub>			80		
Total Gate Charge	Q <sub>g</sub>			4	10	
Gate-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A		0.65		
Gate-Drain Charge	Q <sub>gd</sub>			1.5		
Turn-On DelayTime	t <sub>d(on)</sub>		V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V, R <sub>L</sub> =5.5 Ω, R <sub>GEN</sub> =6 Ω I <sub>D</sub> =3.6A		7	15
Turn-On Rise Time	t <sub>r</sub>			55	80	
Turn-Off DelayTime	t <sub>d(off)</sub>			16	60	
Turn-Off Fall Time	t <sub>f</sub>			10	25	
Continuous Source Current (Diode Conduction)	I <sub>S</sub>			1.6		A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.6A, V <sub>GS</sub> =0V		0.76	1.2	V

\* Pulse test: PW ≤ 300us duty cycle ≤ 2%

## ■ Marking

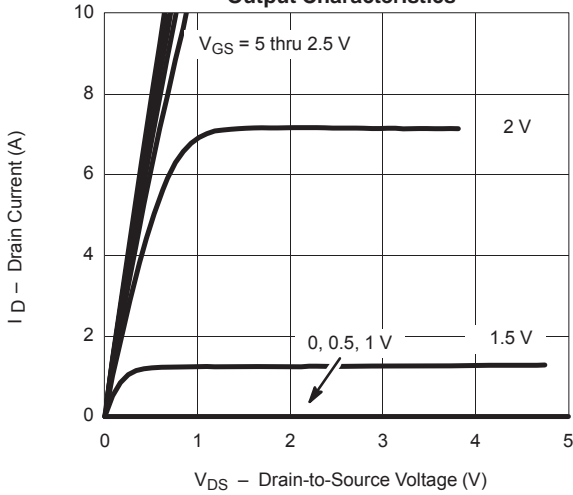
Marking	A2*
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## N-Channel Enhancement MOSFET

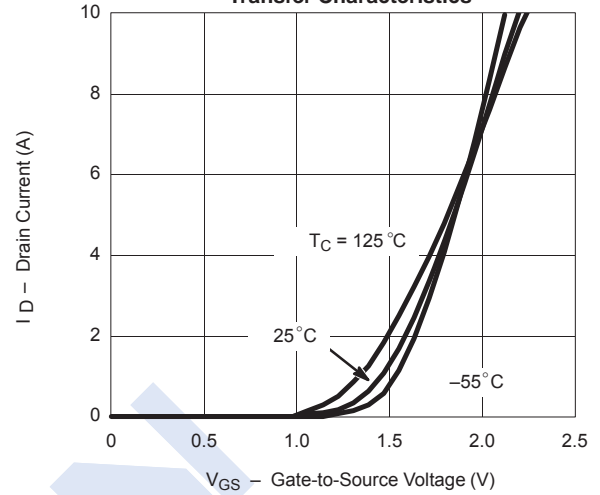
### SI2302DS (KI2302DS)

■ Typical Characteristics

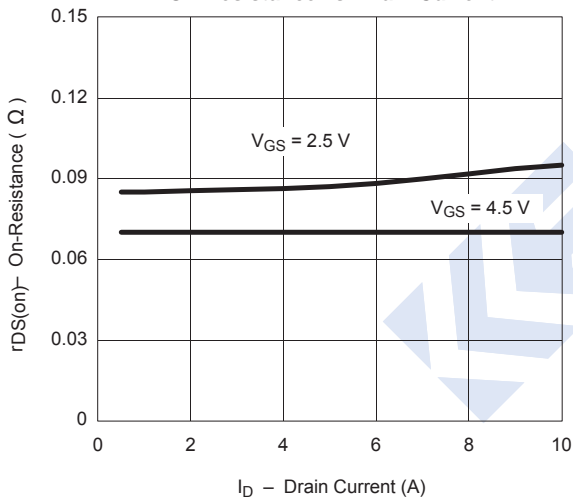
Output Characteristics



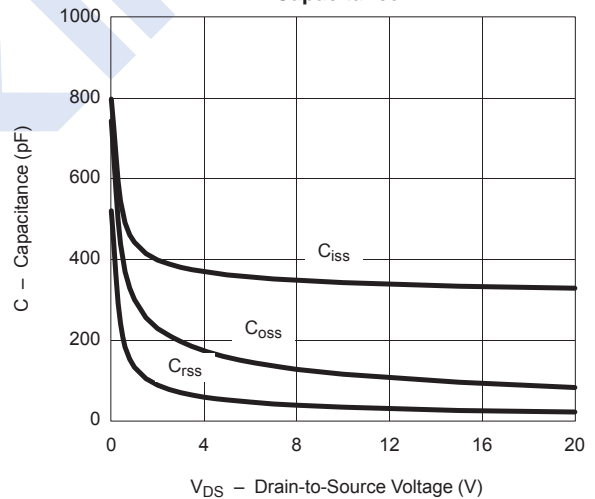
Transfer Characteristics



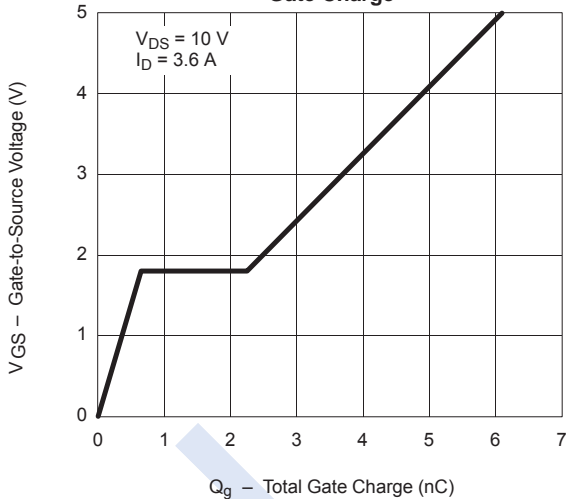
On-Resistance vs. Drain Current



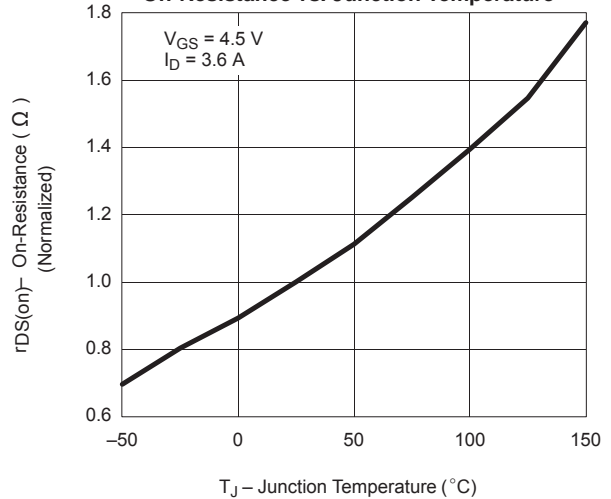
Capacitance



Gate Charge



On-Resistance vs. Junction Temperature

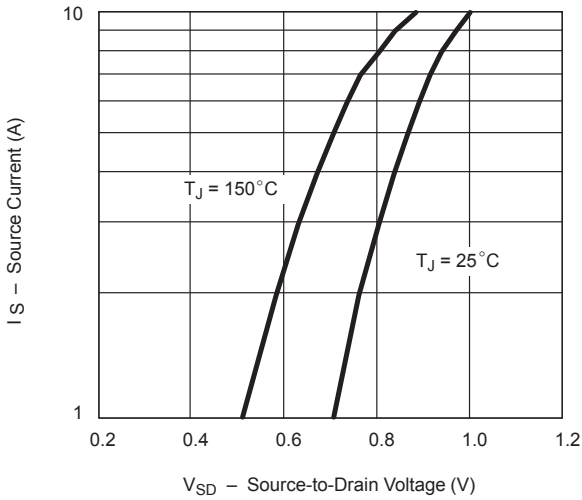


# N-Channel Enhancement MOSFET

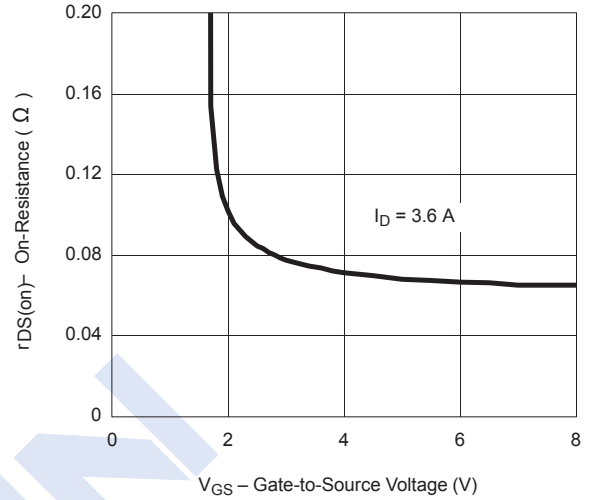
## SI2302DS (KI2302DS)

■ Typical Characteristics

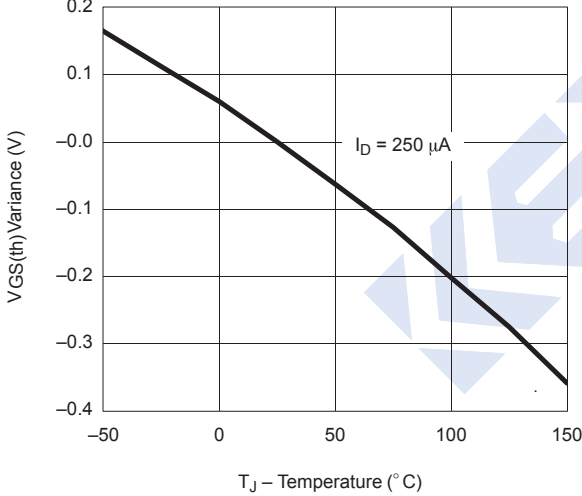
Source-Drain Diode Forward Voltage



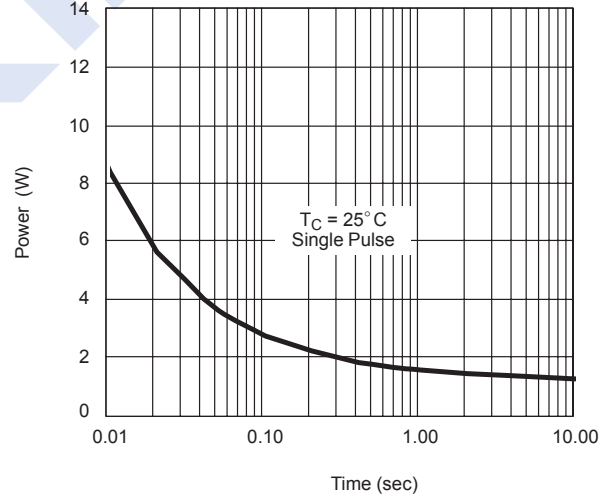
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient

