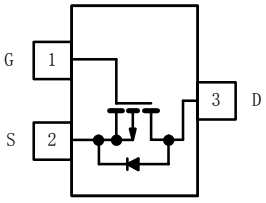
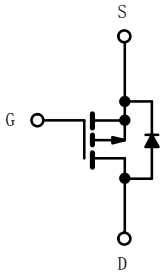
P-Channel Enhancement MOSFET

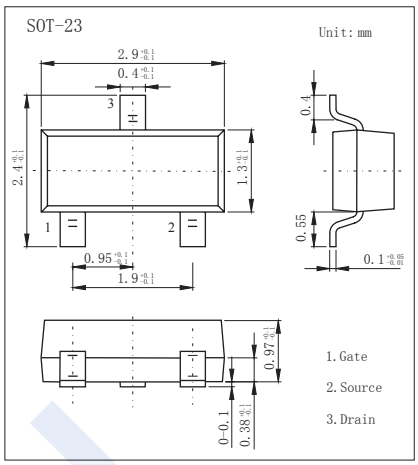
SI2337DS (KI2337DS)

■ Features

- $V_{DS\ (V)}$ =-80V
- I_D =-2.2A (V_{GS} =-10V)
- $R_{DS(ON)}$ < 270mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 303mΩ (V_{GS} =-6V)







■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		V_{DS}	-80		V
Gate-Source Voltage		V_{GS}	±20		
Continuous Drain Current	Ta = 25℃	I_D	-2.2	-1.2	A
	Ta = 70℃		-1.75	-0.96	
Pulsed Drain Current		I_{DM}	-7		
Avalanche Current	L=0.1mH	I_{AS}	11		
Single-Pulse Avalanche Energy		E_{AS}	6		mJ
Power Dissipation	Ta = 25℃	P_D	2.5	0.76	W
	Ta = 70℃		1.6	0.48	
Thermal Resistance.Junction- to-Ambient	t≤10 sec	R_{thJA}	166		℃/W
Thermal Resistance.Junction- to-Foot	steady State	R_{thJF}	50		
Junction Temperature		T_J	150		℃
Storage Temperature Range		T_{stg}	-55 to 150		
Soldering Recommendations (Peak Temperature)			260		

P-Channel Enhancement MOSFET

SI2337DS (KI2337DS)

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-80			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-80V, V_{GS}=0V			-1	μA
		V_{DS}=-80V, 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	-2		-4	V
Static Drain-Source On-Resistance *1	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-1.2A		216	270	mΩ
		V_{GS}=-6V, I_D=-1.1A		242	303	
On state drain current *1	$I_{D(ON)}$	V_{GS}=-10V, V_{DS}=-5V	-7			A
Forward Transconductance *1	g_{FS}	V_{DS}=-15V, I_D=-1.2A		4.3		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-40V, f=1MHz		500		pF
Output Capacitance	C_{oss}			40		
Reverse Transfer Capacitance	C_{rss}			25		
Total Gate Charge	Q_g	V_{GS}=-10V, V_{DS}=-40V, I_D=-1.2A		11	17	nC
		V_{GS}=-6V, V_{DS}=-40V, I_D=-1.2A		7	11	
Gate Source Charge	Q_{gs}			2.1		
Gate Drain Charge	Q_{gd}			3.2		
Gate Resistance	R_g	f=1MHz		4.8		Ω
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-40V, R_L=42Ω,R_{GEN}=1Ω I_D=-0.96A		10	15	ns
Turn-On Rise Time	t_r			15	23	
Turn-Off DelayTime	$t_{d(off)}$			20	30	
Turn-Off Fall Time	t_f			15	23	
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-6V, V_{DS}=-40V, R_L=42Ω,R_{GEN}=1Ω I_D=-0.96A		15	23	
Turn-On Rise Time	t_r			18	27	
Turn-Off DelayTime	$t_{d(off)}$			20	30	
Turn-Off Fall Time	t_f			12	18	
Body Diode Reverse Recovery Time	t_{rr}	IF = 0.63 A, di/dt = 100 A/μs, T_J = 25 °C		30	45	
Body Diode Reverse Recovery Charge	Q_{rr}			45	70	nC
Reverse Recovery Fall Time	t_a			25		ns
Reverse Recovery Rise Time	t_b			5		
Maximum Body-Diode Continuous Current	I_S	T_C = 25 °C			-2.1	A
Pulse Diode Forward Current *1	I_{SM}				-7	
Diode Forward Voltage	V_{SD}	I_S=-0.63A		-0.8	-1.2	V

*1Pulse test: PW ≤ 300us duty cycle ≤ 2%.

■ Marking

Marking	E7*

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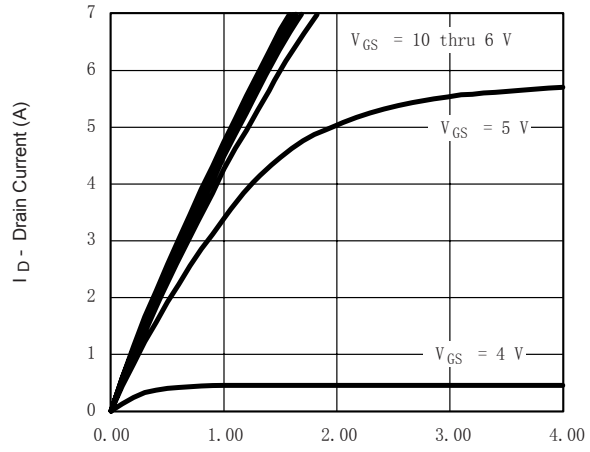
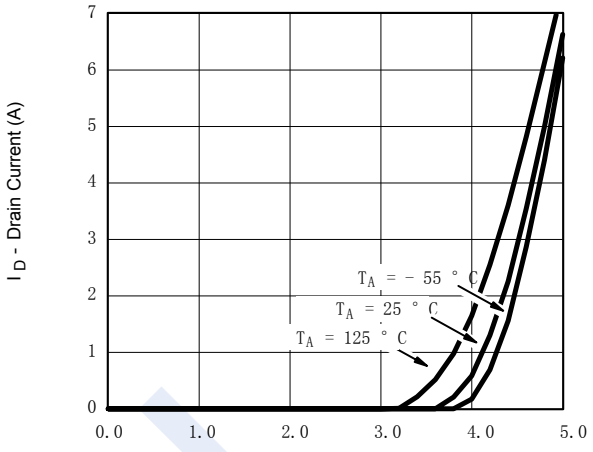
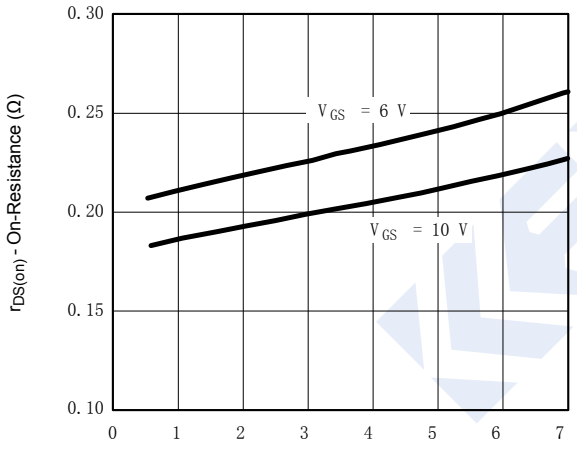
■ Typical Characterisitics



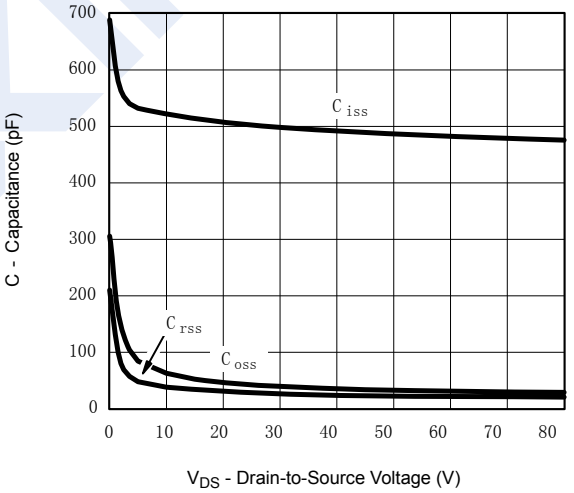
Output Characteristics



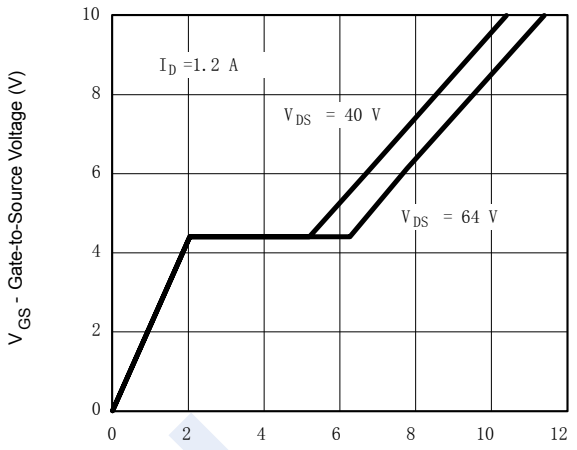
Transfer Characteristics



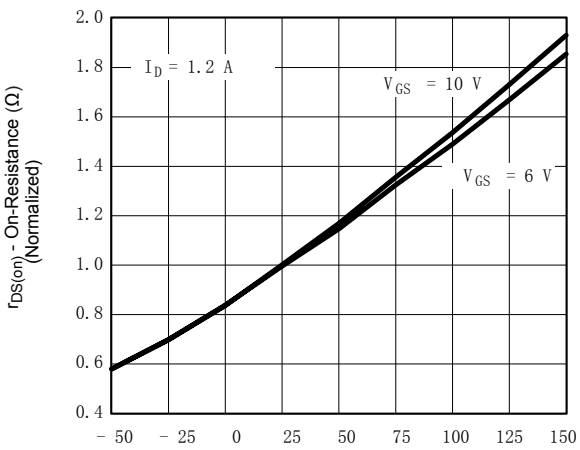
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



Gate Charge

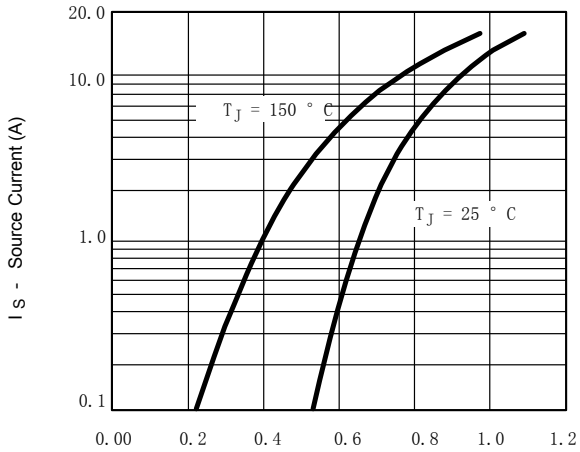


On-Resistance vs. Junction Temperature

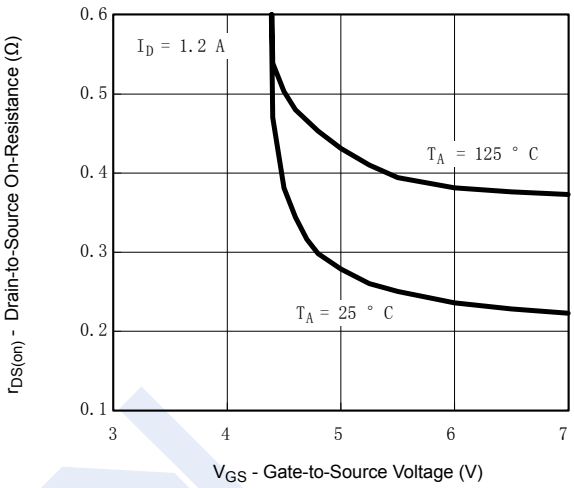
P-Channel Enhancement MOSFET

SI2337DS (KI2337DS)

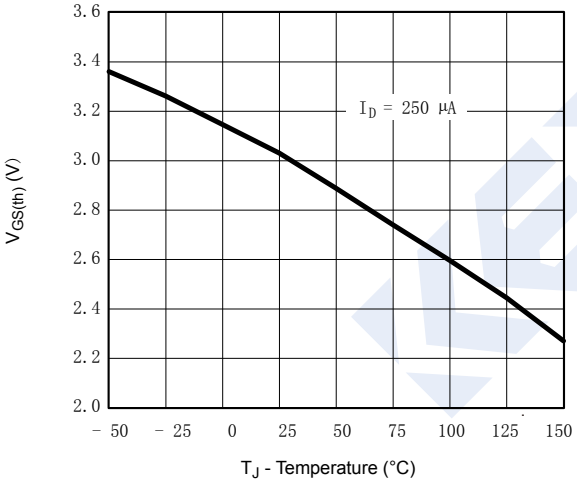
■ Typical Characterisitics



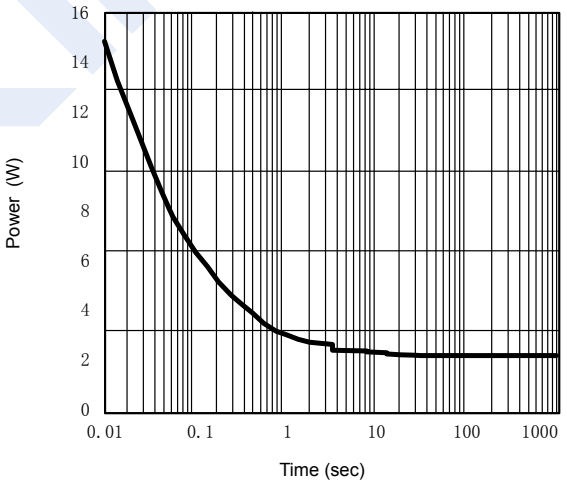
Source-Drain Diode Forward Voltage



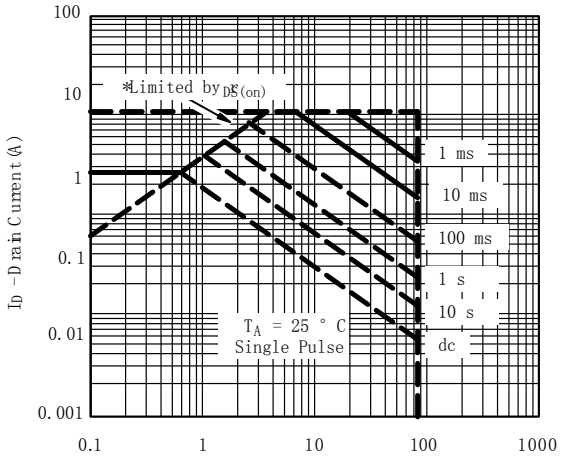
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



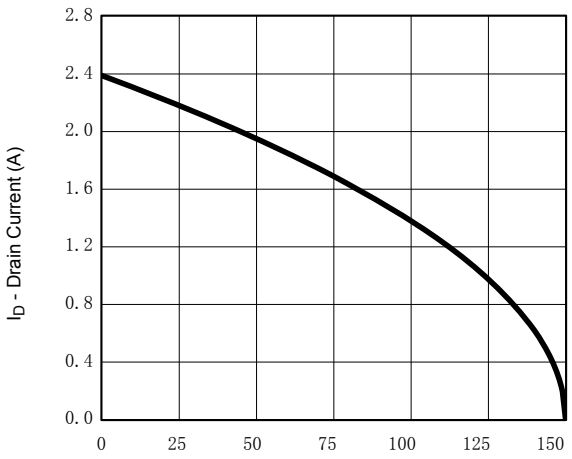
*V_{GS} > minimum V_{GS} at which $r_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

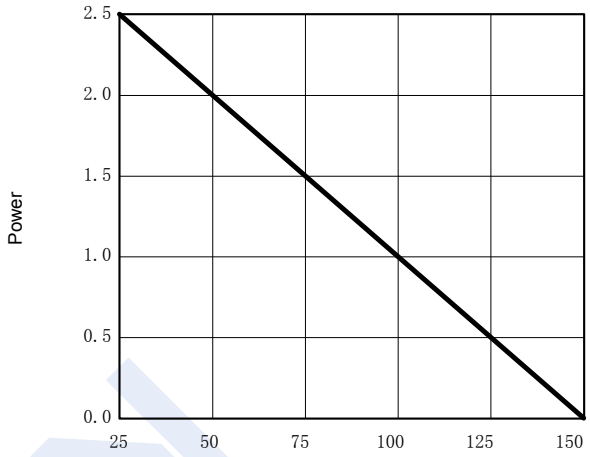
P-Channel Enhancement MOSFET

SI2337DS (KI2337DS)

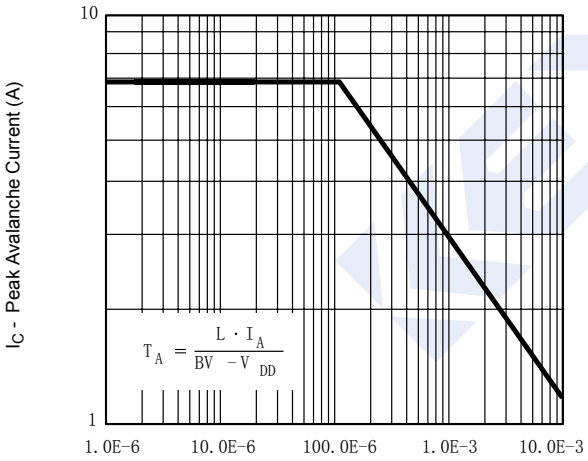
■ Typical Characterisitics



Current Derating*



Power Derating

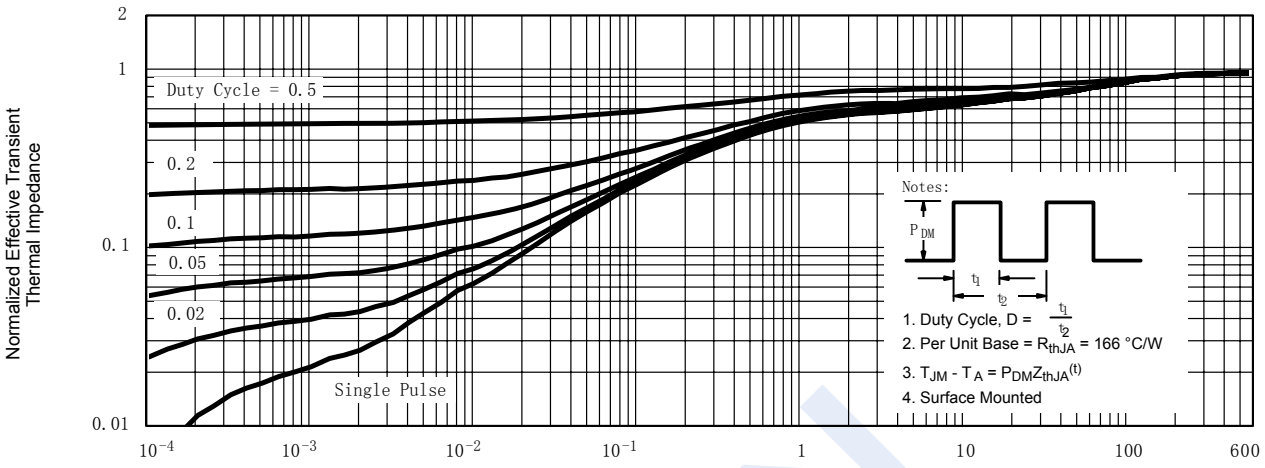


Single Pulse Avalanche Capability

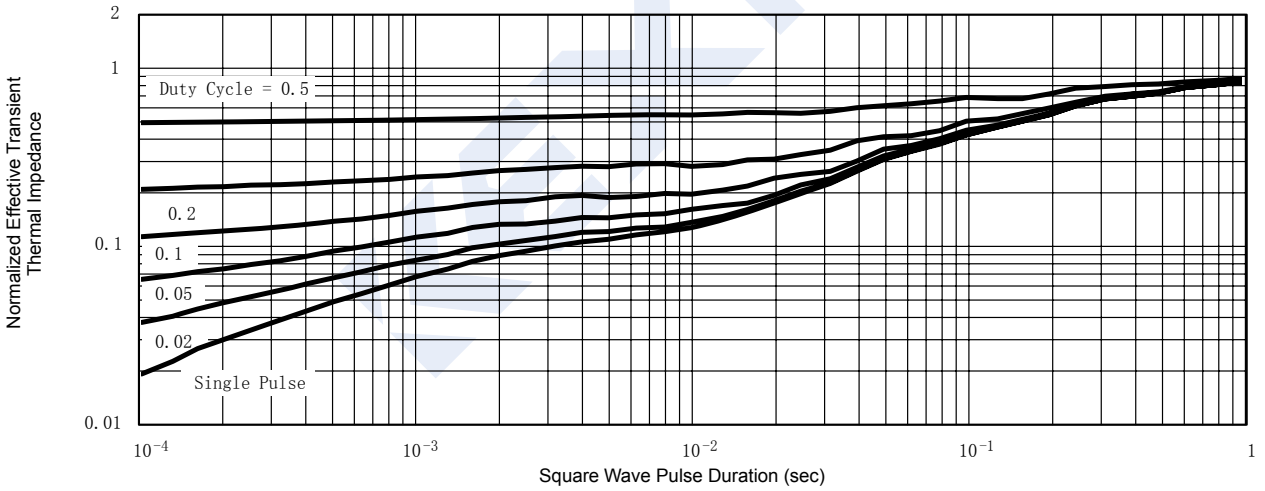
P-Channel Enhancement MOSFET

SI2337DS (KI2337DS)

■ Typical Characterisitics



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case