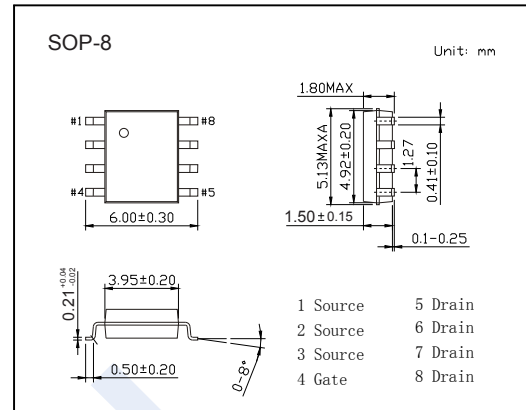
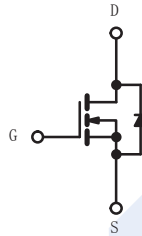


N-Channel MOSFET

SI4056DY-HF (KI4056DY-HF)

■ Features

- $V_{DS} (V) = 100V$
- $I_D = 11.1 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 23m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 24m\Omega (V_{GS} = 7.5V)$
- $R_{DS(ON)} < 31 m\Omega (V_{GS} = 4.5V)$
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_c = 25^\circ C$	I_D	11.1	A
	$T_c = 100^\circ C$		8.8	
	$T_a = 25^\circ C$ *1,2		7.3	
	$T_a = 100^\circ C$ *1,2		5.8	
Pulsed Drain Current		I_{DM}	70	
Avalanche Current		I_{AS}	15	
Power Dissipation	$T_c = 25^\circ C$	P_D	5.7	W
	$T_c = 100^\circ C$		3.6	
	$T_a = 25^\circ C$ *1,2		2.5	
	$T_a = 100^\circ C$ *1,2		1.6	
Single Pulsed Avalanche Energy		E_{AS}	11.2	mJ
Thermal Resistance.Junction- to-Ambient $t \leq 10s$ *1,3		R_{thJA}	50	$^\circ C/W$
Thermal Resistance.Junction- to-Foot Steady State		R_{thJF}	22	
Junction Temperature		T_J	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55 to 150	

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

*2. $t = 10 s$.

*3.Maximum under steady state conditions is $85^\circ C/W$.

N-Channel MOSFET

SI4056DY-HF (KI4056DY-HF)

■ 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	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
		V _{DS} =100V, V _{GS} =0V, Ta=55°C			10	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
On-State Drain Current *1	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =10V	30			A
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	1.5		2.8	V
Static Drain-Source On-Resistance *1	R _{Ds(on)}	V _{GS} =10V, I _D =15A			23	mΩ
		V _{GS} =7.5V, I _D =12A			24	
		V _{GS} =4.5V, I _D =10A			31	
Forward Transconductance *1	g _{FS}	V _{DS} =15V, I _D =15A		26		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=1MHz *2		900		pF
Output Capacitance	C _{oss}			340		
Reverse Transfer Capacitance	C _{rss}			31		
Total Gate Charge	Q _g		V _{GS} =10V, V _{DS} =50V, I _D =10A *2		19.6	
Gate Source Charge	Q _{gs}	V _{GS} =4.5V, V _{DS} =50V, I _D =10A *2		9.7	15	
Gate Drain Charge	Q _{gd}			2.8		
Gate Resistance	R _g		f = 1 MHz	0.2	0.85	1.7
Turn-On DelayTime	t _{d(on)}	I _D =10A, V _{DS} =50V, R _{GEN} =5Ω, V _{GED} =7.5V, R _g =1Ω *2		13	26	ns
Turn-On Rise Time	t _r			14	28	
Turn-Off DelayTime	t _{d(off)}			19	38	
Turn-Off Fall Time	t _f			10	20	
Turn-On DelayTime	t _{d(on)}	I _D =10A, V _{DS} =50V, R _{GEN} =5Ω, V _{GED} =10V, R _g =1Ω *2		11	22	
Turn-On Rise Time	t _r			10	20	
Turn-Off DelayTime	t _{d(off)}			20	40	
Turn-Off Fall Time	t _f			9	18	
Body Diode Reverse Recovery Time	t _{rr}	I _F =5A, di/dt=100A/μs, T _J =25°C		34	65	nc
Body Diode Reverse Recovery Charge	Q _{rr}			34	65	
Reverse Recovery Fall Time	t _a			20		ns
Reverse Recovery Rise Time	t _b			14		
Maximum Body-Diode Continuous Current	I _S		T _C =25°C			5.1
Maximum Pulsed Drain-Source Current	I _{SM}				70	
Diode Forward Voltage	V _{SD}	I _S =4A		0.77	1.1	V

*1. Pulse Test:Pulse width≤300us,Duty cycle≤2%

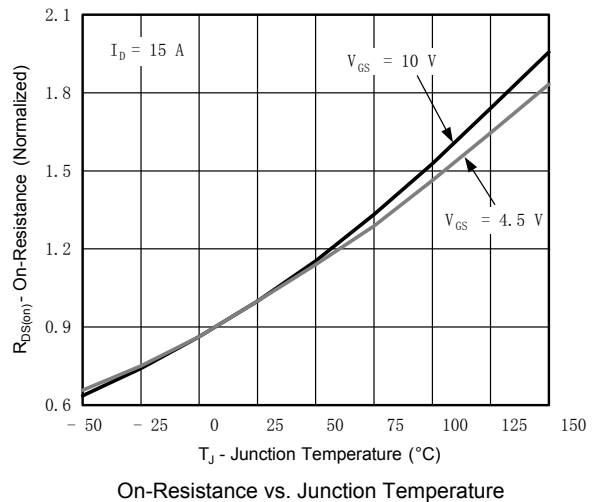
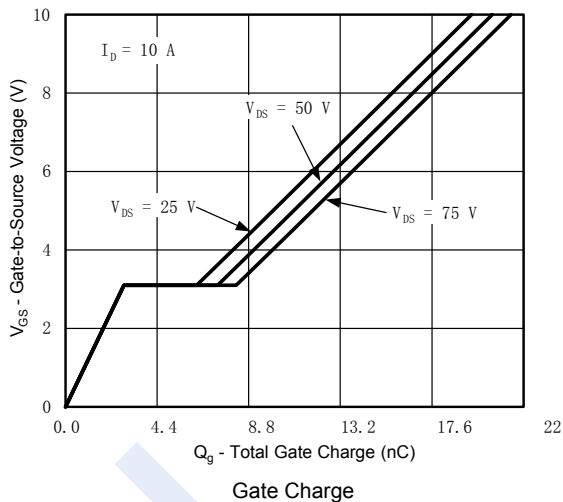
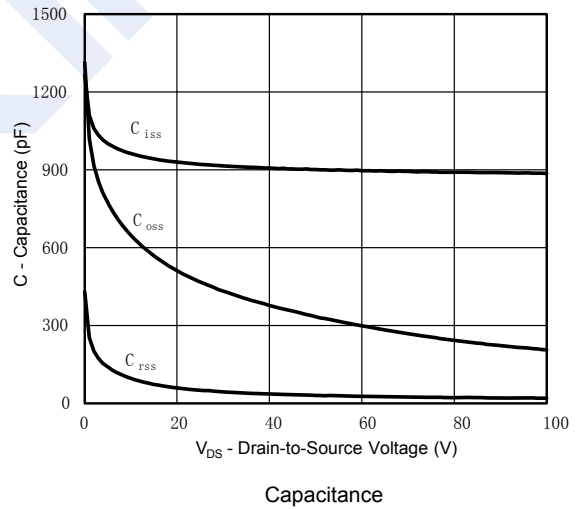
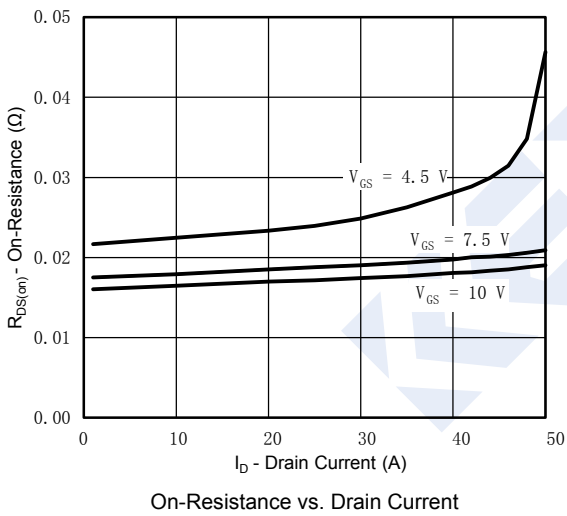
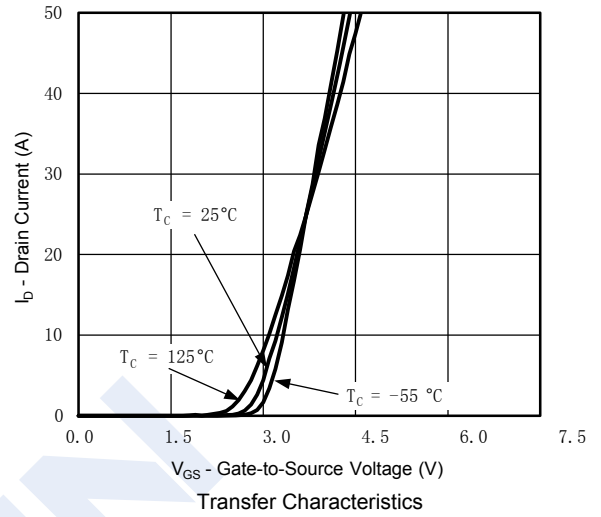
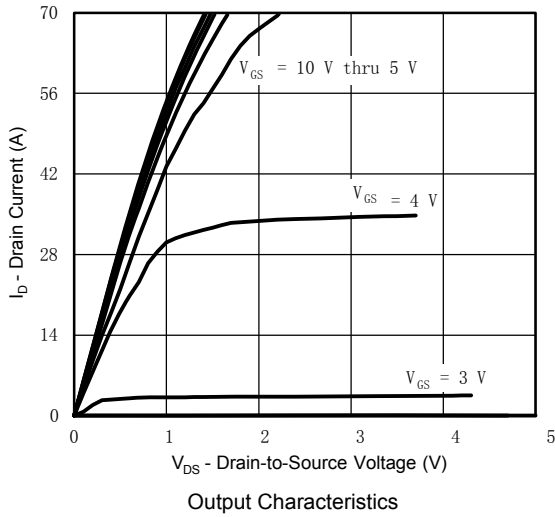
*2. Essentially independent of operating temperature

■ Marking

Marking	4056 KC**** F
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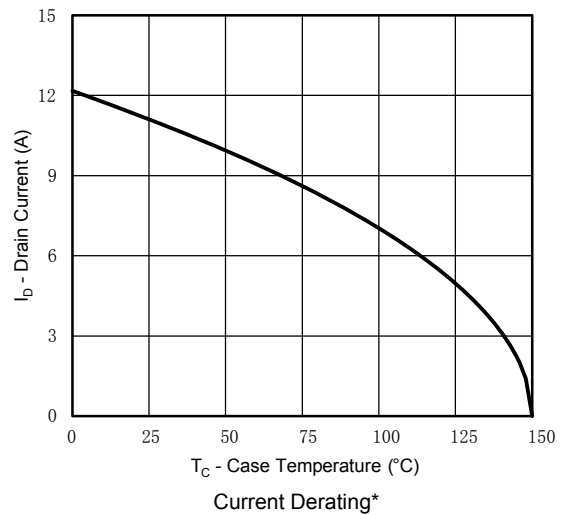
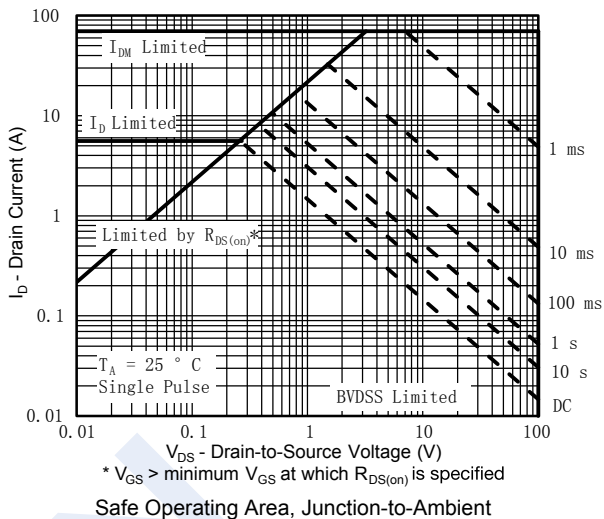
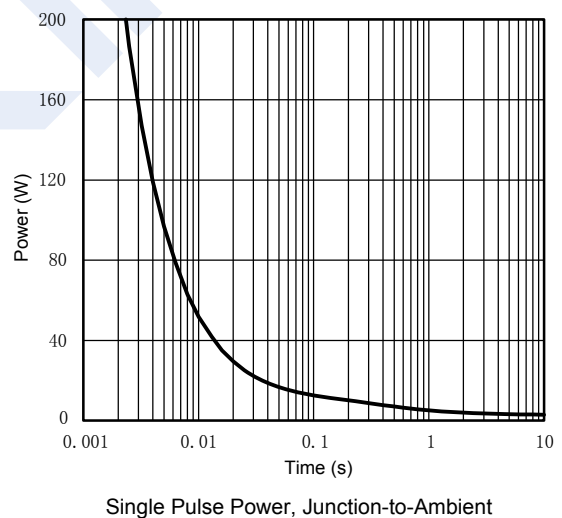
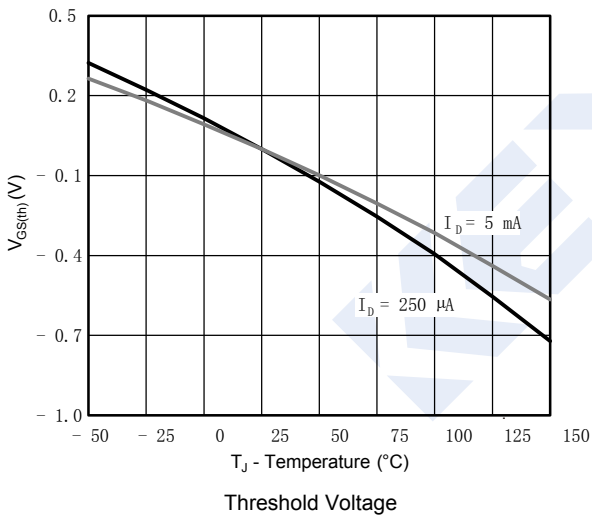
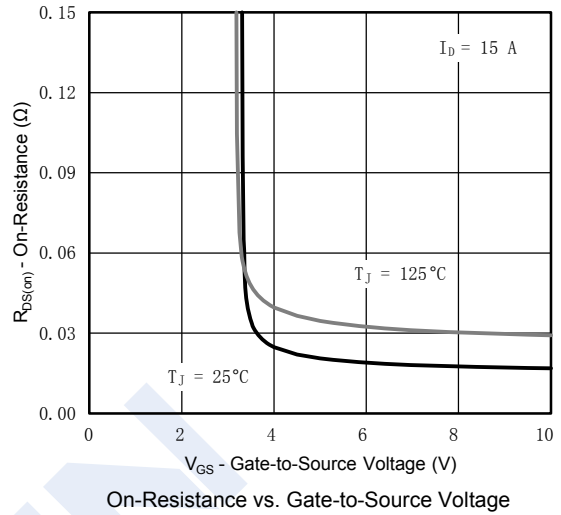
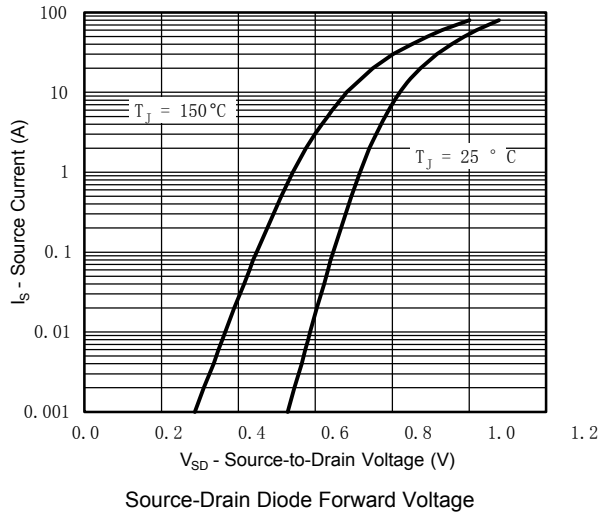
N-Channel MOSFET SI4056DY-HF (KI4056DY-HF)

■ Typical Characteristics



N-Channel MOSFET SI4056DY-HF (KI4056DY-HF)

■ Typical Characteristics



N-Channel MOSFET SI4056DY-HF (KI4056DY-HF)

■ Typical Characteristics

