

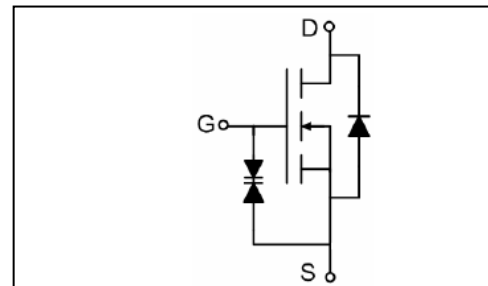
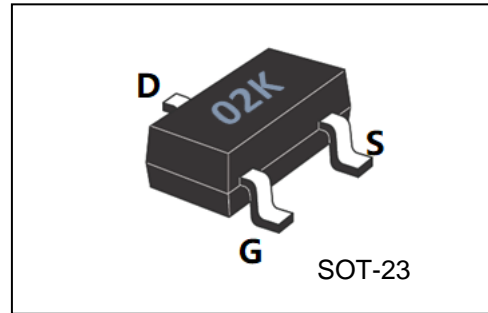
Features:

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

V _{DSS}	60	V
I _D	0.3	A
P _D	0.35	W
R _{DS(ON)max}	2.5	Ω

Applications:

- PWM applications
- Load switch
- Power management



Absolute (T_c=25°C unless otherwise specified):

Symbol	Parameter	Rating	Units
V _{DSS}	Drain-to-Source Voltage	60	V
I _D	Continuous Drain Current	0.3	A
	Continuous Drain Current T _C = 100 °C	0.19	A
I _{DM} ^{a1}	Pulsed Drain Current	0.9	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	0.35	W
VESD(G-S)	Gate source ESD (HBM-C= 100pF, R=1.5kΩ)	2000	V
T _J , T _{stg}	Operating Junction and Storage Temperature Range	150, -55 to 150	°C
T _L	Maximum Temperature for Soldering	300	°C

Electrical Characteristics (Tc= 25°C unless otherwise specified):

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V _{DSS}	Drain to Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	60	--	--	V
ΔBV _{DSS} /ΔT _J	Bvdss Temperature Coefficient	I _D =-250uA, Reference 25°C	--	0.1	--	V/°C
I _{DSS}	Drain to Source Leakage Current	V _{DS} =60, V _{GS} =0V, T _a =25°C	--	--	1	μA
		V _{DS} =48V, V _{GS} =0V, T _a =125°C	--	--	250	
I _{GSS(F)}	Gate to Source Forward Leakage	V _{GS} = +20V	--	--	10	μA
I _{GSS(R)}	Gate to Source Reverse Leakage	V _{GS} = -20V	--	--	-10	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 =0.5A	--	--	2.5	Ω
R _{DS(ON)}	Drain-to-Source On-Resistance	V _{GS} =4.5V, I _D =0.3A	--	--	3.5	Ω
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.7	2.5	V
Pulse width tp ≤ 380μs, δ ≤ 2%						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =0.2A	0.1	5.0	--	S
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 15V f = 1.0MHz	--	20	--	pF
C _{oss}	Output Capacitance		--	12	--	
C _{rss}	Reverse Transfer Capacitance		--	4.4	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
t _{d(ON)}	Turn-on Delay Time	I _D = 0.2A, V _{DD} = 15V V _{GS} = 10V, R _G = 3.0Ω	--	10	--	ns
t _r	Rise Time		--	45	--	
t _{d(OFF)}	Turn-Off Delay Time		--	15	--	
t _f	Fall Time		--	10	--	
Q _g	Total Gate Charge	I _D = 0.3A, V _{DD} = 15V V _{GS} = 10V	--	1.7	--	nC
Q _{gs}	Gate to Source Charge		--	0.9	--	
Q _{gd}	Gate to Drain ("Miller") Charge		--	1.3	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	0.3	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	0.9	A
V_{SD}	Diode Forward Voltage	$I_S=0.3A, V_{GS}=0V$	--	--	1.5	V
t_{rr}	Reverse Recovery Time	$I_S=0.3A, T_j = 25^\circ C$	--	40	--	ns
Q_{rr}	Reverse Recovery Charge	$di_F/dt=100A/us, V_{GS}=0V$	--	120	--	nC
Pulse width $t_p \leq 380\mu s, \delta \leq 2\%$						

Symbol	Parameter	Typ.	Units
$R_{\theta JA}$	Junction-to-Ambient	350	$^\circ C/W$

^{a1}: Repetitive rating; pulse width limited by maximum junction temperature

^{a3}: $I_{SD}=0.3A, di/dt \leq 100A/us, V_{DD} \leq BV_{DS}, Start T_j=25^\circ C$

Typical Electrical And Thermal Characteristics

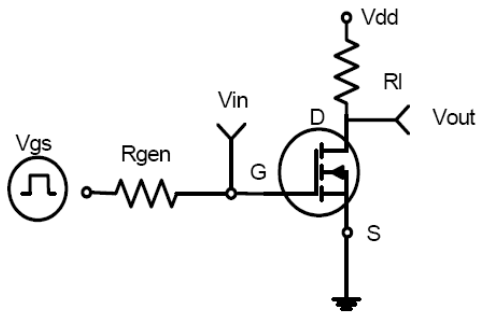


Figure 1: Switching Test Circuit

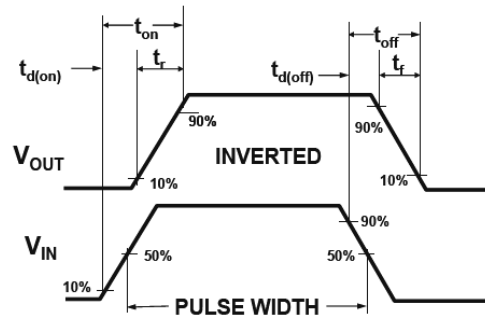


Figure 2: Switching Waveforms

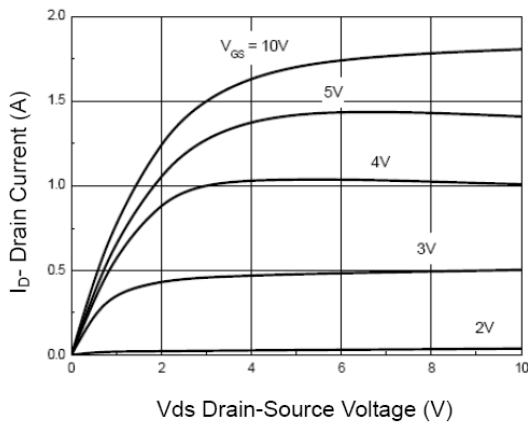


Figure 3 Output Characteristics

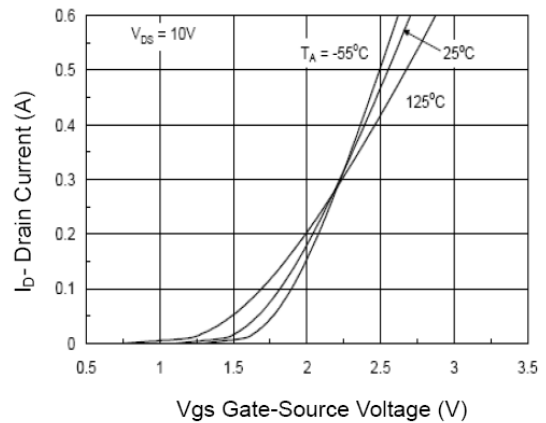


Figure 4 Transfer Characteristics

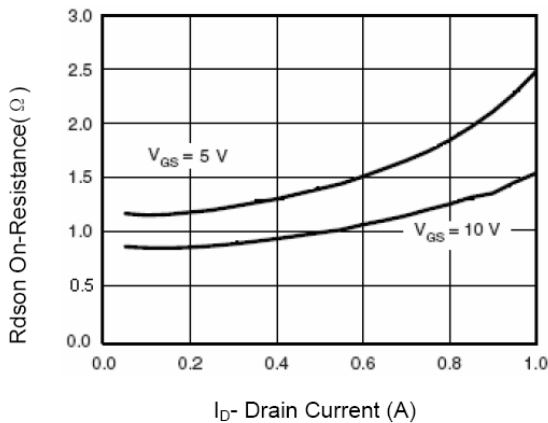


Figure 5 Drain-Source On-Resistance

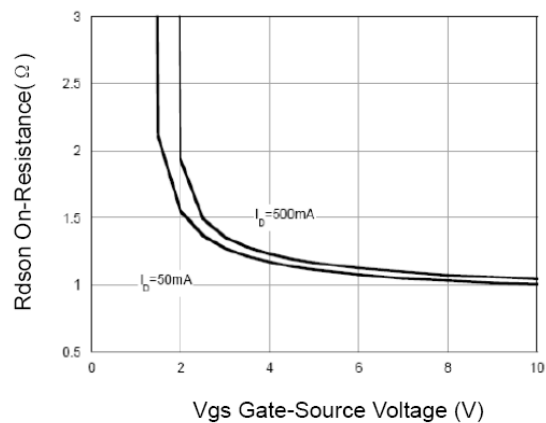


Figure 6 Rds(on) vs Vgs

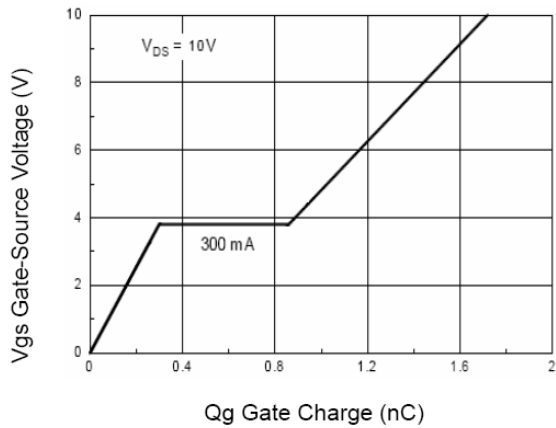


Figure 7 Gate Charge

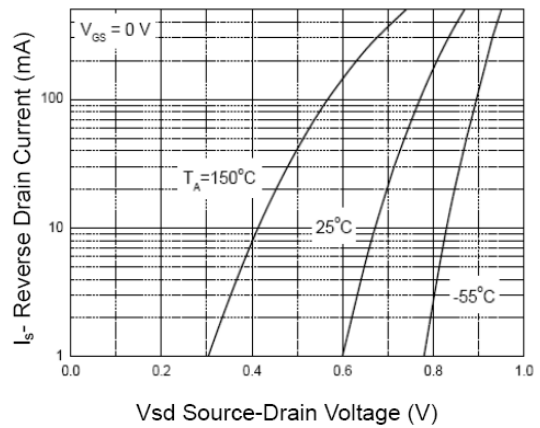


Figure 8 Source-Drain Diode Forward

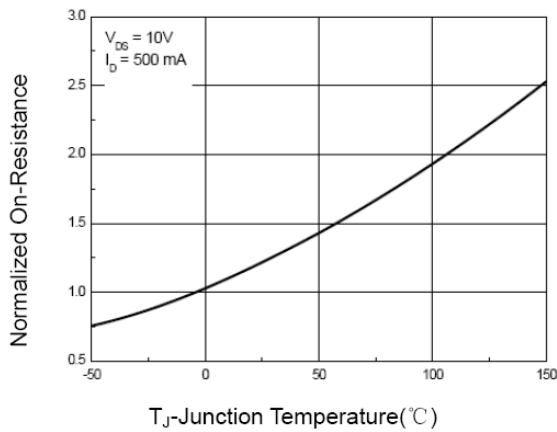


Figure 9 Drain-Source On-Resistance

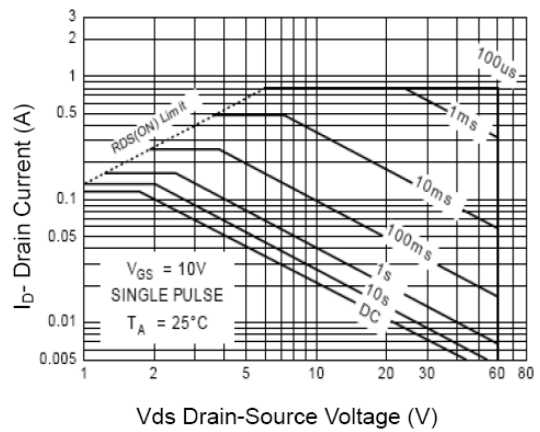


Figure 10 Safe Operation Area

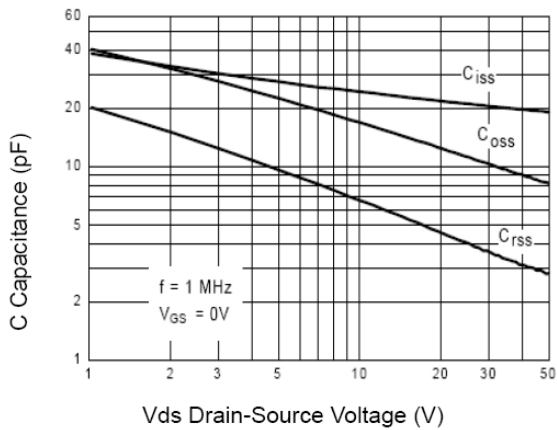


Figure 11 Capacitance vs Vds

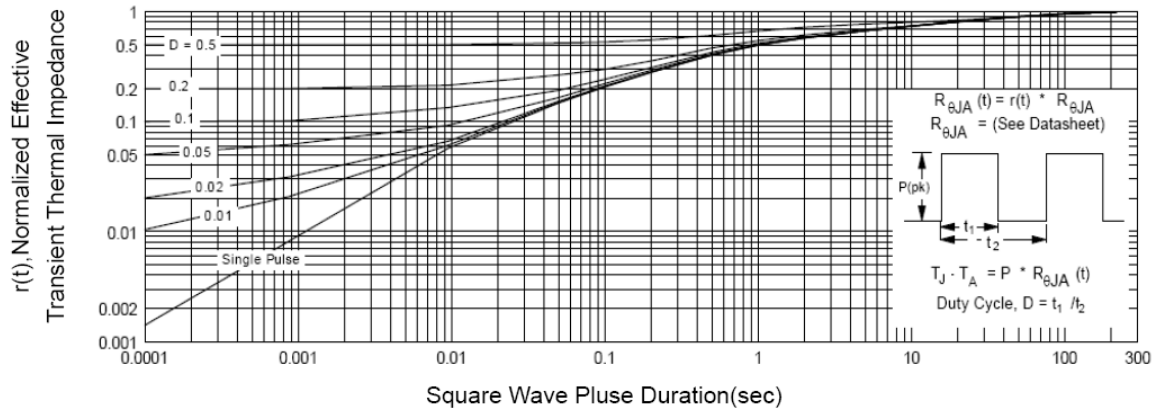


Figure 12 Normalized Maximum Transient Thermal Impedance

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