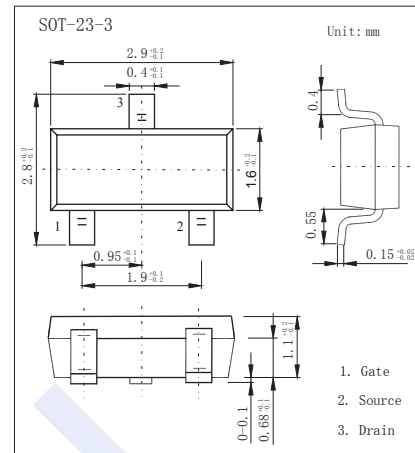
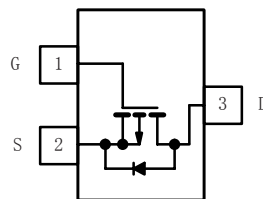


## P-Channel Enhancement MOSFET

### SI2307BDS (KI2307BDS)

#### ■ Features

- $V_{DS} (V) = -30V$
- $R_{DS(ON)} < 78m\Omega$  ( $V_{GS} = -10V$ )
- $R_{DS(ON)} < 130m\Omega$  ( $V_{GS} = -4.5V$ )



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

Parameter	Symbol	5 sec	Steady State	Unit	
Drain-Source Voltage	$V_{DS}$	-30		V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$			
Continuous Drain Current ( $T_j=150^\circ C$ ) *1	$I_D$	$T_a = 25^\circ C$	-3.2	-2.5	A
		$T_a = 70^\circ C$	-2.6	-2.0	
Pulsed Drain Current *2	$I_{DM}$	-12			
Power Dissipation *1	$P_D$	$T_a = 25^\circ C$	1.25	0.75	W
		$T_a = 70^\circ C$	0.8	0.48	
Thermal Resistance.Junction- to-Ambient *1	$R_{thJA}$	100		$^\circ C/W$	
Thermal Resistance.Junction- to-Ambient *3		166			
Junction Temperature	$T_J$	150		$^\circ C$	
Storage Temperature Range	$T_{stg}$	-55 to 150			

\*1 Pulse width limited by maximum junction temperature.

\*2 Surface Mounted on FR4 board,  $t \leq 5$  s.

\*3 Surface Mounted on FR4 board.

## P-Channel Enhancement MOSFET

### SI2307BDS (KI2307BDS)

#### ■ 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	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DS</sub> =-30V, 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	-1.0		-3.0	V
Static Drain-Source On-Resistance *1	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.2A		63	78	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2.5A		105	130	
On state drain current *1	I <sub>D(ON)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> ≤ -10V	-6			A
Forward Transconductance *1	g <sub>FS</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-3.2A		5.0		S
Input Capacitance *2	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-15V, f=1MHz		380		pF
Output Capacitance *2	C <sub>oss</sub>			100		
Reverse Transfer Capacitance *2	C <sub>rss</sub>			75		
Gate resistance	R <sub>g</sub>	f=1MHz		8.0		Ω
Total Gate Charge *2	Q <sub>g</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-15V, I <sub>D</sub> =-1.7A		9.0	15	nC
Gate Source Charge *2	Q <sub>gs</sub>			1.4		
Gate Drain Charge *2	Q <sub>gd</sub>			2.4		
Turn-On DelayTime *3	t <sub>d(on)</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-15V, R <sub>L</sub> =15 Ω, R <sub>GEN</sub> =6 Ω I <sub>D</sub> =1.0A		9	20	ns
Turn-On Rise Time *3	t <sub>r</sub>			12	20	
Turn-Off DelayTime *3	t <sub>d(off)</sub>			25	40	
Turn-Off Fall Time *3	t <sub>f</sub>			14	21	
Maximum Body-Diode Continuous Current	I <sub>S</sub>	5 sec			-1.25	A
		Steady State			-0.75	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-0.75A, V <sub>GS</sub> =0V		-0.85	-1.2	V

\*1Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2 %.

\*2 For DESIGN AID ONLY, not subject to production testing.

\*3 Switching time is essentially independent of operating temperature.

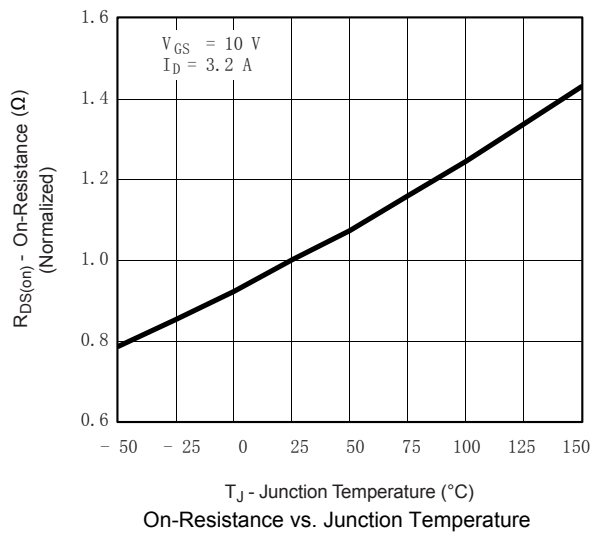
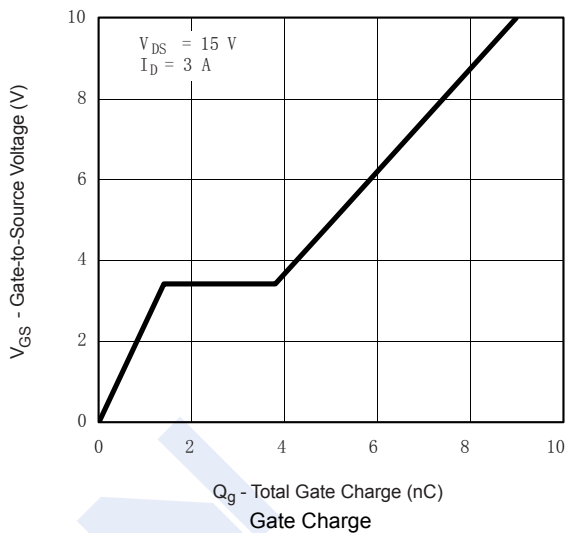
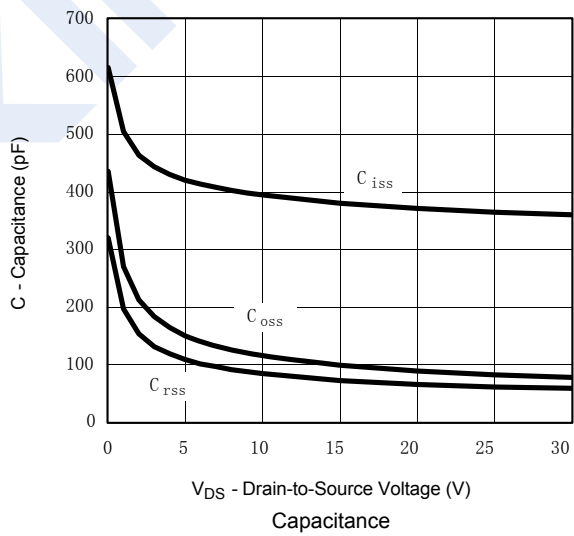
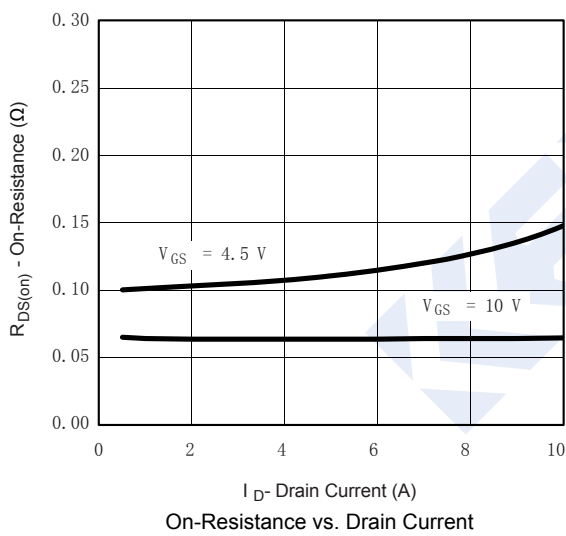
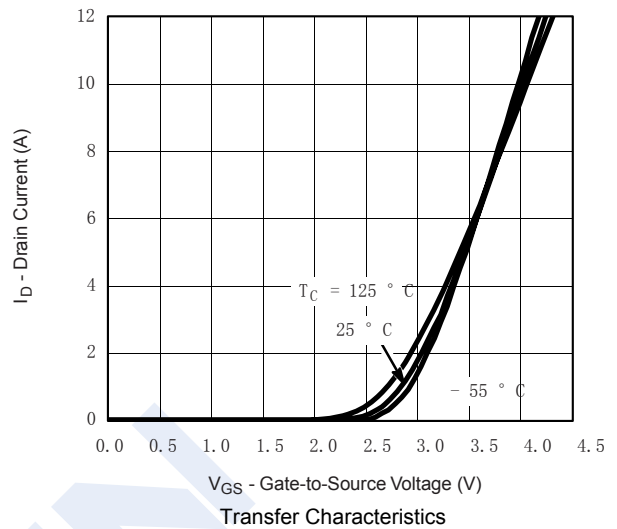
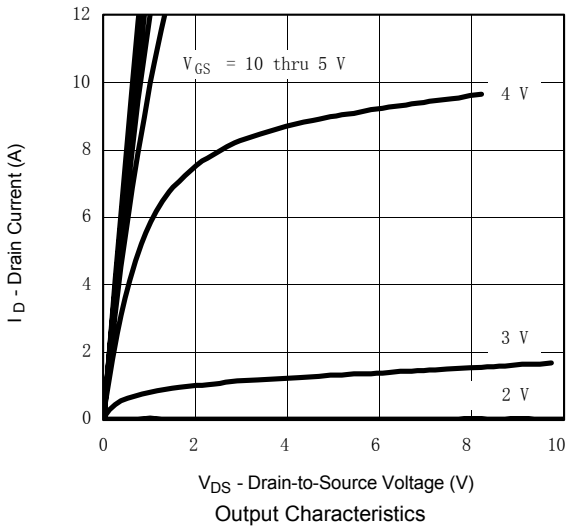
#### ■ Marking

Marking	L7*
---------	-----

### P-Channel Enhancement MOSFET

### SI2307BDS (KI2307BDS)

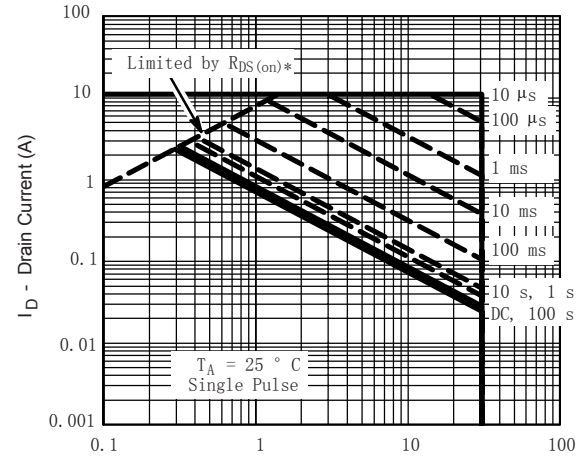
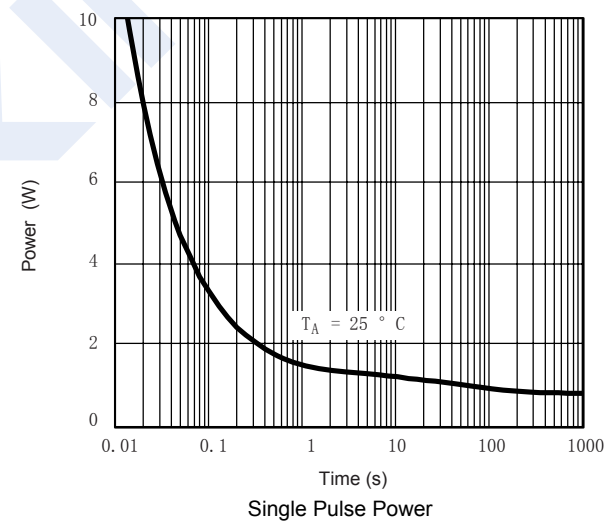
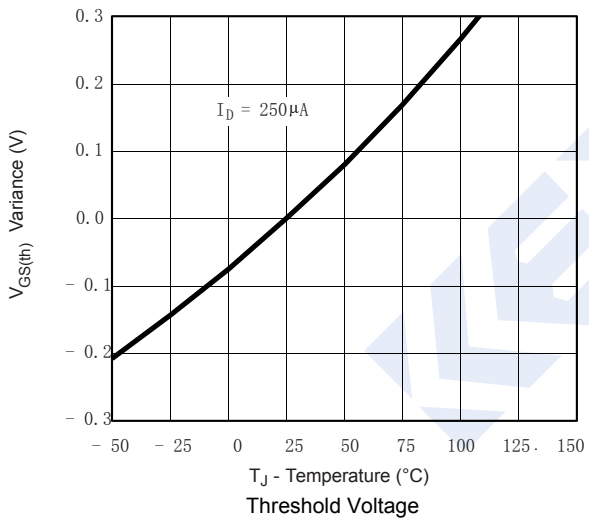
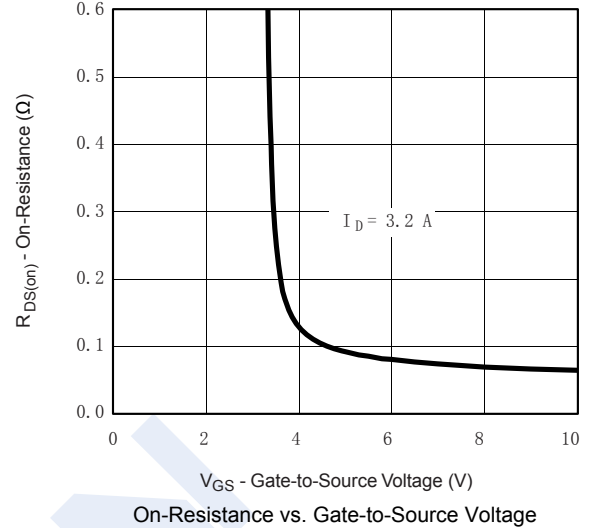
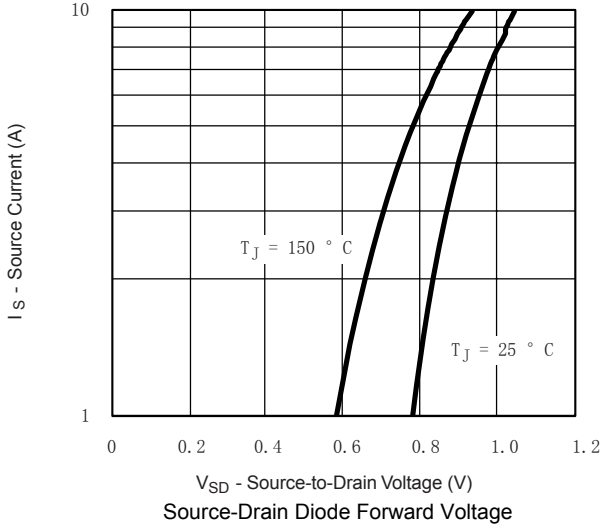
■ Typical Characteristics



## P-Channel Enhancement MOSFET

### SI2307BDS (KI2307BDS)

■ Typical Characteristics



\*  $V_{GS} >$  minimum  $V_{GS}$  at which  $R_{DS(on)}$  is specified  
 Square Wave Pulse Duration (s)  
 Safe Operating Area, Junction-to-Case

## P-Channel Enhancement MOSFET SI2307BDS (KI2307BDS)

■ Typical Characteristics

