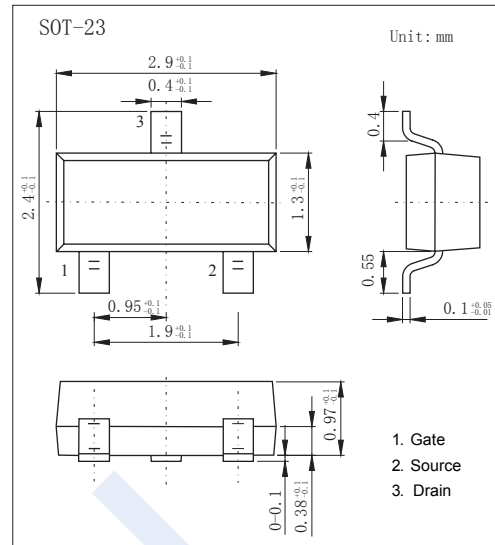


P-Channel MOSFET

SI2399DS (KI2399DS)

■ Features

- $V_{DS} (V) = -20V$
- $I_D = -6 A$ ($V_{GS} = \pm 12V$)
- $R_{DS(ON)} < 34m\Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 45m\Omega$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 67m\Omega$ ($V_{GS} = -2.5V$)



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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current	$T_C = 25^\circ C$	I_D	-6	A
	$T_C = 70^\circ C$		-5.8	
	$T_A = 25^\circ C^{*1*2}$		-5.1	
	$T_A = 70^\circ C^{*1*2}$		-4.1	
Pulsed Drain Current		I_{DM}	-20	
Power Dissipation	$T_C = 25^\circ C$	P_D	2.5	W
	$T_C = 70^\circ C$		1.6	
	$T_A = 25^\circ C^{*1*2}$		1.25	
	$T_A = 70^\circ C^{*1*2}$		0.8	
Thermal Resistance.Junction- to-Ambient		$\leq 5S^{*1*3}$	R_{thJA}	$^\circ C/W$
Thermal Resistance.Junction- to-Foot			R_{thJC}	
Junction Temperature		T_J	150	$^\circ C$
Junction Storage Temperature Range		T_{stg}	-55 to 150	

Notes:

*1. Surface mounted on 1" x 1" FR4 board.

*2. $t = 5 s$.

*3. Maximum under steady state conditions is $166^\circ C/W$.

P-Channel MOSFET

SI2399DS (KI2399DS)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
		V _{DS} =-20V, V _{GS} =0V, T _J =55°C			-10	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250 μA	-0.6		-1.5	V
Static Drain-Source On-Resistance *1	R _{DS(on)}	V _{GS} =-10V, I _D =-5.1A			34	mΩ
		V _{GS} =-4.5V, I _D =-4.5A			45	
		V _{GS} =-2.5V, I _D =-3.7A			67	
On State Drain Current *1	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} ≤-5V	-20			A
Forward Transconductance *1	g _{FS}	V _{DS} =-5V, I _D =-5.1A		15		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-10V, f=1MHz		835		pF
Output Capacitance	C _{oss}			180		
Reverse Transfer Capacitance	C _{rss}			155		
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	0.9		8.8	Ω
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-5.1A			20	nC
		V _{GS} =-2.5V, V _{DS} =-10V, I _D =-5.1A			9.6	
Gate Source Charge	Q _{gs}			1.7		
Gate Drain Charge	Q _{gd}			3.4		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, R _L =2.4 Ω, R _{GEN} =1 Ω, I _D =-4.1A			33	ns
Turn-On Rise Time	t _r				30	
Turn-Off DelayTime	t _{d(off)}				42	
Turn-Off Fall Time	t _f				18	
Body Diode Reverse Recovery Time	t _{rr}	I _F =-4.1A, di/dt=100A/μs, T _J =25°C			35	nC
Body Diode Reverse Recovery Charge	Q _{rr}				20	
Reverse Recovery Fall Time	t _a			15		ns
Reverse Recovery Rise Time	t _b			8		
Maximum Body-Diode Continuous Current	I _S	T _C =25°C			-2.1	A
Diode Forward Voltage	V _{SD}	I _S =-2.1A, V _{GS} =0V			-1.2	V

NOTES:

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

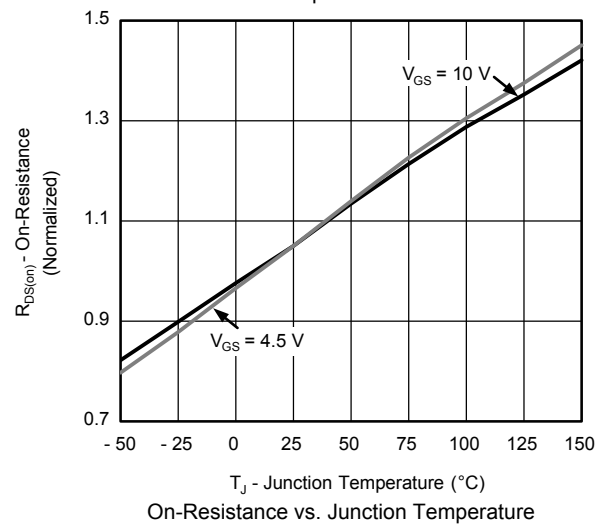
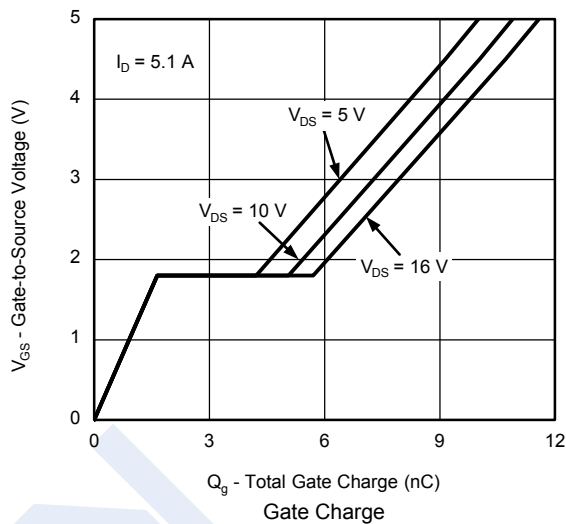
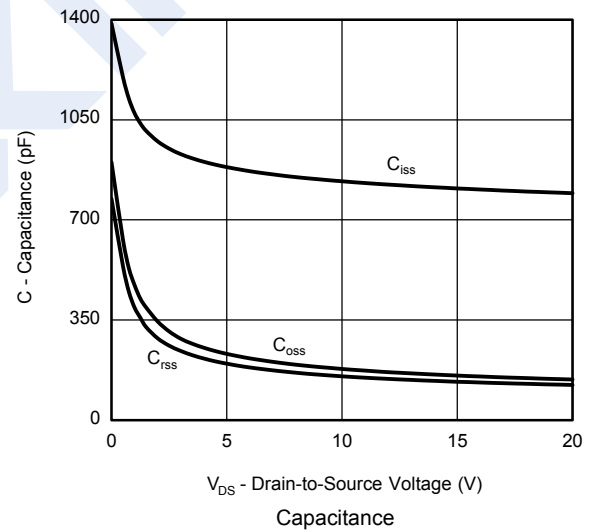
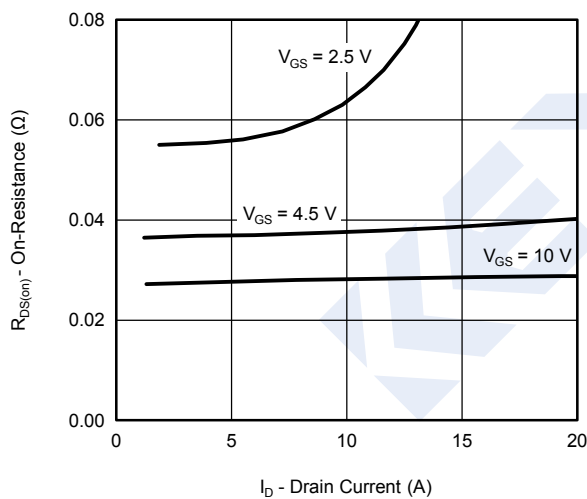
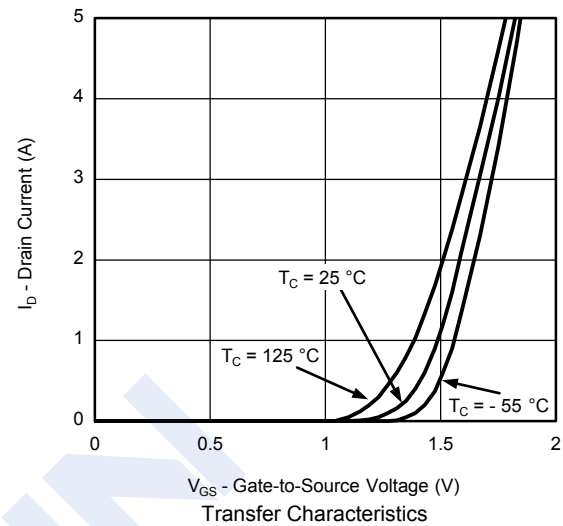
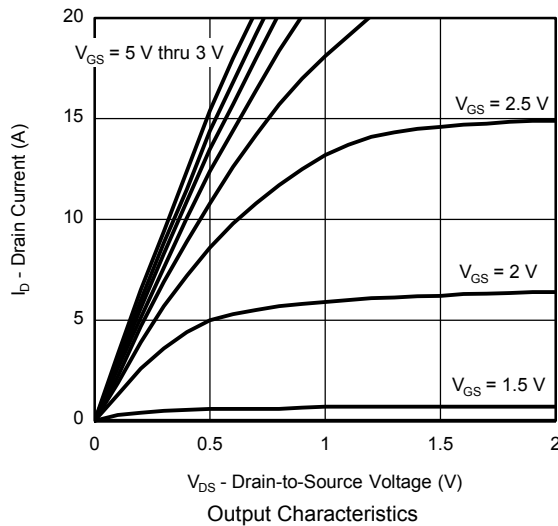
■ Marking

Marking	O1**
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P-Channel MOSFET

SI2399DS (KI2399DS)

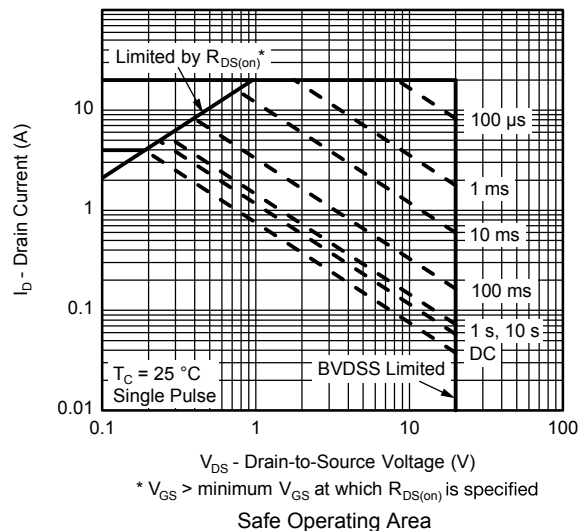
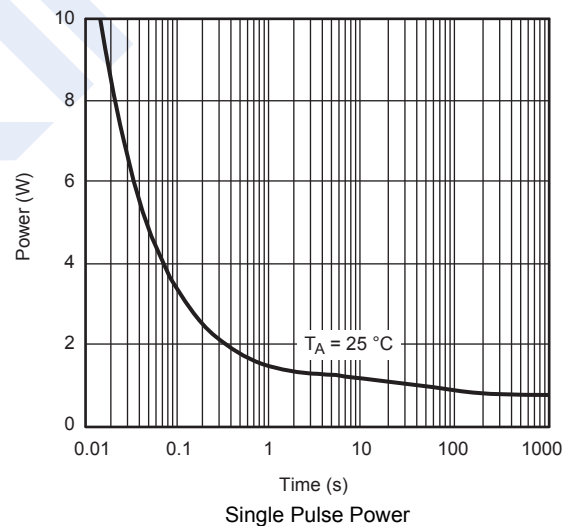
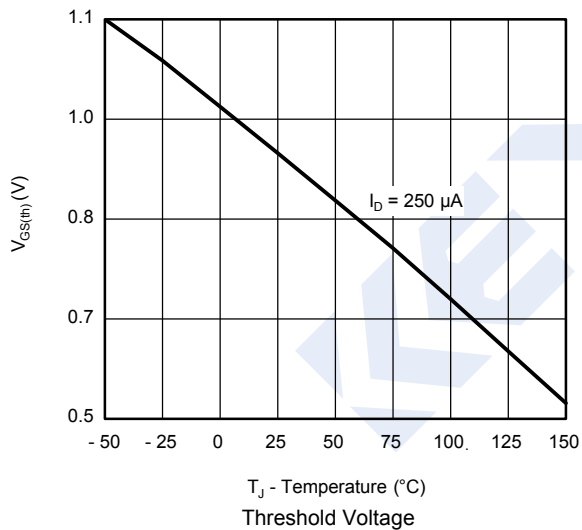
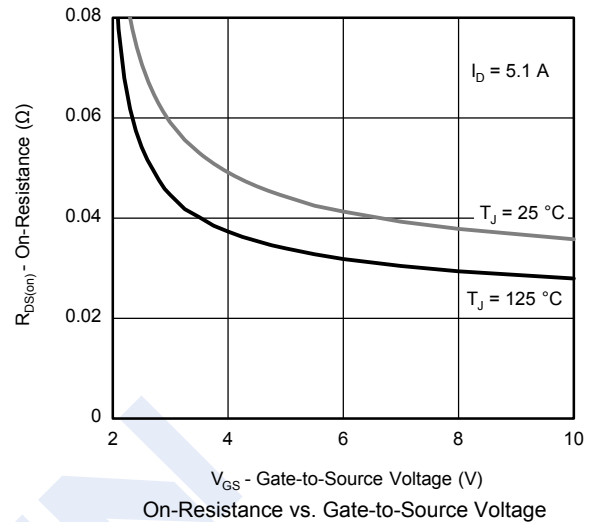
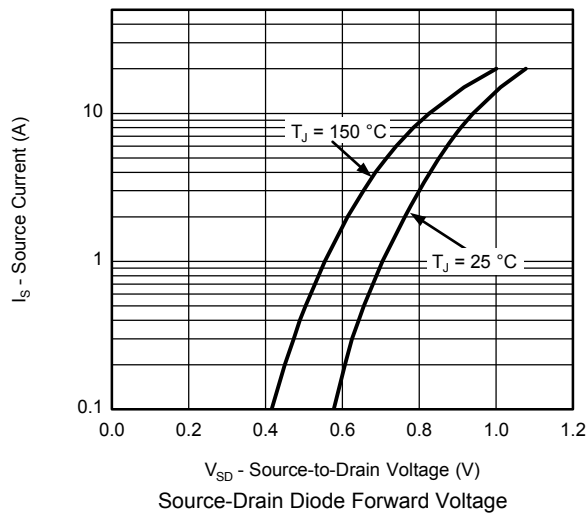
Typical Characteristics



P-Channel MOSFET

SI2399DS (KI2399DS)

■ Typical Characteristics



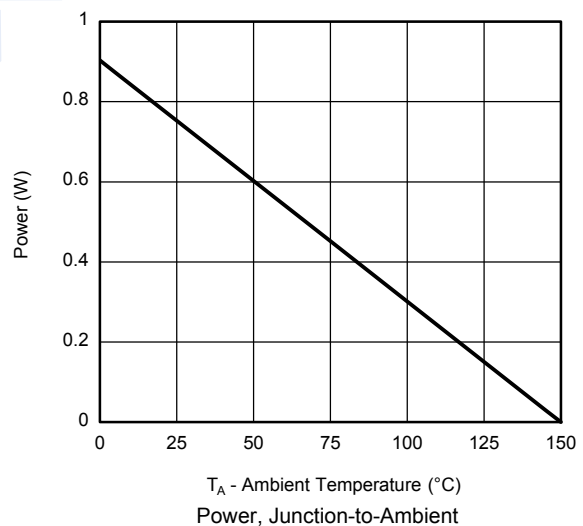
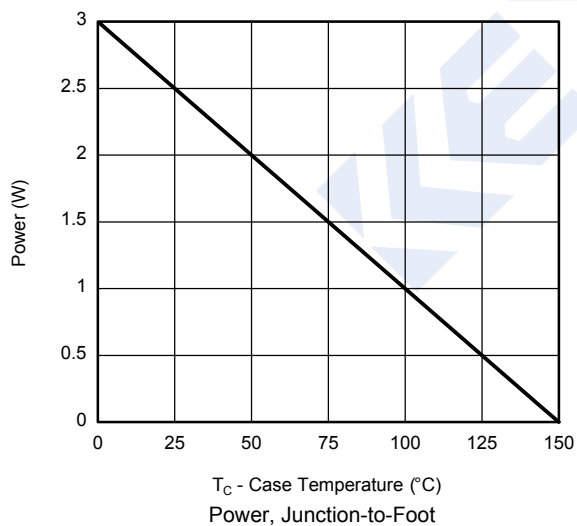
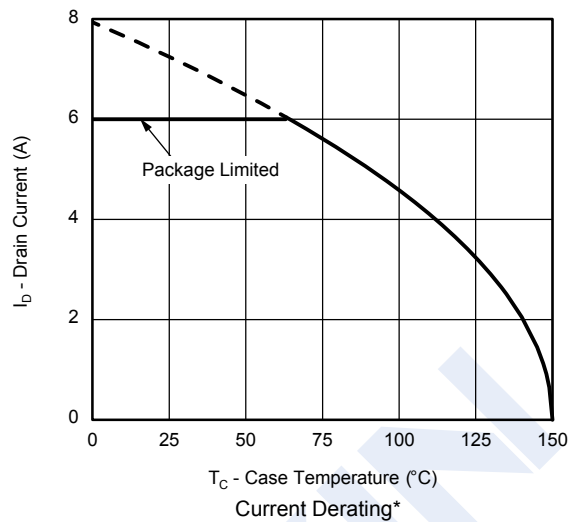
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

P-Channel MOSFET

SI2399DS (K12399DS)

■ Typical Characteristics



P-Channel MOSFET

SI2399DS (KI2399DS)

■ Typical Characteristics

