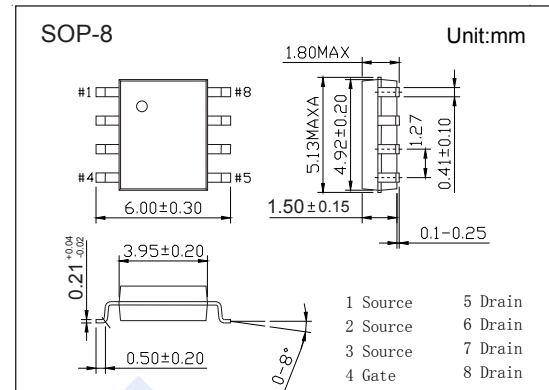
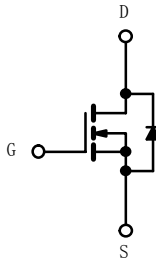


## N-Channel MOSFET

### SI4634DY (KI4634DY)

#### ■ Features

- $V_{DS} (V) = 30V$
- $I_D = 24.5 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 5.2m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 6.7m\Omega (V_{GS} = 4.5V)$



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$		
Continuous Drain Current	$I_D$	$T_C=25^\circ\text{C}$	A	
		$T_C=70^\circ\text{C}$		
		$T_A=25^\circ\text{C}$		
		$T_A=70^\circ\text{C}$		
Pulsed Drain Current	$I_{DM}$	70	A	
Single Pulse Avalanche Current	$I_{AS}$	30		
Avalanche Energy	$E_{AS}$	45	mJ	
Power Dissipation	$P_D$	$T_C=25^\circ\text{C}$	W	
		$T_C=70^\circ\text{C}$		
		$T_A=25^\circ\text{C}$		
		$T_A=70^\circ\text{C}$		
Thermal Resistance.Junction- to-Ambient	$t \leq 10 \text{ s}$	$R_{thJA}$	50	$^\circ\text{C}/\text{W}$
Thermal Resistance.Junction- to-Case	Steady State	$R_{thJC}$	22	
Junction Temperature	$T_J$	150	$^\circ\text{C}$	
Storage Temperature Range	$T_{stg}$	-55 to 150		

## N-Channel MOSFET

### SI4634DY (KI4634DY)

#### ■ 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	1.4		2.6	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =15A			5.2	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A			6.7	
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> ≥5V	30			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =15A		78		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz		3150		pF
Output Capacitance	C <sub>oss</sub>			420		
Reverse Transfer Capacitance	C <sub>rss</sub>			166		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		0.75	1.5	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =15V, V <sub>DS</sub> =10V, I <sub>D</sub> =10A		45.5	68	nC
				21.5	33	
Gate Source Charge	Q <sub>gs</sub>	V <sub>GS</sub> =15V, V <sub>DS</sub> =4.5V, I <sub>D</sub> =10A		8		
Gate Drain Charge	Q <sub>gd</sub>			6.2		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>DD</sub> = 15 V, R <sub>L</sub> = 1.5 Ω I <sub>D</sub> = 10 A, V <sub>GEN</sub> = 4.5 V, R <sub>g</sub> = 1 Ω		30	50	ns
Turn-On Rise Time	t <sub>r</sub>			15	30	
Turn-Off DelayTime	t <sub>d(off)</sub>			33	55	
Turn-Off Fall Time	t <sub>f</sub>			10	20	
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>DD</sub> = 15 V, R <sub>L</sub> = 1.5 Ω I <sub>D</sub> = 10 A, V <sub>GEN</sub> = 10V, R <sub>g</sub> = 1 Ω		14	25	ns
Turn-On Rise Time	t <sub>r</sub>			10	20	
Turn-Off DelayTime	t <sub>d(off)</sub>			33	55	
Turn-Off Fall Time	t <sub>f</sub>			8	16	
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 10A, di/dt= 100A/us, T <sub>J</sub> =25°C		30	60	nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			35	70	
Reverse Recovery Fall Time	t <sub>a</sub>			20		ns
Reverse Recovery Rise Time	t <sub>b</sub>			10		
Continuous Source-Drain Diode Current	I <sub>S</sub>	T <sub>c</sub> =25°C			5.1	A
Pulse Diode Forward Current	I <sub>SM</sub>				70	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =3A, V <sub>GS</sub> =0V			1.1	V

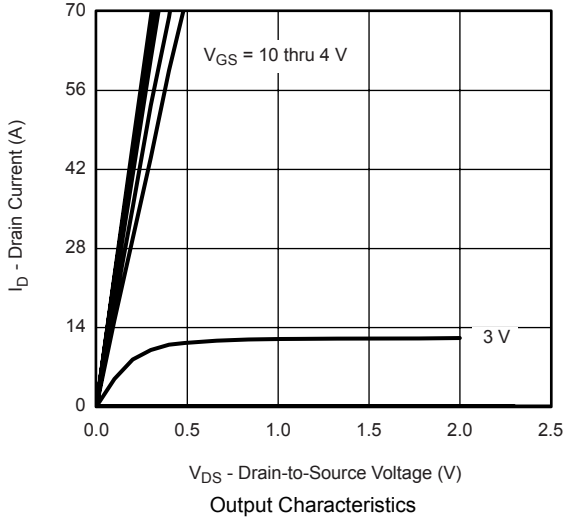
Note : Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %

#### ■ Marking

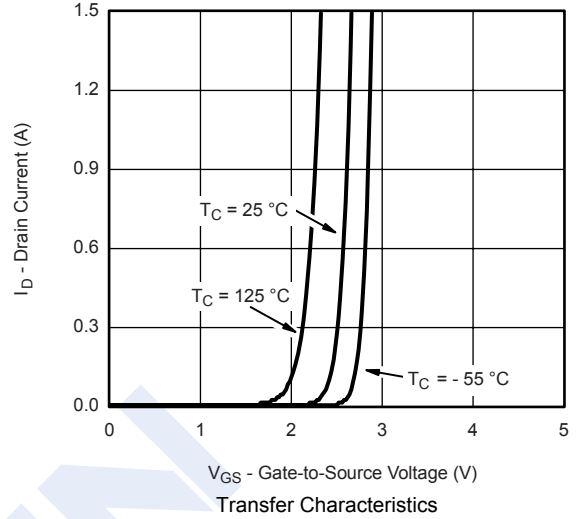
Marking	4634
	KC****

## N-Channel MOSFET SI4634DY (KI4634DY)

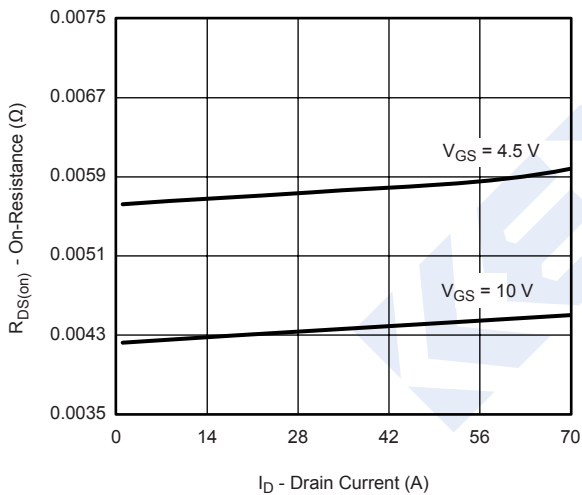
### Typical Characteristics



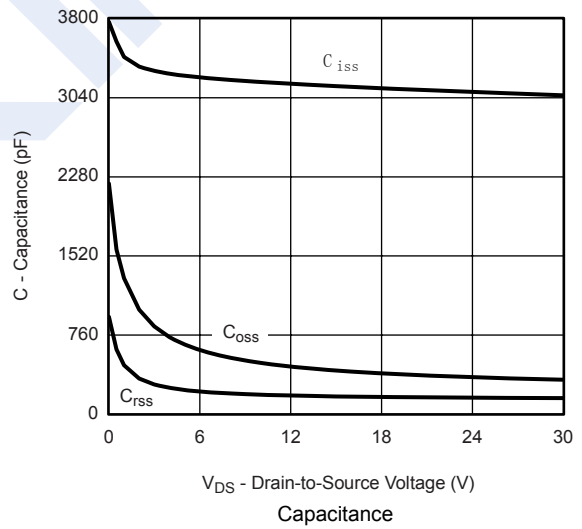
Output Characteristics



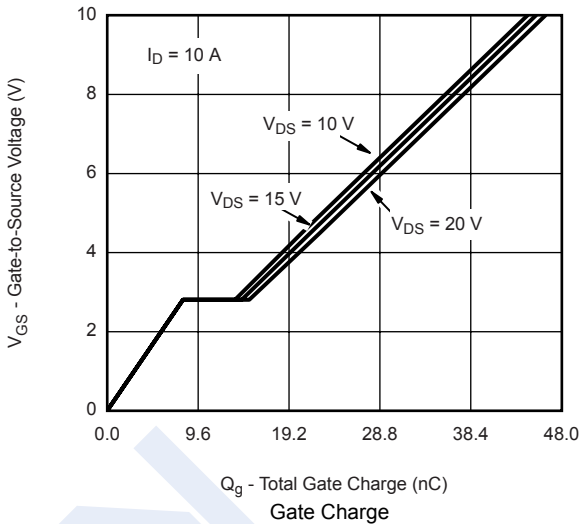
Transfer Characteristics



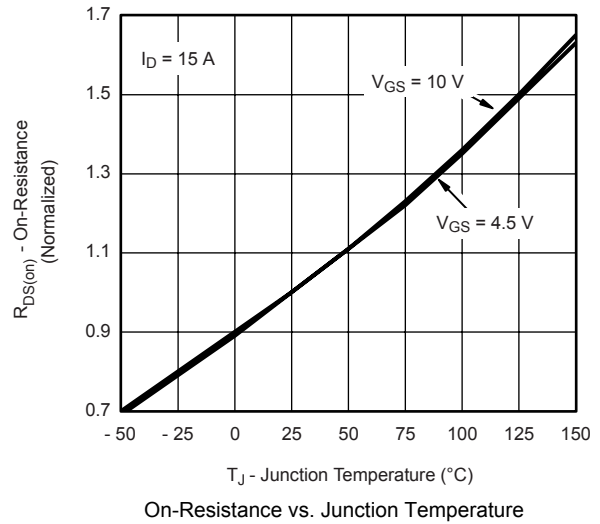
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



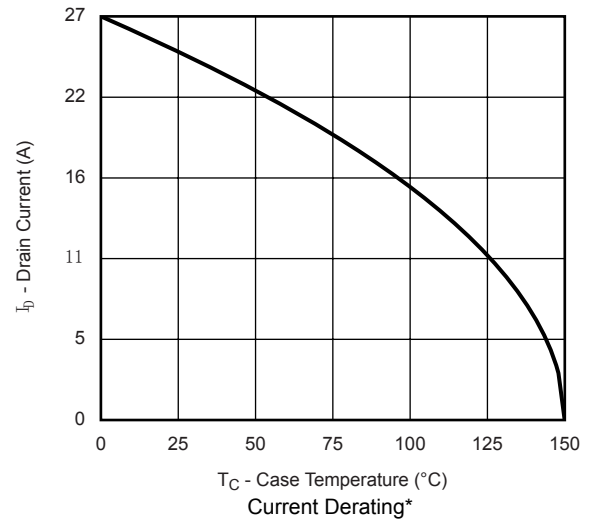
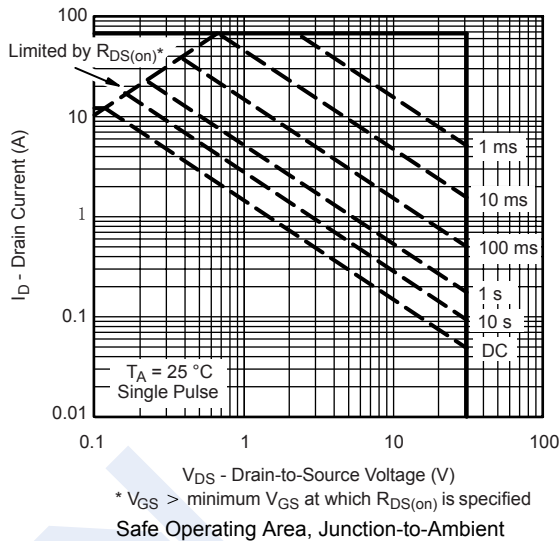
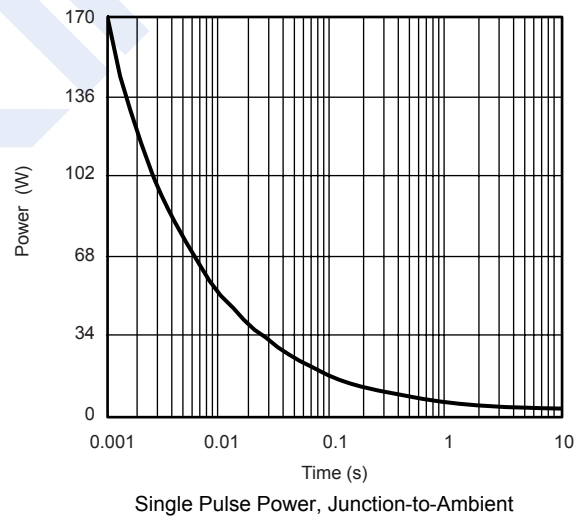
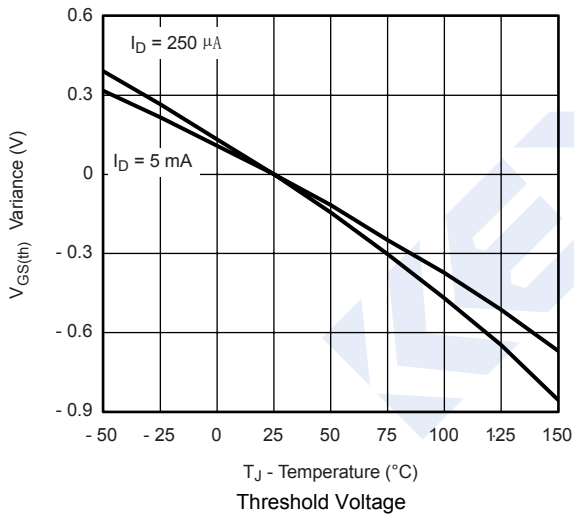
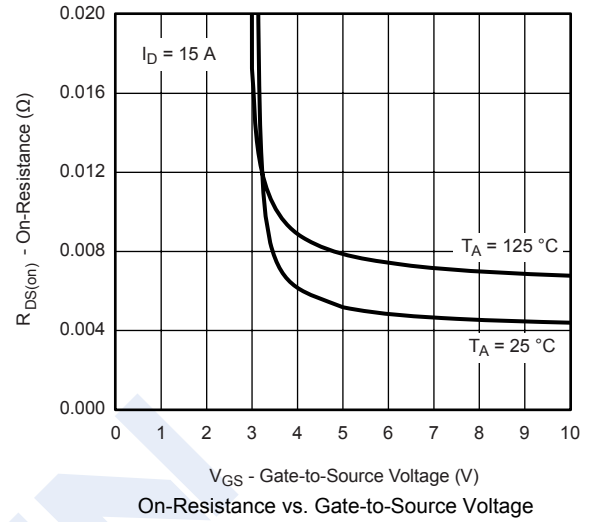
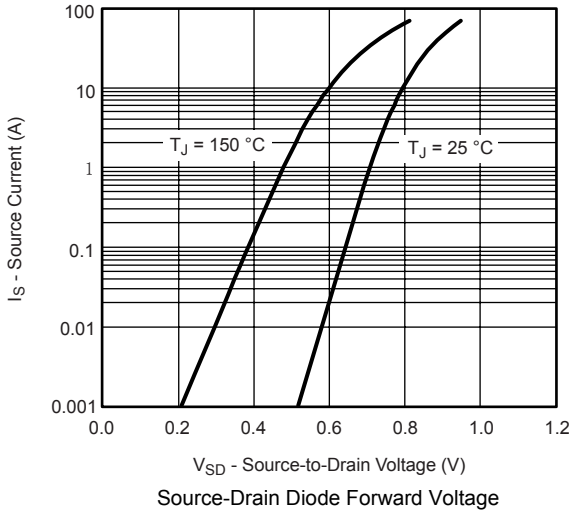
Gate Charge



On-Resistance vs. Junction Temperature

## N-Channel MOSFET SI4634DY (KI4634DY)

### Typical Characteristics



## N-Channel MOSFET SI4634DY (KI4634DY)

### ■ Typical Characteristics

