Features：

- **Fast Switching**
- **Low Gate Charge and Rdson**
- **Low Reverse transfer capacitances**
- **100% Single Pulse avalanche energy Test**

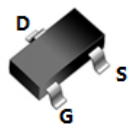
Applications：

PWM applications

Load switch

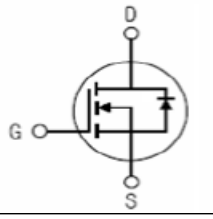
Power management

V_{DSS}	30	V
I_D	3.0	A
P_D	0.9	W
$R_{DS(ON)}$	65	mΩ



SOT23-3

Inner Equivalent Principium Chart



Absolute（Tc= 25℃ unless otherwise specified）：

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	30	V
I_D	Continuous Drain Current	3.0	A
	Continuous Drain Current T_C = 70 °C	2.5	A
I_{DM}a1	Pulsed Drain Current	20	A
V_{GS}	Gate-to-Source Voltage	±20	V
dv/dt a3	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	0.9	W
T_J， T_{stg}	Operating Junction and Storage Temperature Range	150，–55 to 150	℃
T_L	MaximumTemperature for Soldering	300	℃

Electrical Characteristics（Tc= 25℃ unless otherwise specified）：

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Unit s
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	30	--	--	V
$\Delta BV_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	ID=-250uA,Reference25℃	--	0.1	--	V/℃
I_{DSS}	Drain to Source Leakage Current	V_{DS} = 30, V_{GS}= 0V, T_a = 25℃	--	--	1	μA
		V_{DS} =24V, V_{GS}= 0V, T_a = 125℃	--	--	250	
$I_{GSS(F)}$	Gate to Source Forward Leakage	V_{GS} =+20V	--	--	1	μA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	V_{GS} =-20V	--	--	-1	μA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=10V,I_D=3.0A	--	50	65	mΩ
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=4.5V,I_D=3.0A	--	65	75	mΩ
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.5	2.0	V
Pulse width tp≤380μs, δ ≤2%						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D =3.0A	--	18	--	S
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 10V f = 1.0MHz	--	240	--	pF
C_{oss}	Output Capacitance		--	35	--	
C_{rss}	Reverse Transfer Capacitance		--	18	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_D =1.0A V_{DD} = 15V V_{GS} =10V R_G = 6.0Ω	--	3.5	--	ns
tr	Rise Time		--	1.5	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	18	--	
t_f	Fall Time		--	2.5	--	
Q_g	Total Gate Charge	I_D =3.0A V_{DD} =15V V_{GS} = 10V	--	10	--	nC
Q_{gs}	Gate to Source Charge		--	1.0	--	
Q_{gd}	Gate to Drain (“Miller”)Charge		--	1.6	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	3.0	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	20	A
V_{SD}	Diode Forward Voltage	I_S=3.0A,V_{GS}=0V	--	--	1.5	V
trr	Reverse Recovery Time	I_S=3.0A,T_j = 25° C dI_F/dt=100A/us, V_{GS}=0V	--	40	--	ns
Qrr	Reverse Recovery Charge		--	100	--	nC
Pulse width tp≤380μs, δ ≤2%						

Symbol	Parameter	Typ.	Units
$R_{\theta JA}$	Junction-to-Ambient	138	℃/W

[a1]: Repetitive rating; pulse width limited by maximum junction temperature

[a3]: I_{SD} =3.0A,di/dt ≤100A/us,V_{DD}≤BV_{DS}, Start T_J=25℃

Typical Electrical and Thermal Characteristics

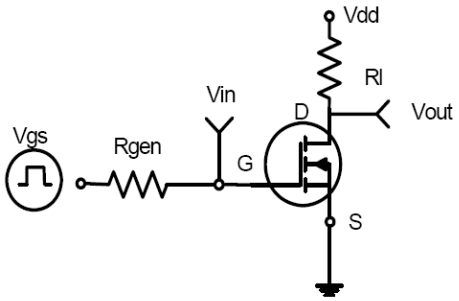


Figure 1:Switching Test Circuit

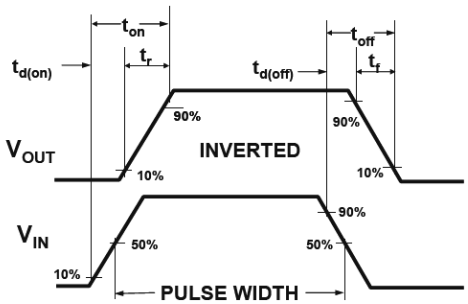


Figure 2:Switching Waveforms

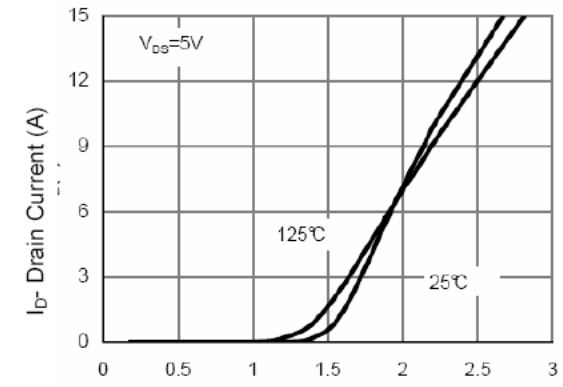


Figure 7 Transfer Characteristics

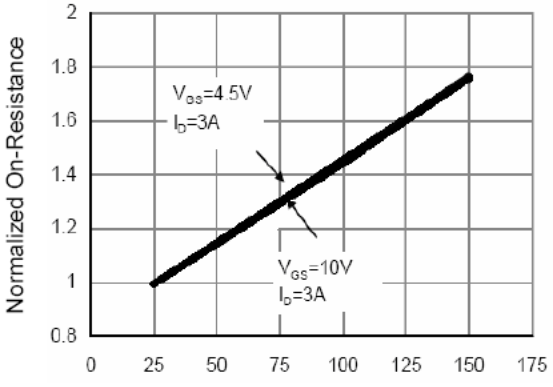


Figure 8 Drain-Source On-Resistance

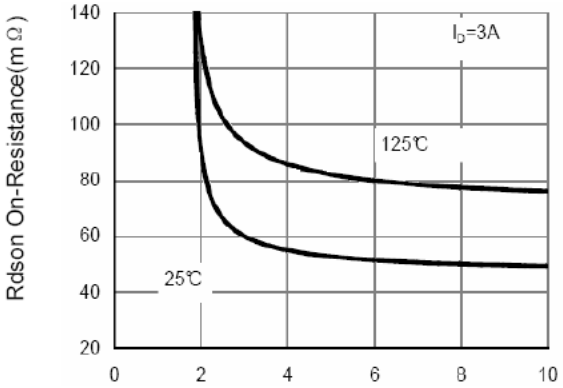


Figure 9 Rdson vs Vgs

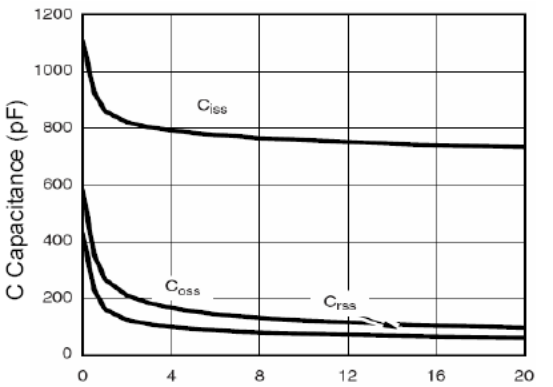


Figure 10 Capacitance vs Vds

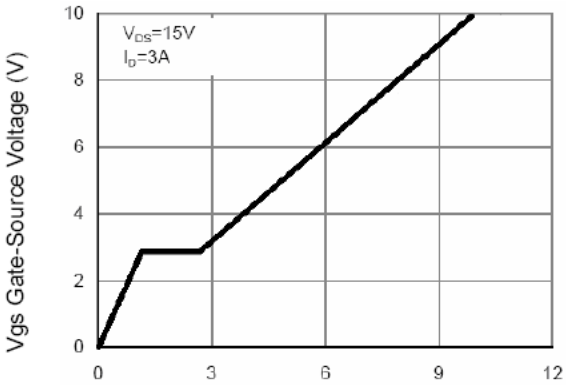


Figure 11 Gate Charge

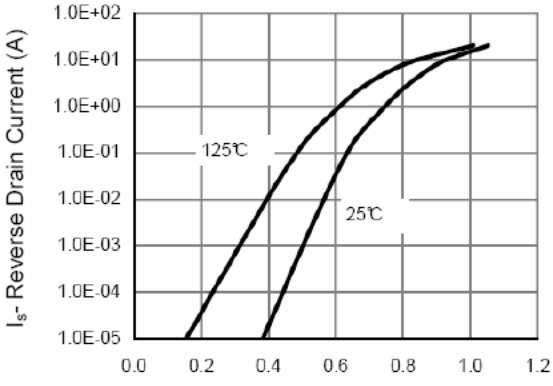


Figure 12 Source- Drain Diode Forward

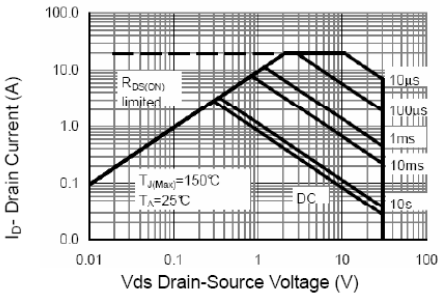


Figure 13 Safe Operation Area

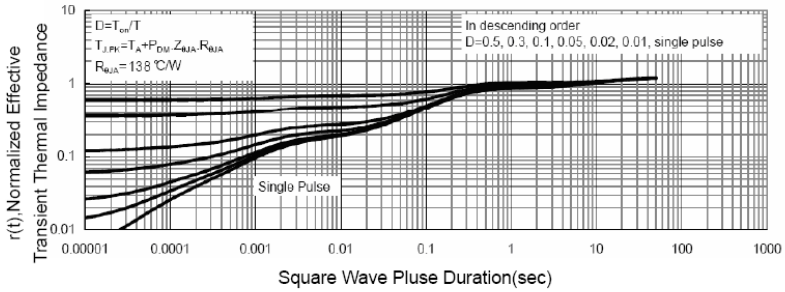


Figure 14 Normalized Maximum Transient Thermal Impedance

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