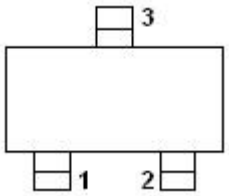
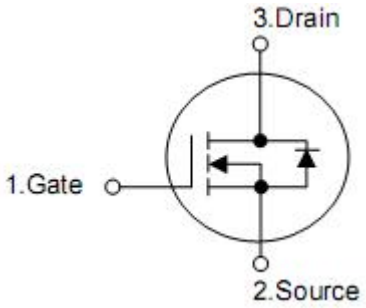
1. Features

- V_{DS}=20V,$R_{DS(on)}$=45mΩ(typ.)@V_{GS}=4.5V,I_D=3.0A
- V_{DS}=20V,$R_{DS(on)}$=55mΩ(typ.)@V_{GS}=2.5V,I_D=2.0A

2.Symbol





Pin	Function
1	Gate
2	Source
3	Drain

3. Absolute maximum ratings

Parameter		Symbol	Rating	Units
Drain-source voltage		V_{DS}	20	V
Gate-source voltage		V_{GS}	±8	V
Drain current continuous (T_J=150 ºC)	T_A=25°C	I_D	3.0	A
Pulsed drain current [a]		I_{DM}	10	
Continuous source current (diode conduction)		I_S	1.0	
Power dissipation	T_A=25°C	P_D	1.0	W
Junction and storage temperature range		T_J,T_{STG}	-55 to150	ºC

Parameter	Symbol	Rating	Units
Thermal Resistance from Junction to Ambient(t ≤5s)	R_{thJA}	156	ºC/W

4. Electrical characteristics

(T_A=25°C,unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	20	-	-	V
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	-	1.0	V
Gate- body leakage	I_{GSS}	V_{GS}=±8V, V_{DS}=0V	-	-	±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS}=16V, V_{GS}=0V	-	-	1	uA
Static drain-source on-resistance[a]	$R_{DS(on)}$	V_{GS}=4.5V,I_D=3.0A	-	45	50	mΩ
		V_{GS}=2.5V,I_D=2.0A	-	55	65	
Forward transconductance [a]	gfs	V_{DS}=5V, I_D=-3.0A	-	8	-	S
Diode forward voltage	V_{SD}	V_{GS}=0V,I_S=1.0A	-	-	1.3	V
Total gate charge[b]	Q_g	V_{DS}=10V, V_{GS}=4.5V I_D=3.0A	-	5.4	-	nC
Gate-source charge[b]	Q_{gs}		-	1.1	-	
Gate-drain charge[b]	Q_{gd}		-	0.7	-	
Input capacitance[b]	C_{iss}	V_{DS}=10V,V_{GS}=0V, f=1MHz	-	300	-	pF
Output capacitance[b]	C_{oss}		-	120	-	
Reverse transfer capacitance[b]	C_{rss}		-	85	-	
Turn-on delay time[b]	$t_{d(on)}$	V_{DD}=10V, I_D =3.0A, R_G=6Ω, V_{GEN}=4.5V	-	12	-	ns
Rise time[b]	t_r		-	84	-	
Turn-off delay time[b]	$t_{d(off)}$		-	43	-	
Fall time[b]	t_f		-	18	-	

Notes :
a. Pulse Test : Pulse Width < 300μs, Duty Cycle ≤2%.
b.Guaranteed by design, not subject to production testing.

5. Test circuits and waveforms

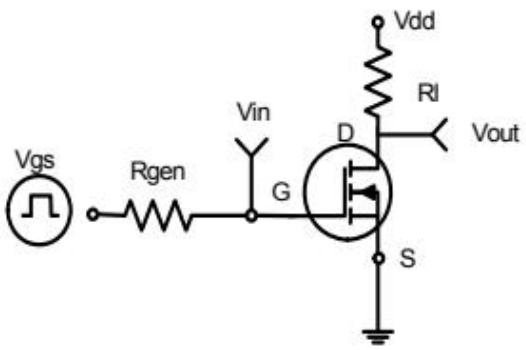


Figure 1:Switching Test Circuit

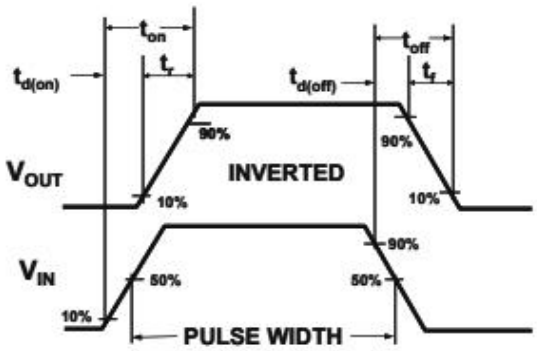


Figure 2:Switching Waveforms

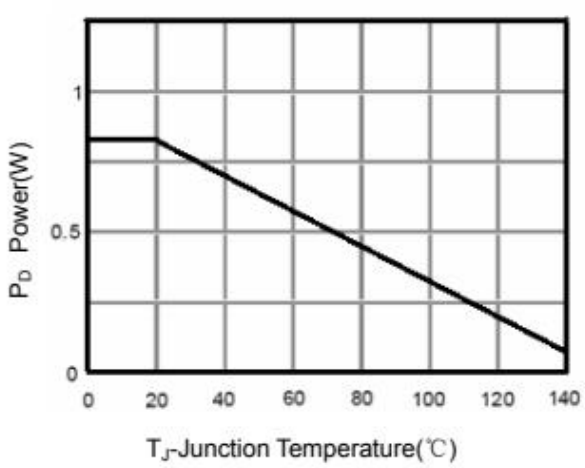


Figure 3 Power Dissipation

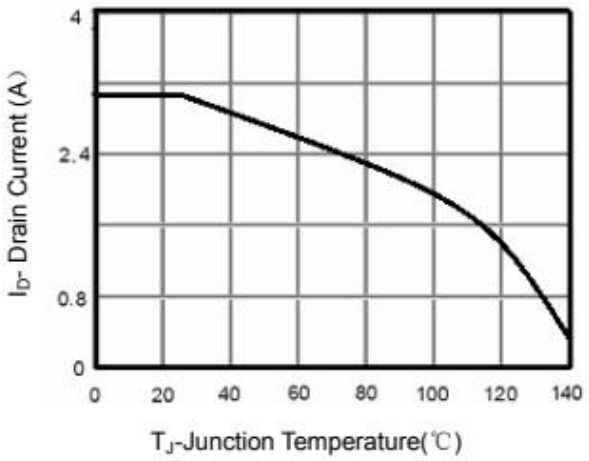


Figure 4 Drain Current

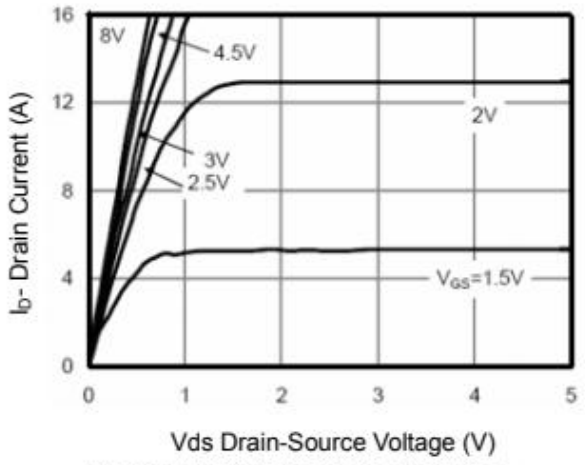


Figure 5 Output Characteristics

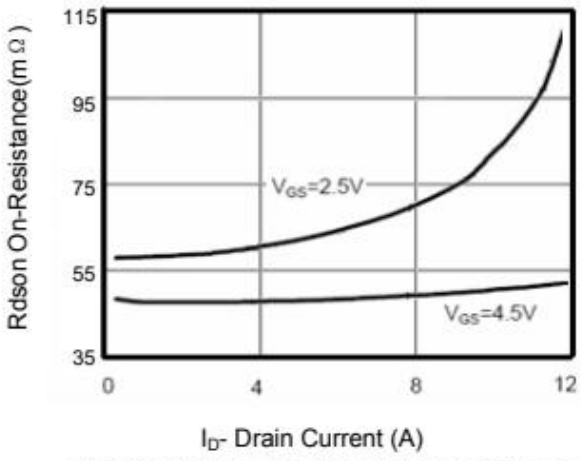


Figure 6 Drain-Source On-Resistance

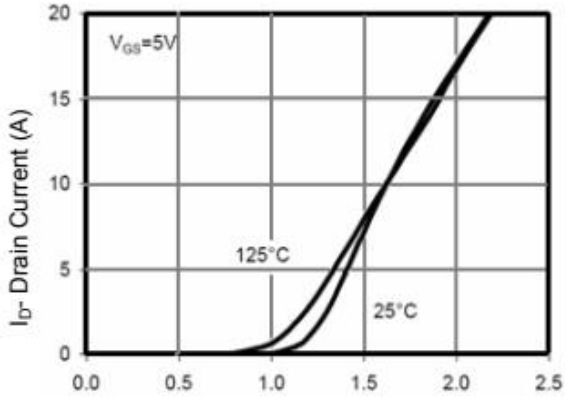


Figure 7 Transfer Characteristics

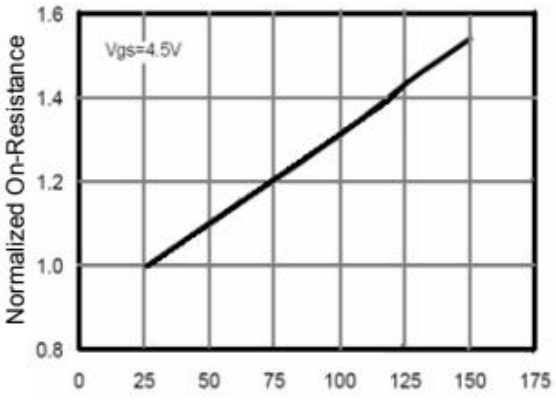


Figure 8 Drain-Source On-Resistance

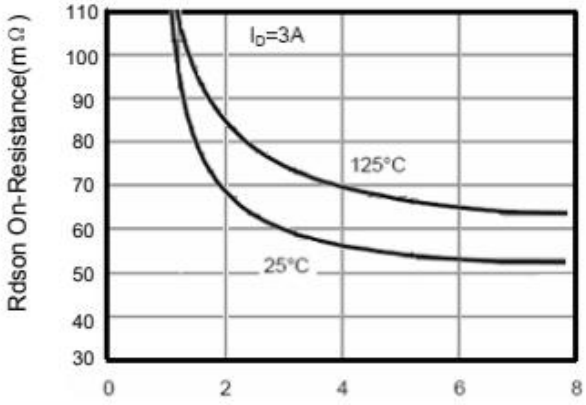


Figure 9 Rdson vs Vgs

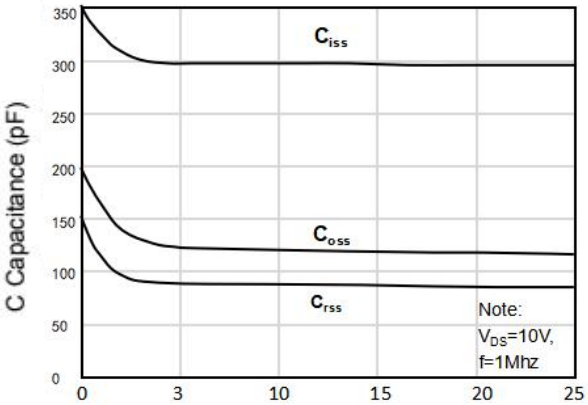


Figure 10 Capacitance vs Vds

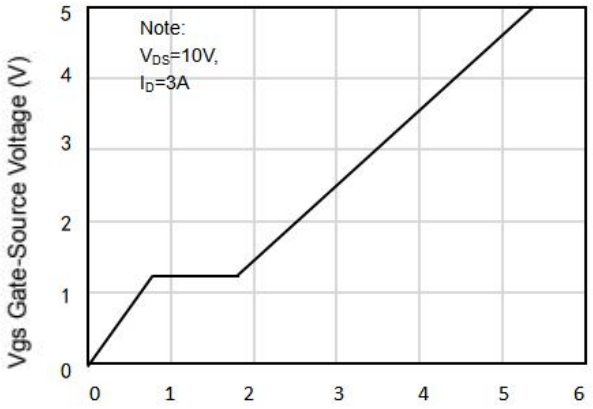


Figure 11 Gate Charge

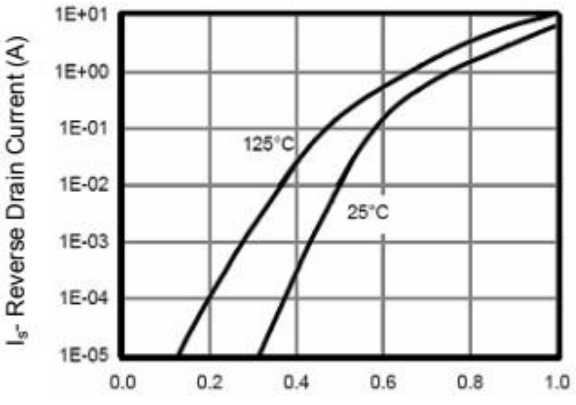


Figure 12 Source- Drain Diode Forward

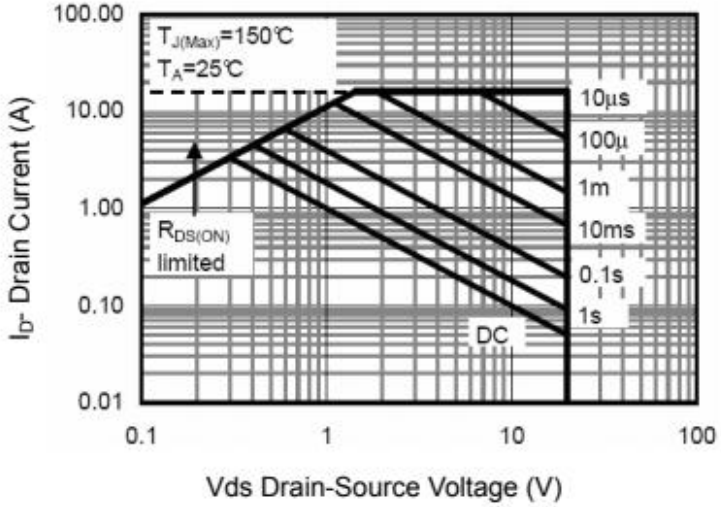


Figure 13 Safe Operation Area

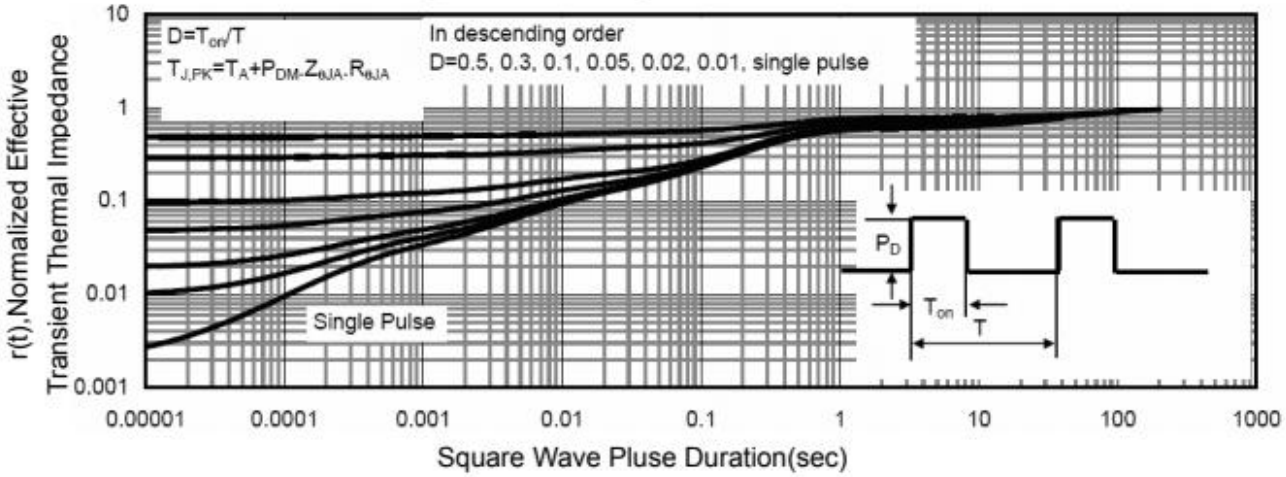


Figure 14 Normalized Maximum Transient Thermal Impedance

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