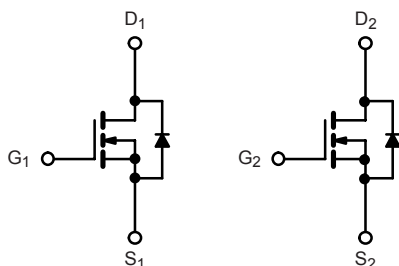
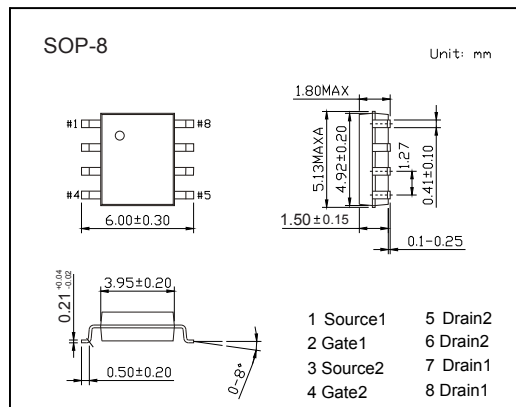


Dual N-Channel MOSFET

SI4946DY (KI4946DY)

■ Features

- $V_{DS} (V) = 60V$
- $I_D = 6.5 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 41m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 52m\Omega$ ($V_{GS} = 4.5V$)
- 175 °C Maximum Junction Temperature

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_c=25^\circ C$	I_D	6.5	A
	$T_c=70^\circ C$		5.5	
	$T_a=25^\circ C$		5.3	
	$T_a=70^\circ C$		4.4	
Pulsed Drain Current		I_{DM}	30	mJ
Avalanche Current		I_{AS}	12	
Single-Pulse Avalanche Energy		E_{AS}	7.2	
Power Dissipation	$T_c=25^\circ C$	P_D	3.7	W
	$T_c=70^\circ C$		2.6	
	$T_a=25^\circ C$		2.4	
	$T_a=70^\circ C$		1.7	
Thermal Resistance.Junction- to-Ambient		R_{thJA}	62.5	$^\circ C/W$
Thermal Resistance.Junction- to-Case		R_{thJC}	41	
Junction Temperature		T_J	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55 to 150	

Dual N-Channel MOSFET

SI4946DY (KI4946DY)

■ 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	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
		V _{DS} =60V, V _{GS} =0V, T _J =55°C			10	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	1		3	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =5.3A (Note.1)			41	mΩ
		V _{GS} =4.5V, I _D =4.7A (Note.1)			52	
On State Drain Current	I _{D(on)}	V _{GS} =10V, V _{DS} =5V (Note.1)	30			A
Forward Transconductance	g _{FS}	V _{DS} =15V, I _D =5.3A (Note.1)		24		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =30V, f=1MHz		840		pF
Output Capacitance	C _{oss}			71		
Reverse Transfer Capacitance	C _{rss}			44		
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	3.1		9.5	Ω
Total Gate Charge	Q _g	V _{DS} = 30 V, V _{GS} = 10 V, I _D = 5.3 A		17	25	nC
		V _{DS} =30V, V _{GS} =5V, I _D =5.3A		9.2	12	
Gate Source Charge	Q _{gs}			3.3		
Gate Drain Charge	Q _{gd}			3.7		
Turn-On DelayTime	t _{d(on)}	V _{DD} = 30 V, R _L = 6.8 Ω I _D = 4.4 A, V _{GEN} = 4.5 V, R _g = 1 Ω			30	ns
Turn-On Rise Time	t _r				180	
Turn-Off DelayTime	t _{d(off)}				30	
Turn-Off Fall Time	t _f				45	
Turn-On DelayTime	t _{d(on)}	V _{DD} = 30 V, R _L = 6.8 Ω I _D = 4.4 A, V _{GEN} = 10 V, R _g = 1 Ω			15	
Turn-On Rise Time	t _r				20	
Turn-Off DelayTime	t _{d(off)}				40	
Turn-Off Fall Time	t _f				15	
Body Diode Reverse Recovery Time	t _{rr}	I _F = 4.4 A, dI/dt = 100A/μs, T _J = 25°C			50	nC
Body Diode Reverse Recovery Charge	Q _{rr}				50	
Reverse Recovery Fall Time	t _a			18		ns
Reverse Recovery Rise Time	t _b			7		
Maximum Body-Diode Continuous Current	I _S	T _C = 25 °C			3.1	A
Pulse Diode Forward Current	I _{SM}	(Note.1)			30	
Diode Forward Voltage	V _{SD}	I _S =2A, V _{GS} =0V (Note.1)			1.2	V

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

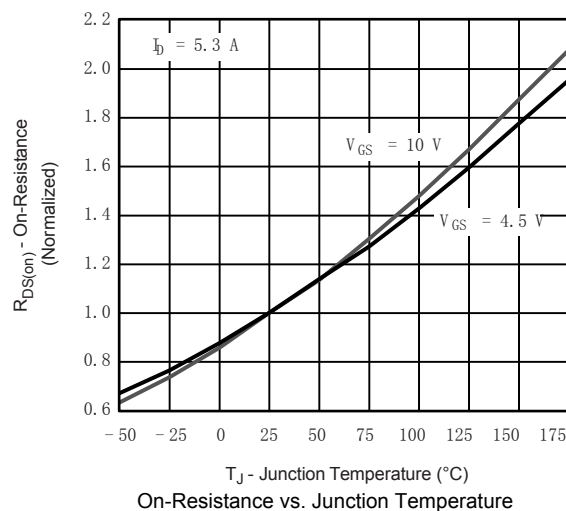
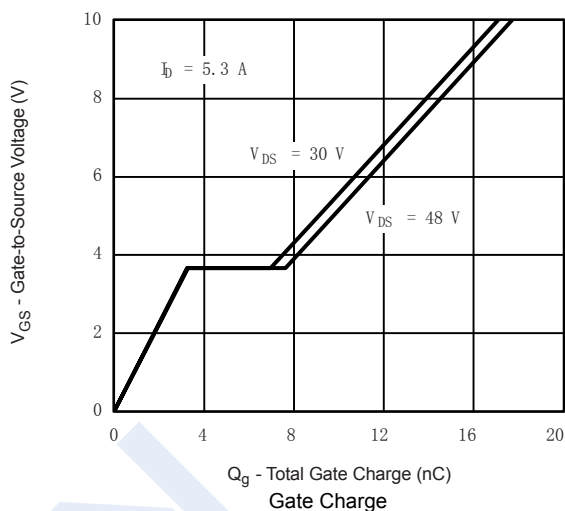
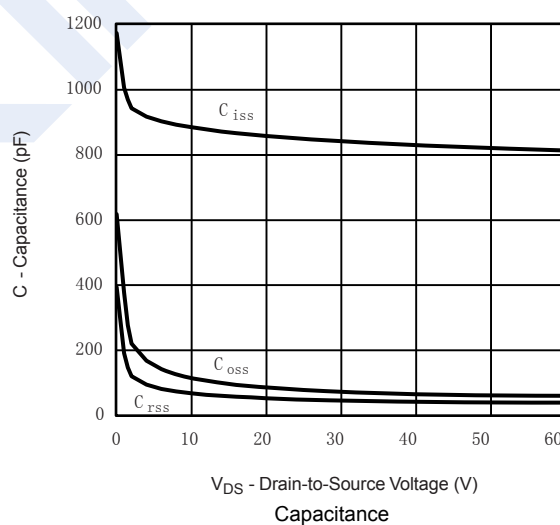
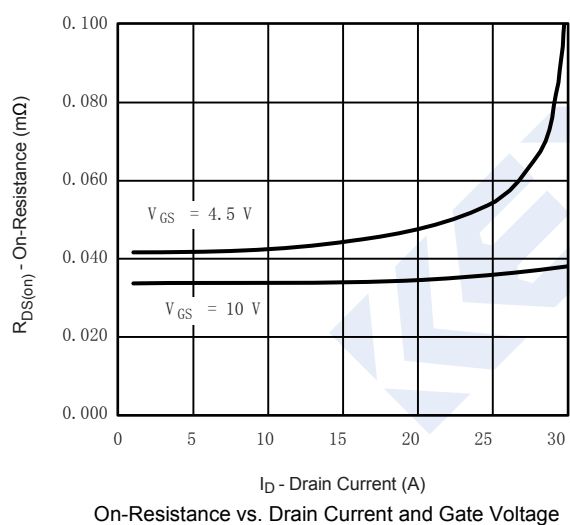
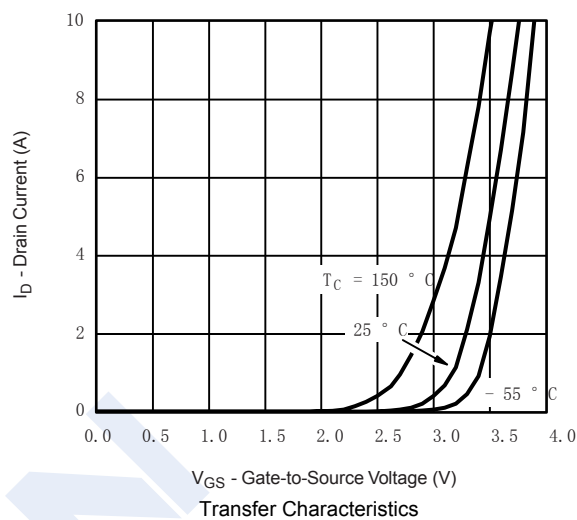
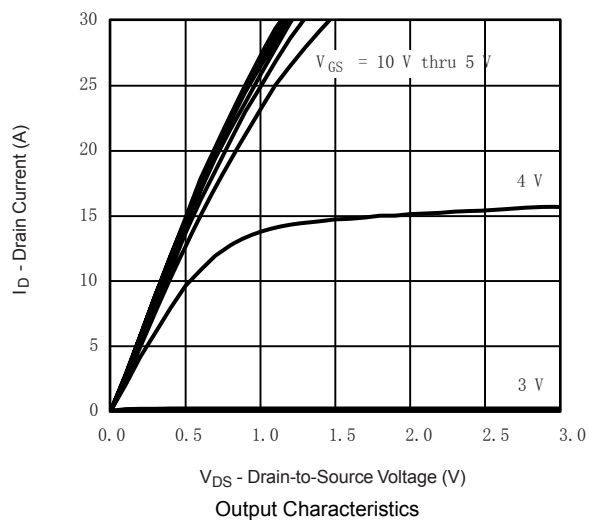
■ Marking

Marking	4946 KA****
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Dual N-Channel MOSFET

SI4946DY (KI4946DY)

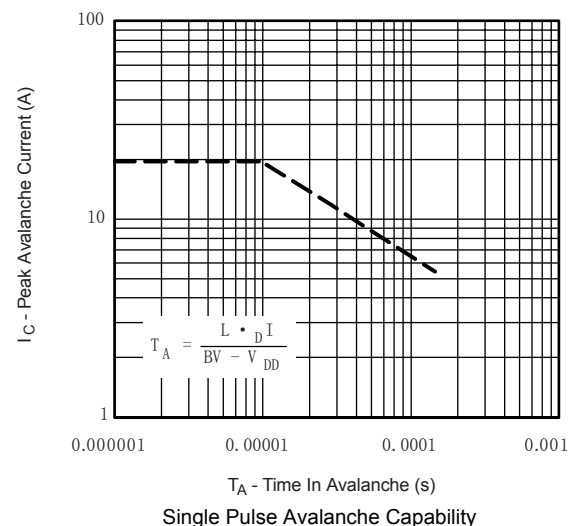
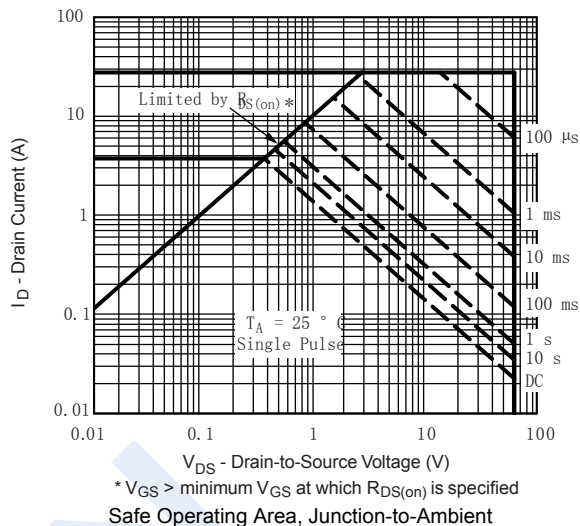
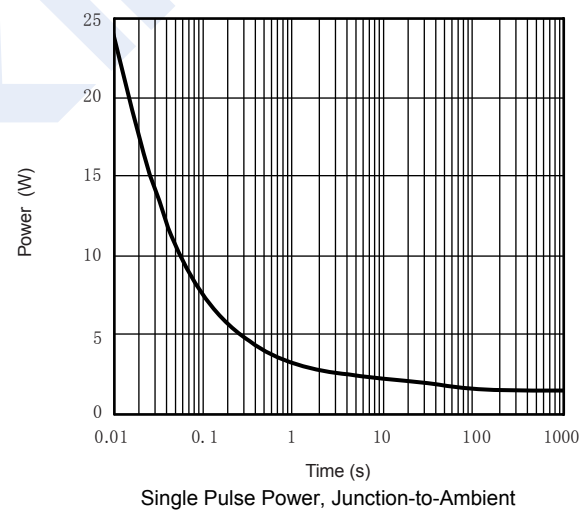
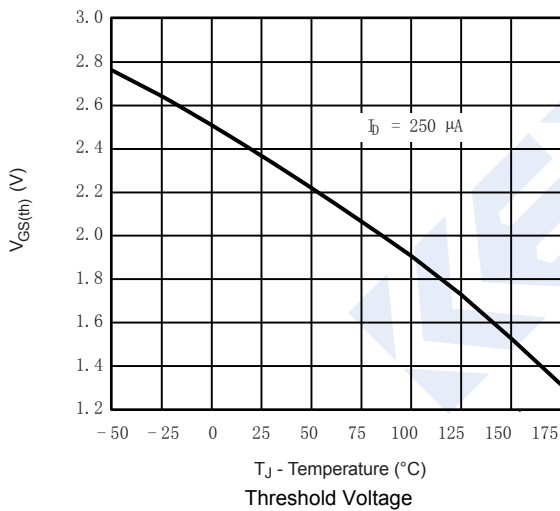
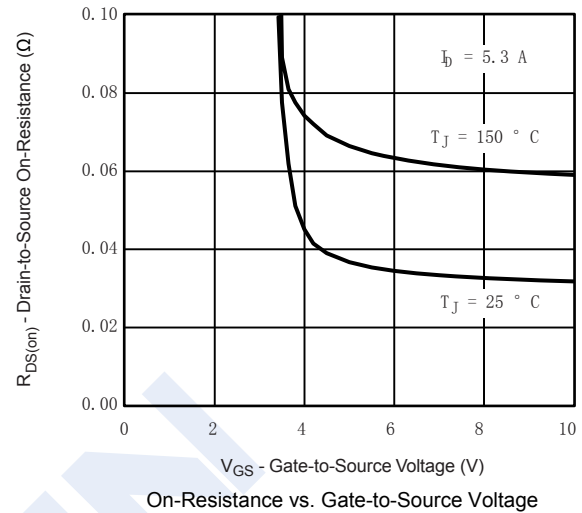
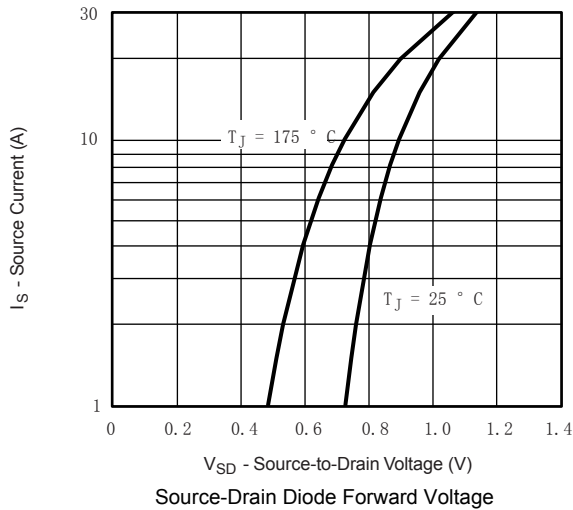
■ Typical Characteristics



Dual N-Channel MOSFET

SI4946DY (KI4946DY)

■ Typical Characteristics



Dual N-Channel MOSFET

SI4946DY (KI4946DY)

Typical Characteristics

