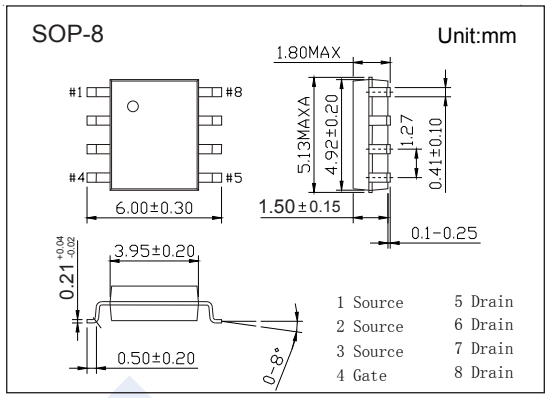
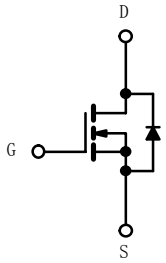
N-Channel MOSFET

SI4634DY (KI4634DY)



■ Features

- V_{DS} (V) = 30V
- I_D = 24.5 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 52mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 67mΩ (V_{GS} = 4.5V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C=25℃	I_D	24.5	A
	T_C=70℃		19.5	
	T_A=25℃		16.3	
	T_A=70℃		13	
Pulsed Drain Current		I_{DM}	70	
Single Pulse Avalanche Current	L=0.1mH	I_{AS}	30	
Avalanche Energy		E_{AS}	45	mJ
Power Dissipation	T_C=25℃	P_D	5.7	W
	T_C=70℃		3.6	
	T_A=25℃		2.5	
	T_A=70℃		1.6	
Thermal Resistance.Junction- to-Ambient	t ≤ 10 s	R_{thJA}	50	℃/W
Thermal Resistance.Junction- to-Case	Steady State	R_{thJC}	22	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

N-Channel MOSFET

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	uA
		V_{DS}=30V, V_{GS}=0V, T_J=55℃			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=250μA	1.4		2.6	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=15A			52	mΩ
		V_{GS}=4.5V, I_D=10A			67	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}≥5V	30			A
Forward Transconductance	g_{FS}	V_{DS}=15V, I_D=15A		78		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		3150		pF
Output Capacitance	C_{oss}			420		
Reverse Transfer Capacitance	C_{rss}			166		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		0.75	1.5	Ω
Total Gate Charge	Q_g	V_{GS}=15V, V_{DS}=10V, I_D=10A		45.5	68	nC
		V_{GS}=15V, V_{DS}=4.5V, I_D=10A		21.5	33	
Gate Source Charge	Q_{gs}			8		
Gate Drain Charge	Q_{gd}			6.2		
Turn-On DelayTime	$t_{d(on)}$	V_{DD} = 15 V, R_L = 1.5 Ω I_D ≅ 10 A, V_{GEN} = 4.5 V, R_g = 1 Ω		30	50	ns
Turn-On Rise Time	t_r			15	30	
Turn-Off DelayTime	$t_{d(off)}$			33	55	
Turn-Off Fall Time	t_f			10	20	
Turn-On DelayTime	$t_{d(on)}$	V_{DD} = 15 V, R_L = 1.5 Ω I_D ≅ 10 A, V_{GEN} = 10V, R_g = 1 Ω		14	25	
Turn-On Rise Time	t_r			10	20	
Turn-Off DelayTime	$t_{d(off)}$			33	55	
Turn-Off Fall Time	t_f			8	16	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 10A, dI/dt= 100A/us , T_J=25℃		30	60	
Body Diode Reverse Recovery Charge	Q_{rr}			35	70	nC
Reverse Recovery Fall Time	t_a			20		ns
Reverse Recovery Rise Time	t_b			10		
Continuous Source-Drain Diode Current	I_S	Tc=25℃			5.1	A
Pulse Diode Forward Current	I_{SM}				70	
Diode Forward Voltage	V_{SD}	I_S=3A,V_{GS}=0V			1.1	V

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

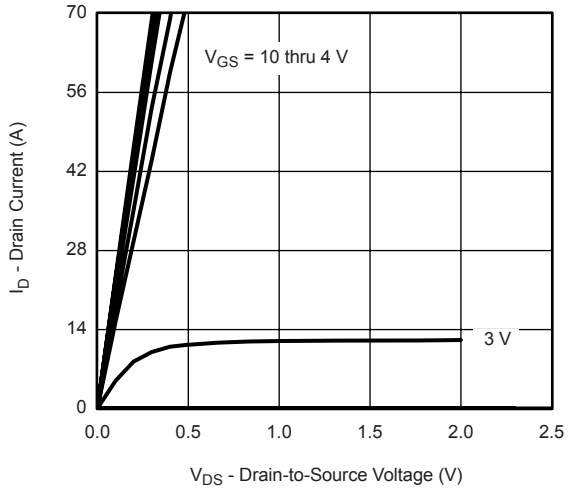
■ Marking

Marking	4634 KC****

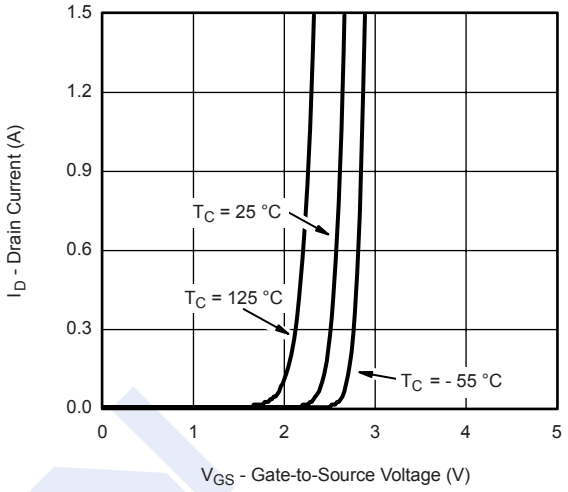
N-Channel MOSFET

SI4634DY (KI4634DY)

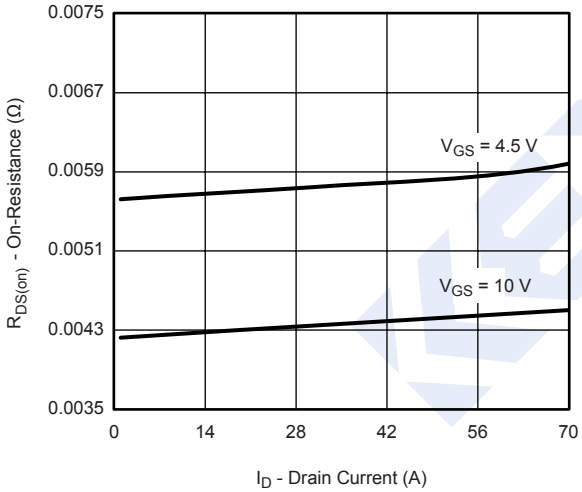
■ Typical Characterisitics



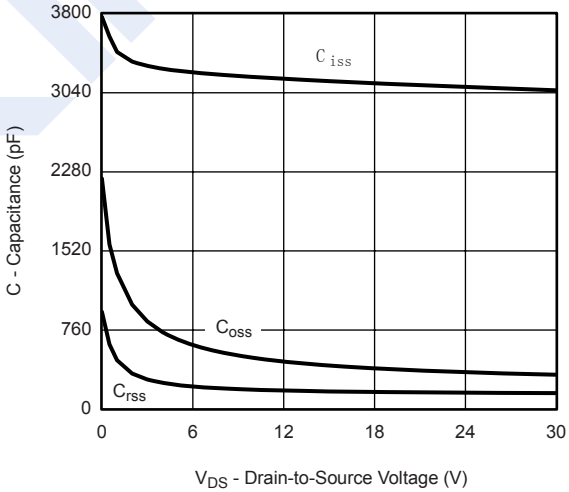
Output Characteristics



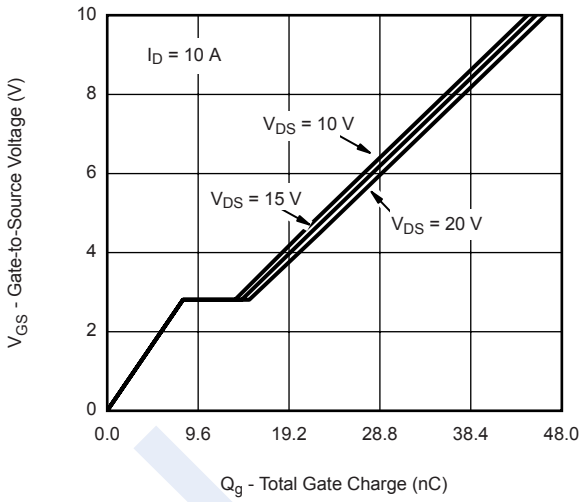
Transfer Characteristics



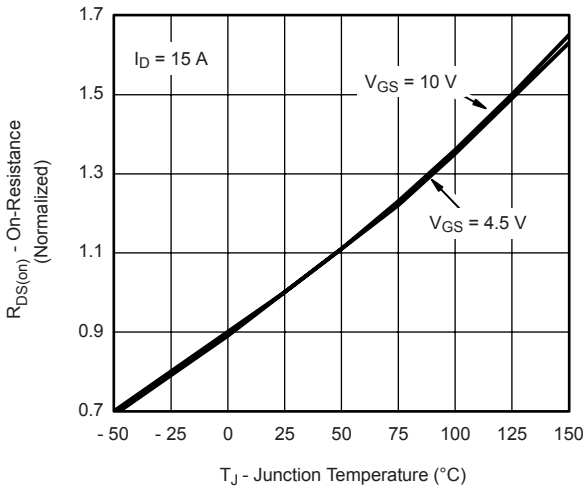
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



Gate Charge

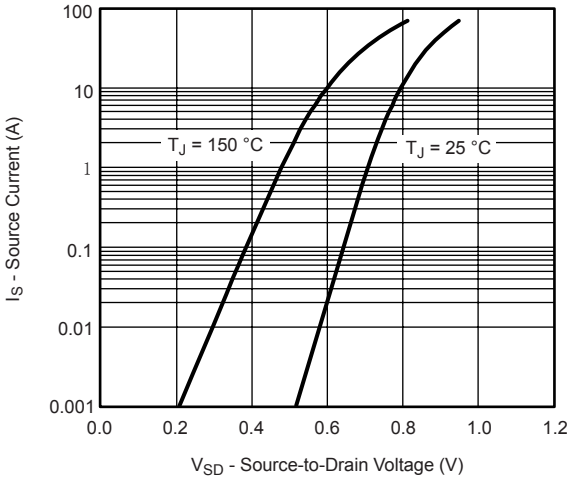


On-Resistance vs. Junction Temperature

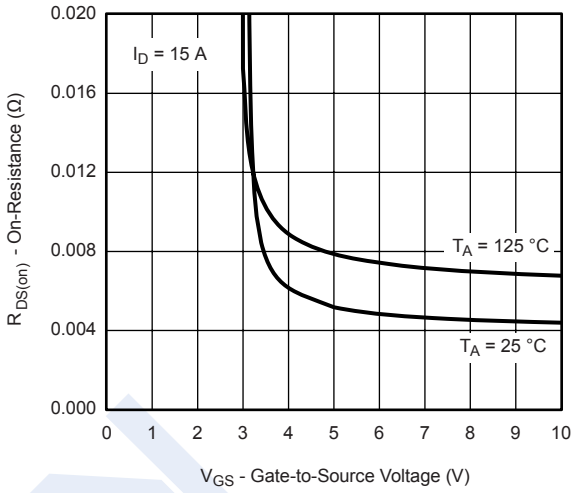
N-Channel MOSFET

SI4634DY (KI4634DY)

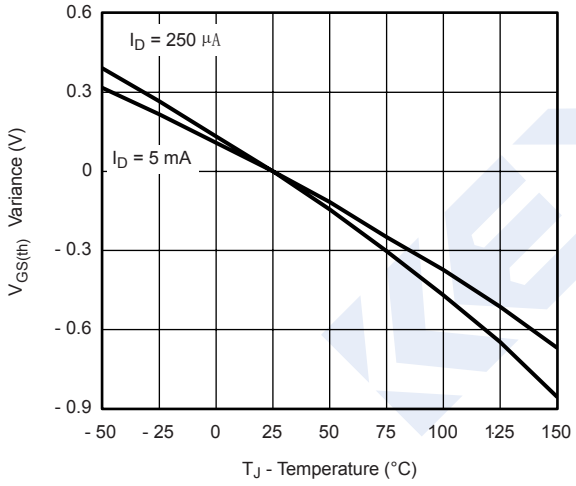
■ Typical Characterisitics



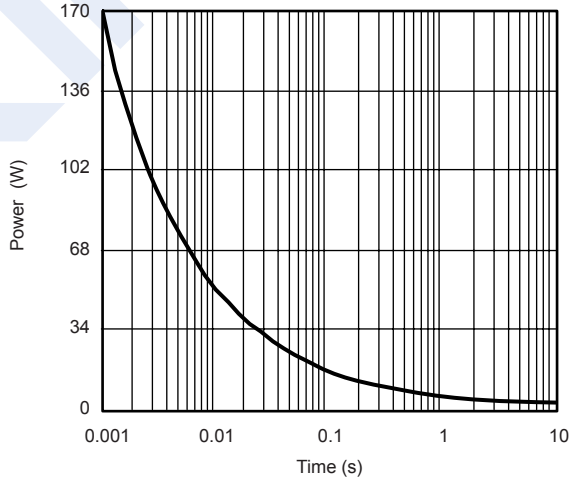
Source-Drain Diode Forward Voltage



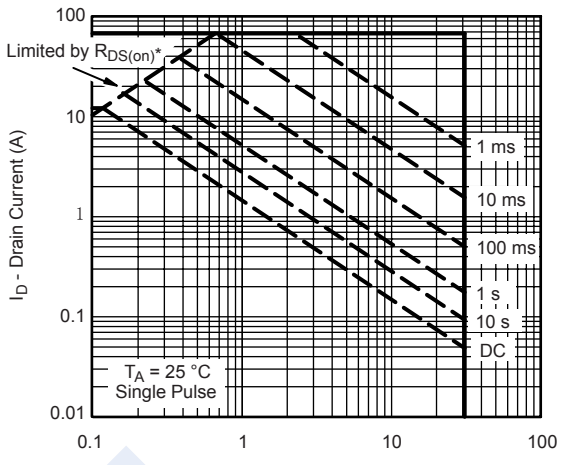
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

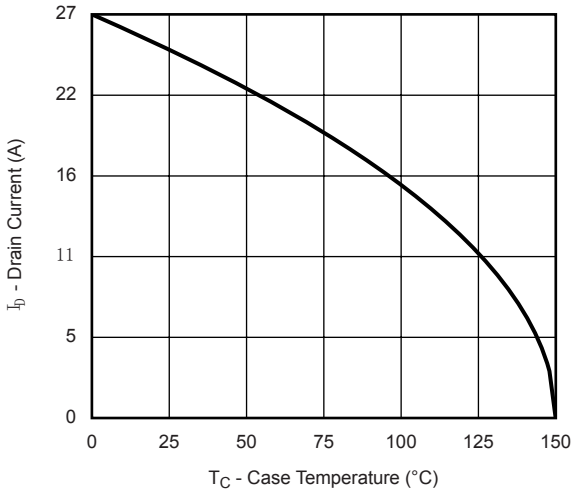


Single Pulse Power, Junction-to-Ambient



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

Safe Operating Area, Junction-to-Ambient

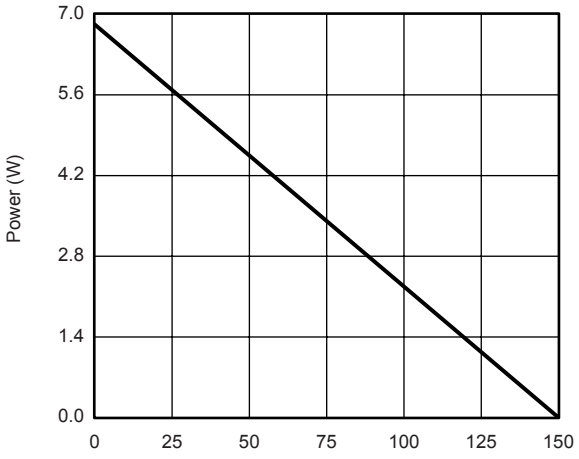


Current Derating*

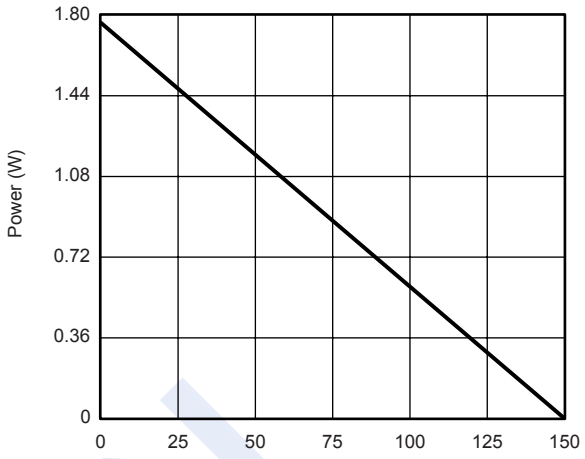
N-Channel MOSFET

SI4634DY (KI4634DY)

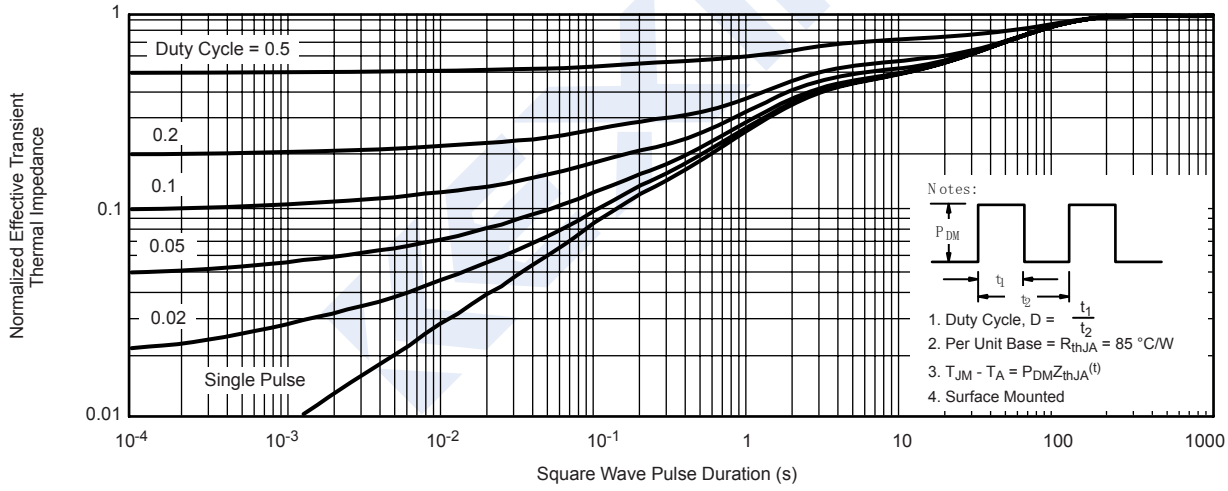
■ Typical Characterisitics



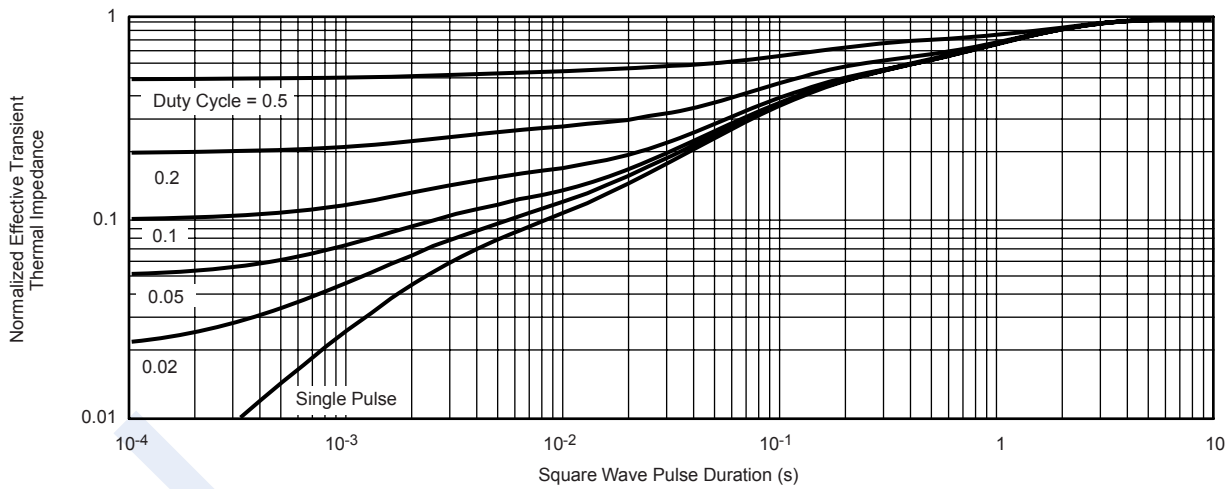
Power, Junction-to-Foot



Power, Junction-to-Ambient



Normalized Thermal Transient Im pedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case