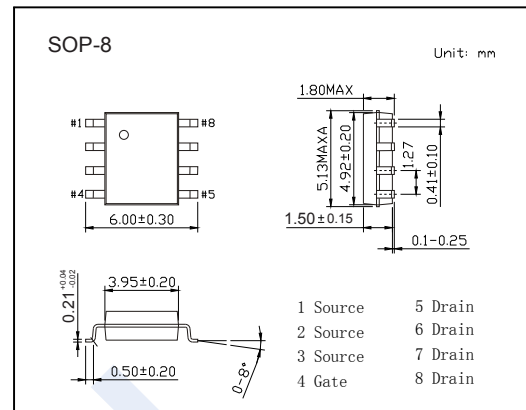
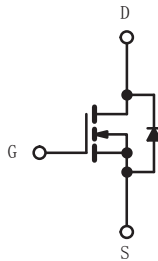


N-Channel MOSFET

SI4056DY (KI4056DY)

■ Features

- $V_{DS} (V) = 100V$
- $I_D = 11.1 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 23m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 24m\Omega$ ($V_{GS} = 7.5V$)
- $R_{DS(ON)} < 31 m\Omega$ ($V_{GS} = 4.5V$)



■ 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 (KI4056DY)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D=250\mu A$, $V_{GS}=0V$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V$, $V_{GS}=0V$			1	μA
		$V_{DS}=100V$, $V_{GS}=0V$, $T_a=55^\circ C$			10	
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0V$, $V_{GS}=\pm 20V$			± 100	nA
On-State Drain Current *1	$I_{D(on)}$	$V_{DS} \geq 5V$, $V_{GS}=10V$	30			A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu A$	1.5		2.8	V
Static Drain-Source On-Resistance *1	$R_{DS(on)}$	$V_{GS}=10V$, $I_D=15A$		17	23	m Ω
		$V_{GS}=7.5V$, $I_D=12A$		18	24	
		$V_{GS}=4.5V$, $I_D=10A$		22	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	29.5	nC
				9.7	15	
Gate Source Charge	Q_{gs}	$V_{GS}=4.5V$, $V_{DS}=50V$, $I_D=10A$ *2		2.8		
Gate Drain Charge	Q_{gd}			4.3		
Gate Resistance	R_g	$f=1MHz$	0.2	0.85	1.7	Ω
Turn-On DelayTime	$t_{d(on)}$	$I_D=10A$, $V_{DS}=50V$, $R_{GEN}=5\Omega$, $V_{GED}=7.5V$, $R_g=1\Omega$ *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	$t_{d(on)}$	$I_D=10A$, $V_{DS}=50V$, $R_{GEN}=5\Omega$, $V_{GED}=10V$, $R_g=1\Omega$ *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}	$I_F=5A$, $di/dt=100A/\mu s$, $T_J=25^\circ C$		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	$T_C=25^\circ C$			5.1	A
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 $\leq 300\mu s$, Duty cycle $\leq 2\%$

*2. Essentially independent of operating temperature

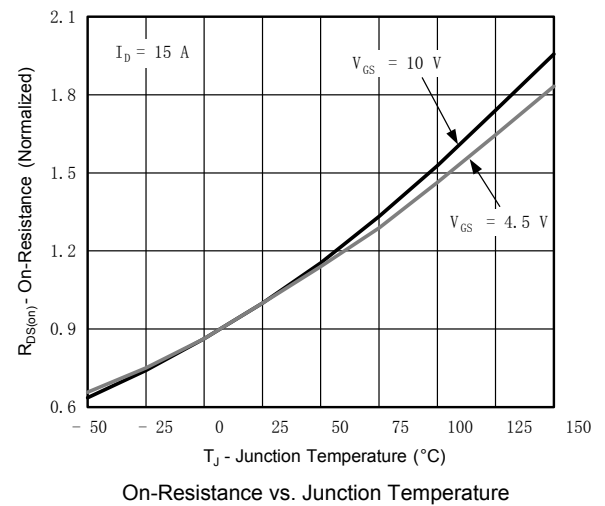
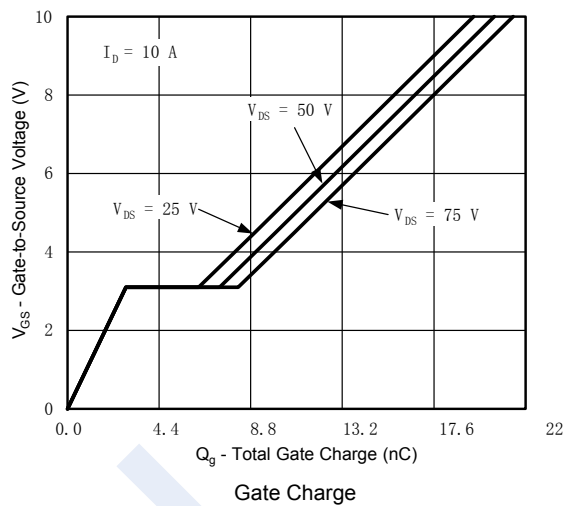
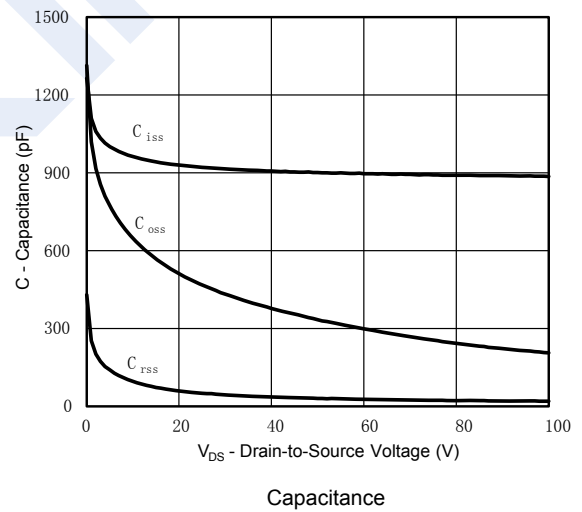
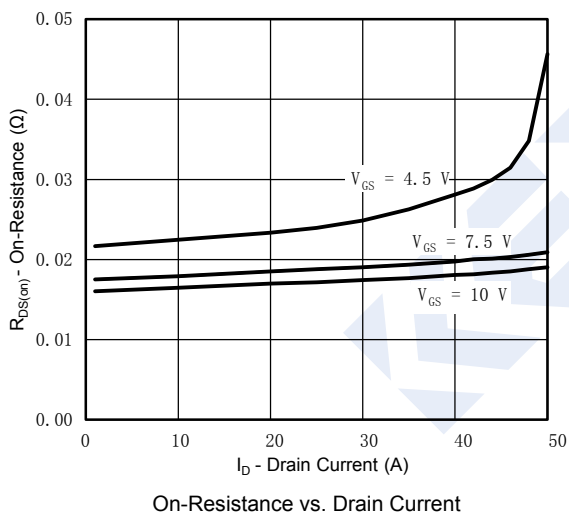
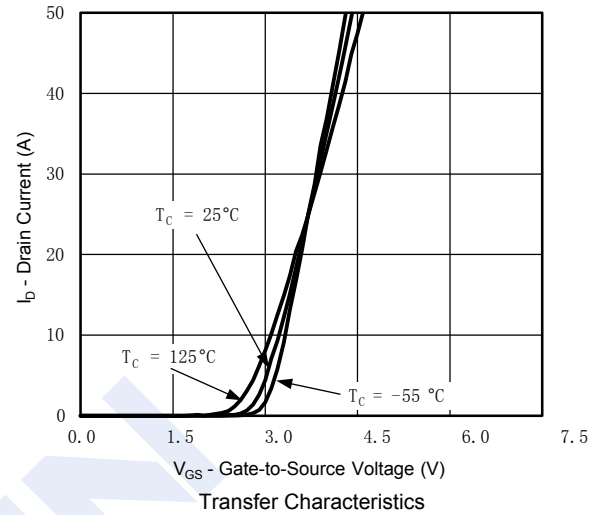
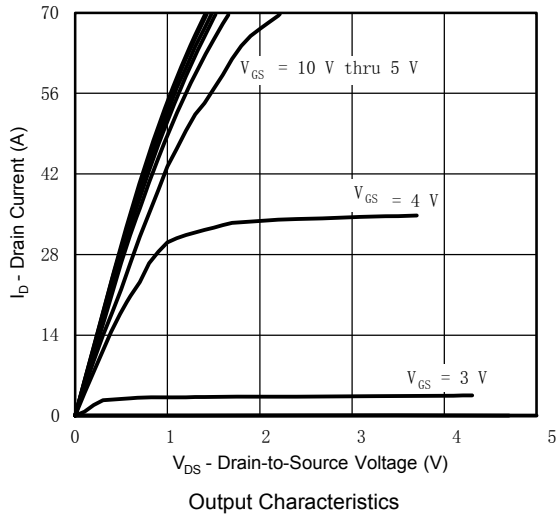
■ Marking

Marking	4056 KC****
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N-Channel MOSFET

SI4056DY (KI4056DY)

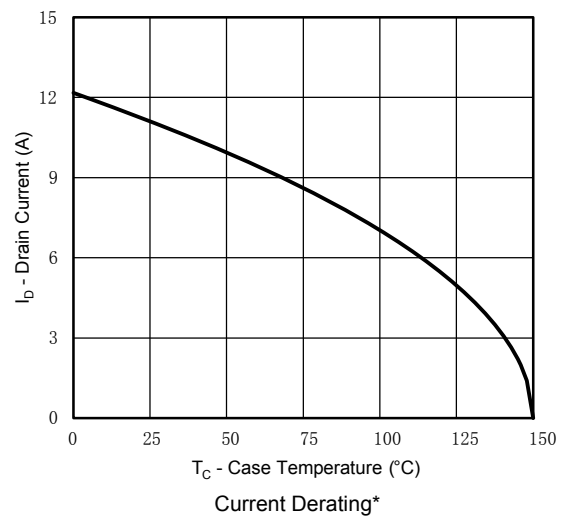
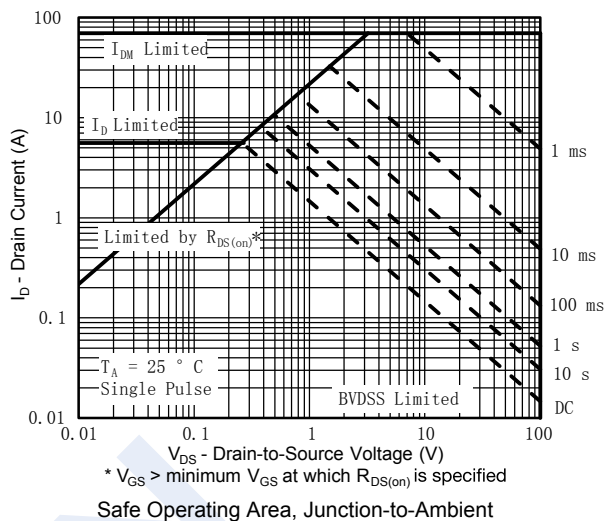
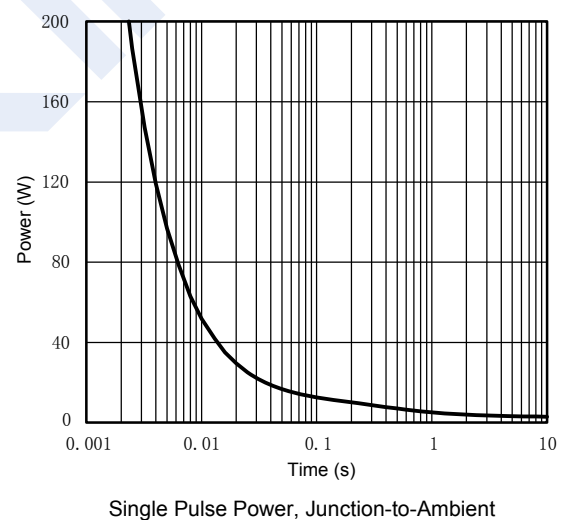
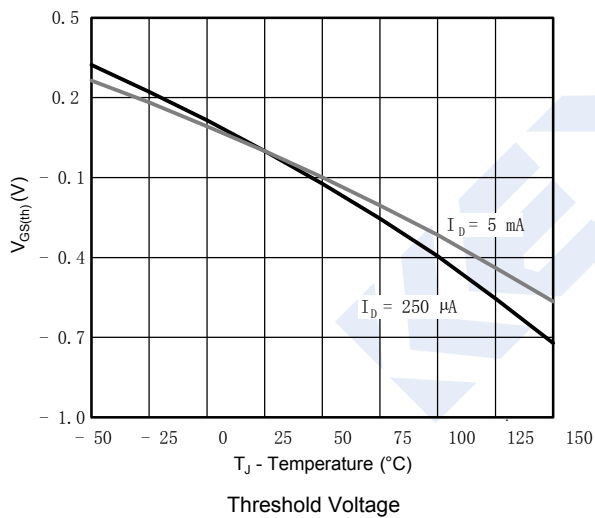
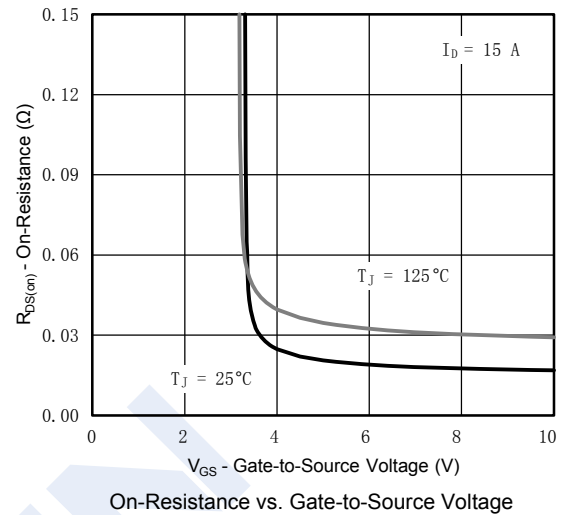
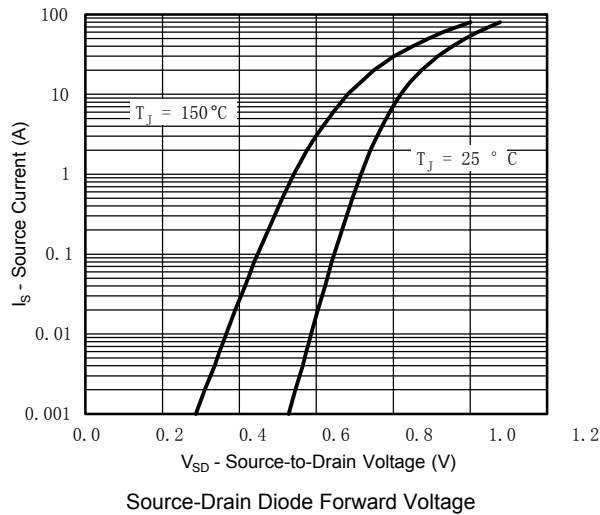
■ Typical Characteristics



N-Channel MOSFET

SI4056DY (KI4056DY)

■ Typical Characteristics



N-Channel MOSFET

SI4056DY (KI4056DY)

■ Typical Characteristics

