N-Channel MOSFET
SI2372DS (KI2372DS)

SOT-23-3

Unit: mm

1. Gate
2. Source
3. Drain

■ Features

● $V_{DS(V)}$ = 30V

● I_D = 5.3 A (V_{GS} = 10V)

● $R_{DS(ON)}$ < 33mΩ (V_{GS} = 10V)

● $R_{DS(ON)}$ < 38mΩ (V_{GS} = 6V)

● $R_{DS(ON)}$ < 43mΩ (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}	$\pm$20	
Continuous Drain Current (T_J = 150℃)	Tc=25℃	I_D	5.3	A
	Tc=70℃		4.2	
	Ta=25℃		4	
	Ta=70℃		3.2	
Pulsed Drain Current (t=100us)		I_{DM}	25	
Power Dissipation	Tc=25℃	P_D	1.7	W
	Tc=70℃		1.1	
	Ta=25℃		0.96	
	Ta=70℃		0.62	
Thermal Resistance.Junction- to-Ambient	t≤5 s	R_{thJA}	130	℃/W
Thermal Resistance.Junction- to-Foot		R_{thJF}	75	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

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■ Electrical Characteristics Ta = 25℃

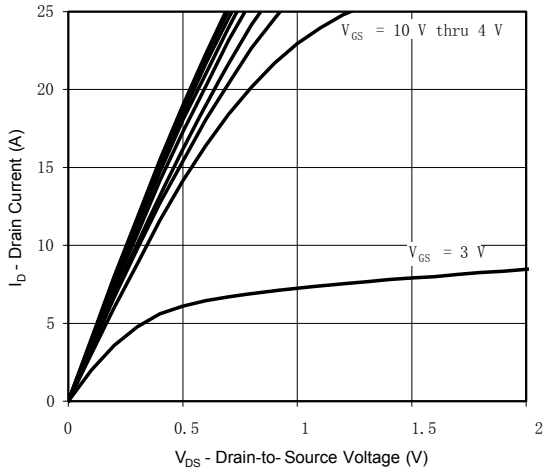| Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
		V_{DS}=30V, V_{GS}=0V, T_J=55℃			10	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3A			33	mΩ
		V_{GS}=6V, I_D=3A			38	
		V_{GS}=4.5V, I_D=2A			43	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}≥5V	10			A
Forward Transconductance	g_{FS}	V_{DS}=15V, I_D=4A		18		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		288		pF
Output Capacitance	C_{oss}			73		
Reverse Transfer Capacitance	C_{rss}			26		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	0.2		1.8	Ω
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=4A		5.9	8.9	nC
				2.9	4.5	
Gate Source Charge	Q_{gs}	V_{GS}=4.5V, V_{DS}=15V, I_D=4A		1.1		
Gate Drain Charge	Q_{gd}			0.9		
Turn-On DelayTime	$t_{d(on)}$	V_{DD}=15 V, R_L=4.7Ω I_D=3.2A, V_{GEN}=10V, R_g = 1Ω		4	8	ns
Turn-On Rise Time	t_r			17	26	
Turn-Off DelayTime	$t_{d(off)}$			8	16	
Turn-Off Fall Time	t_f			8	16	
Turn-On DelayTime	$t_{d(on)}$	V_{DD}=15 V, R_L=4.7Ω I_D=3.2A, V_{GEN}=4.5V, R_g = 1Ω		10	20	
Turn-On Rise Time	t_r			30	45	
Turn-Off DelayTime	$t_{d(off)}$			8	16	
Turn-Off Fall Time	t_f			10	20	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 3.2A, dI/dt= 100A/μs, T_J = 25℃		12	20	
Body Diode Reverse Recovery Charge	Q_{rr}			4	8	nC
Reverse Recovery Fall Time	t_a			8		ns
Reverse Recovery Rise Time	t_b			4		
Maximum Body-Diode Continuous Current	I_S	Tc = 25℃			1.4	A
Pulse Diode Forward Current	I_{SM}				25	
Diode Forward Voltage	V_{SD}	I_S=3.2A, V_{GS}=0V			1.2	V

Note.Pulse test; pulse width≤300 μs, duty cycle≤2 %.
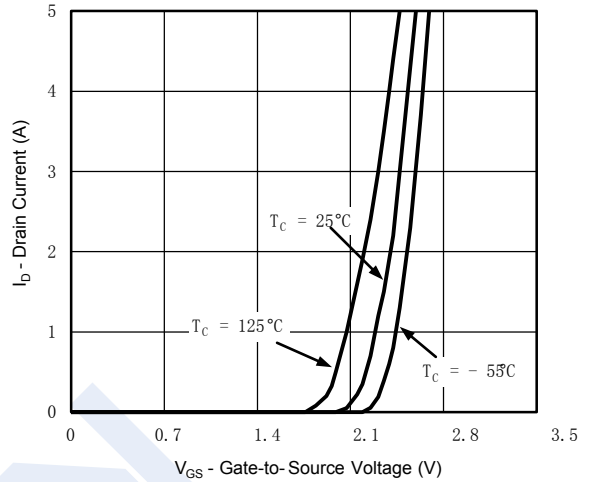
■ Marking

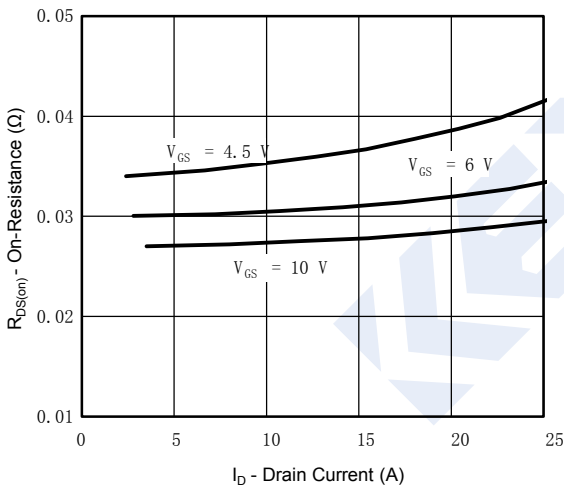| Marking	F4*

N-Channel MOSFET
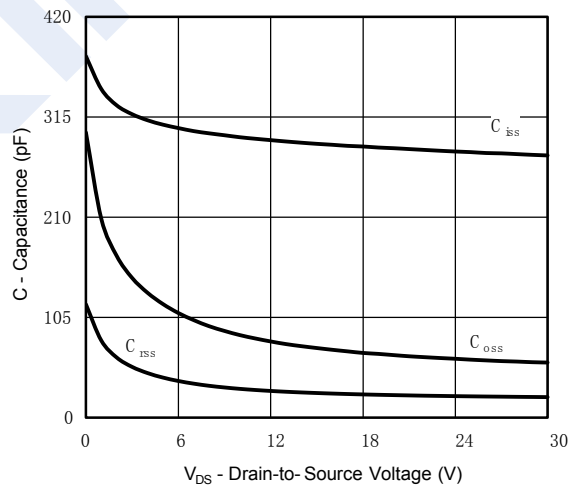## SI2372DS (KI2372DS)

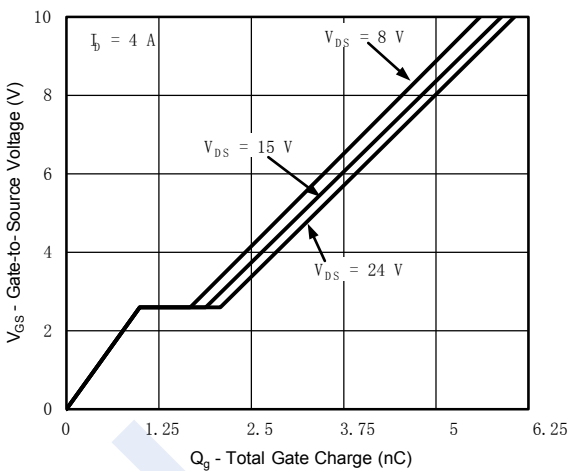■ Typical Charaterisitics

Output Characteristics
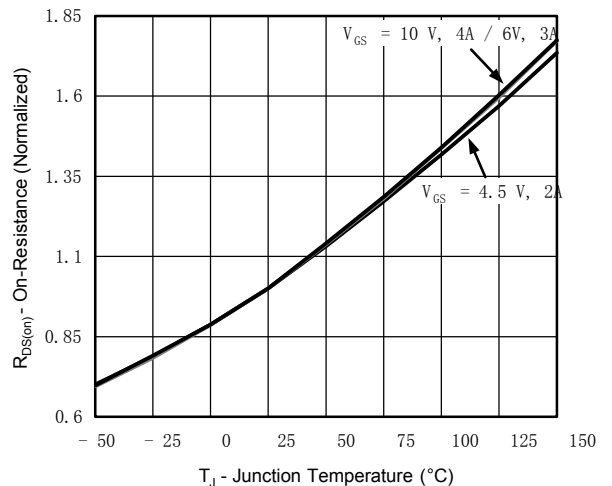

Transfer Characteristics

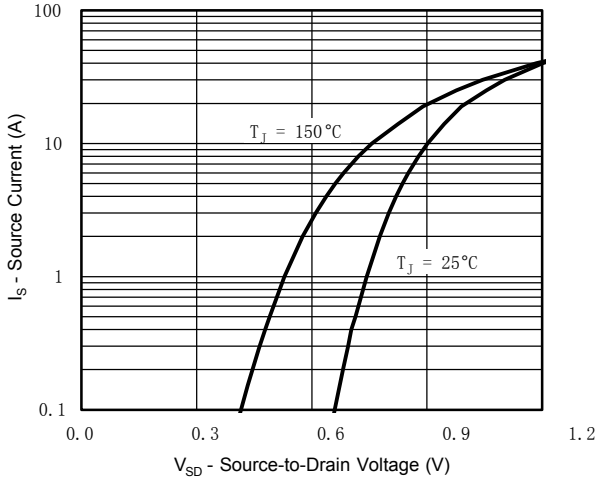On-Resistance vs. Drain Current and Gate Voltage
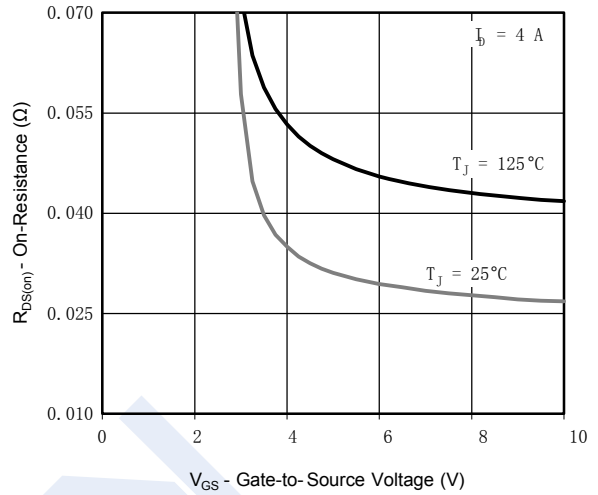

Capacitance

Gate Charge

On-Resistance vs. Junction Temperature

N-Channel MOSFET
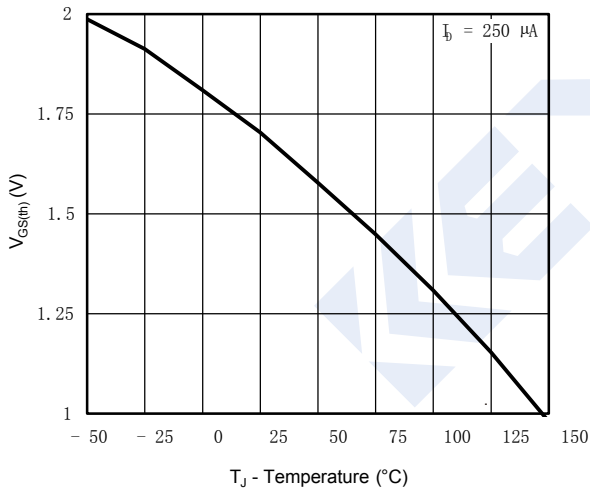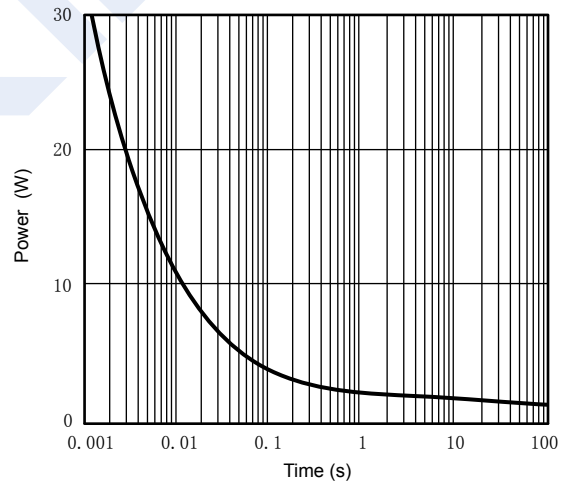## SI2372DS (KI2372DS)

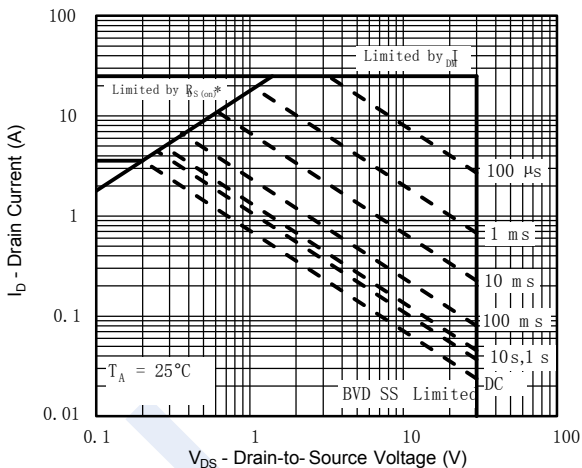■ Typical Characterisitics

Source-Drain Diode Forward Voltage
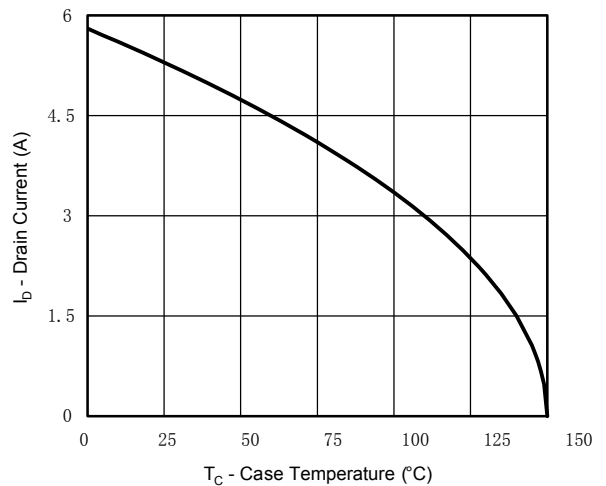

On-Resistance vs. Gate-to-Source Voltage

Threshold Voltage
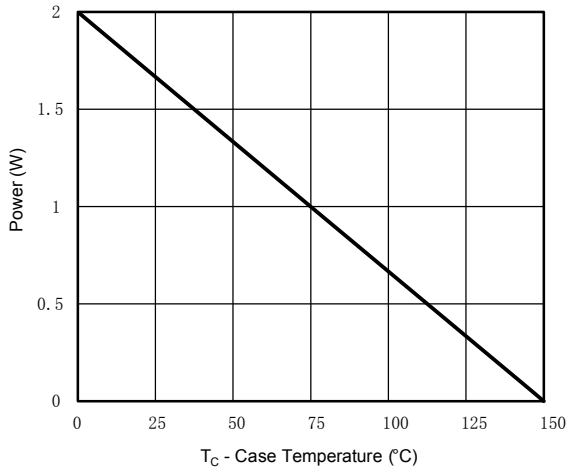

Single Pulse Power (Junction-to-Ambient)

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

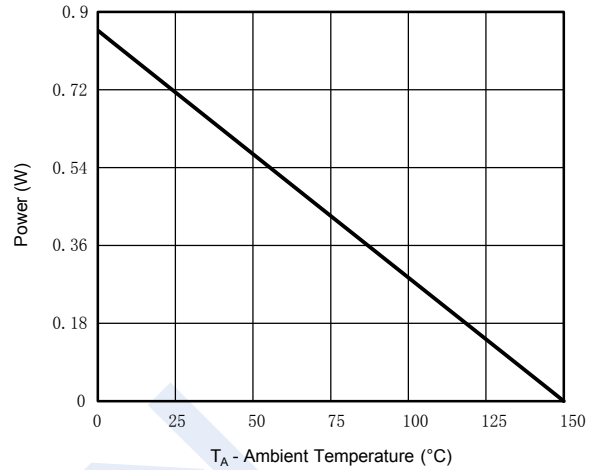Safe Operating Area, Junction-to-Ambient

Current Derating*
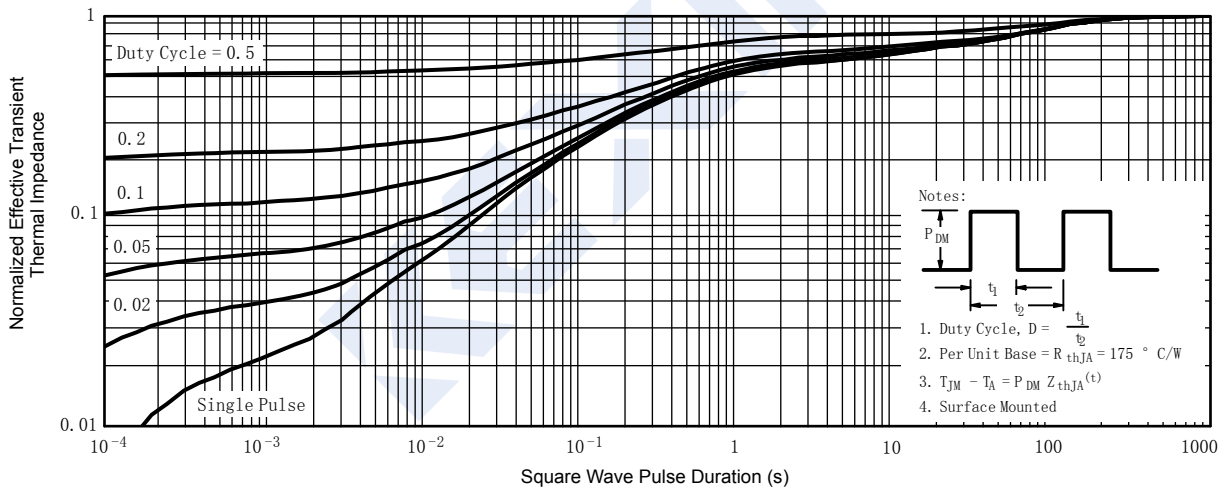
N-Channel MOSFET
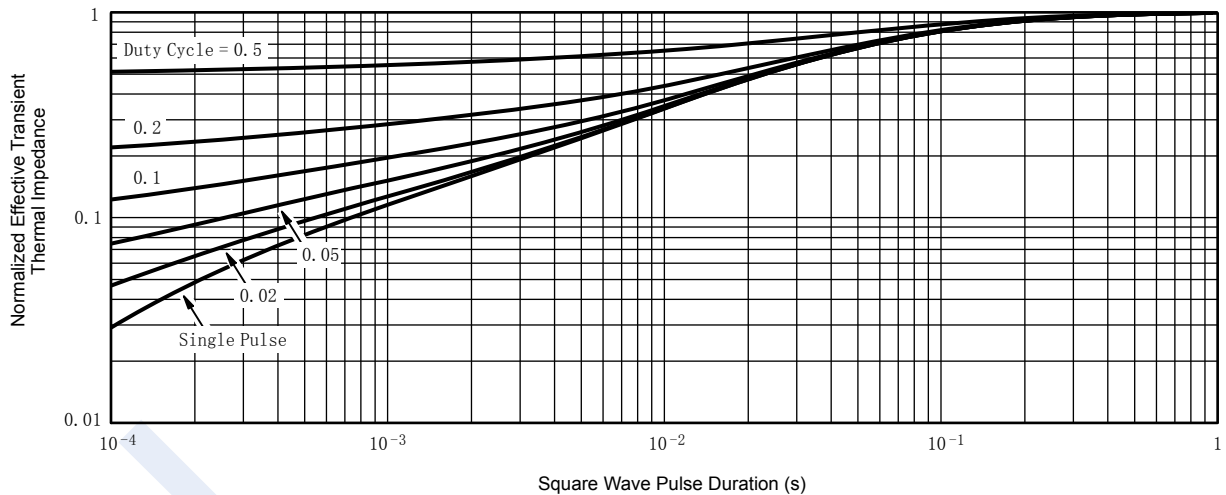## SI2372DS (KI2372DS)

■ Typical Characterisitics

Power Junction-to-Foot

Power Junction-to-Ambient

Normalized Thermal Transient Impedance, Junction-to-Ambient

Notes:
1. Duty Cycle, $D = \dfrac{t_1}{t_2}$
2. Per Unit Base = $R_{thJA} = 175 \,°\,C/W$
3. $T_{JM} - T_A = P_{DM} \, Z_{thJA}{}^{(t)}$
4. Surface Mounted

Normalized Thermal Transient Impedance, Junction-to-Foot