WG3400

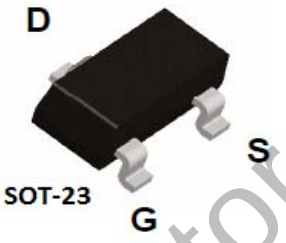
30V N-Channel MOSFET

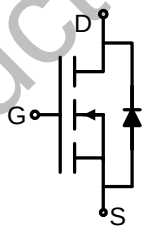
Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 10nC (Typ.).
- ☐ BVDSS=30V,I_D=5.8A
- ☐ R_{DS}(on) : 42mΩ (Max) @V_G=4.5V
- ☐ 100% Avalanche Tested

SOT-23

RoHS COMPLIANT





MARKING:**A09T**

Schematic diagram

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	5.8	A
Drain Current-Pulsed (Note 1)	I_{DM}	30	A
Maximum Power Dissipation	P_D	1.4	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

Thermal Characteristic

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	89	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	30	33	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.7	0.9	1.4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=2.5V, I_D=4A	-	41	55	mΩ
		V_{GS}=4.5V, I_D=5A	-	28	42	mΩ
		V_{GS}=10V, I_D=5.8A	-	24	40	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=5A	10	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=15V,V_{GS}=0V, F=1.0MHz	-	825	-	PF
Output Capacitance	C_{oss}		-	100	-	PF
Reverse Transfer Capacitance	C_{rss}		-	78	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=15V, R_L=2.7Ω V_{GS}=10V,R_{GEN}=3Ω	-	3.3	-	nS
Turn-on Rise Time	t_r		-	4.8	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	26	-	nS
Turn-Off Fall Time	t_f		-	4	-	nS
Total Gate Charge	Q_g	V_{DS}=15V,I_D=5.8A, V_{GS}=4.5V	-	10	-	nC
Gate-Source Charge	Q_{gs}		-	1.6	-	nC
Gate-Drain Charge	Q_{gd}		-	3.1	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=5.8A	-	-	1.2	V
Diode Forward Current (Note 2)	I_S		-	-	5.8	A

Typical Characteristics

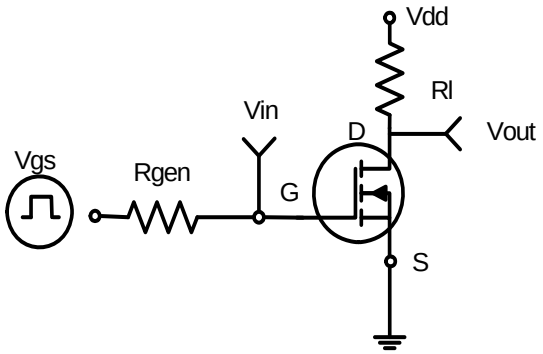


Figure 1:Switching Test Circuit

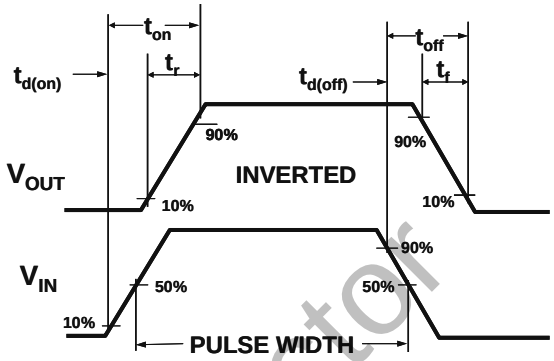
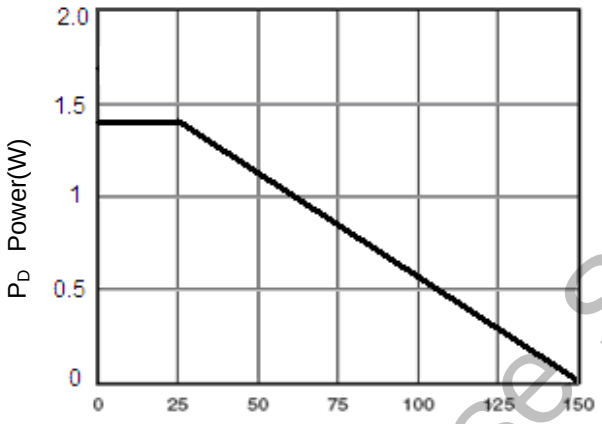
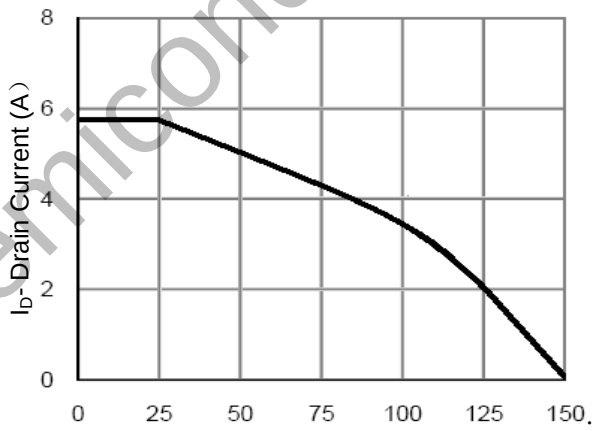


Figure 2:Switching Waveforms



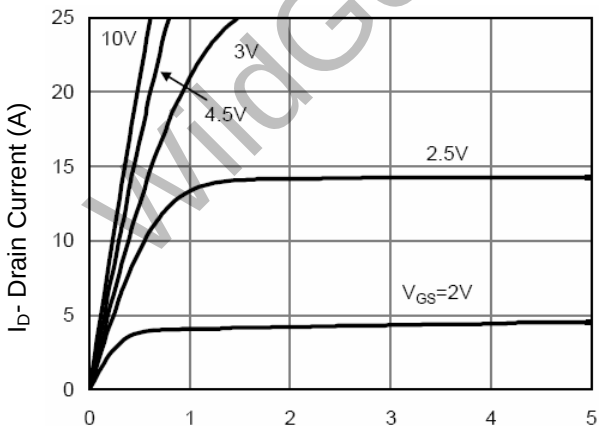
T_J-Junction Temperature(℃)

Figure 3 Power Dissipation



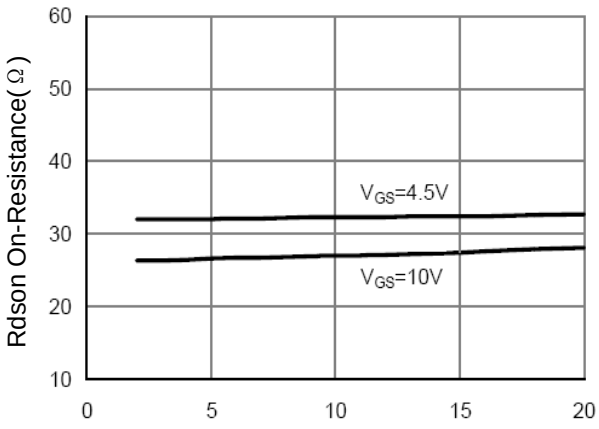
T_J-Junction Temperature(℃)

Figure 4 Drain Current



Vds Drain-Source Voltage (V)

Figure 5 Output Characteristics



I_D- Drain Current (A)

Figure 6 Drain-Source On-Resistance

Typical Characteristics (Continued)

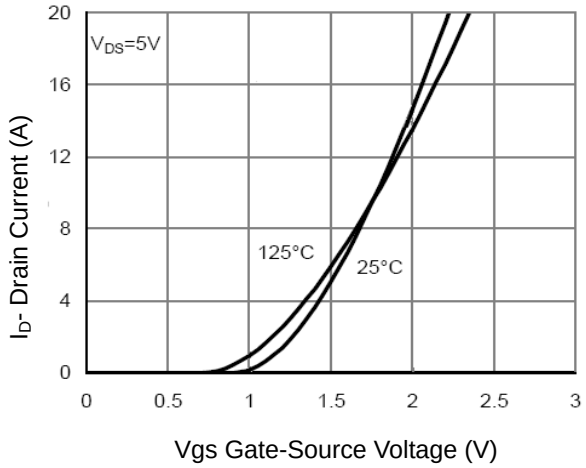


Figure 7 Transfer Characteristics

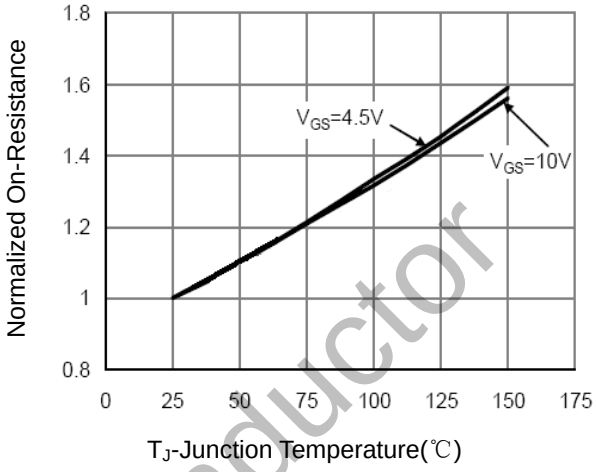


Figure 8 Drain-Source On-Resistance

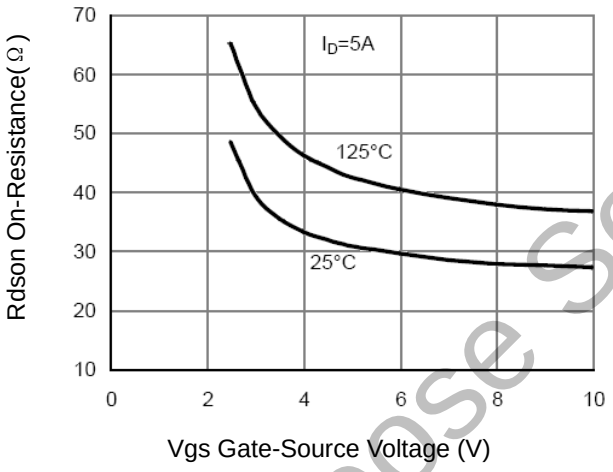


Figure 9 Rdson vs Vgs

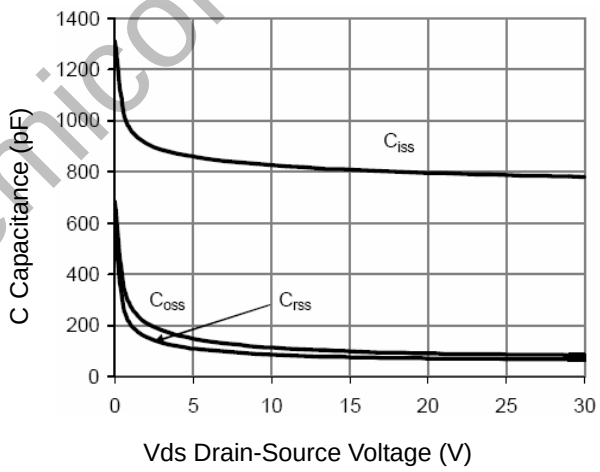


Figure 10 Capacitance vs Vds

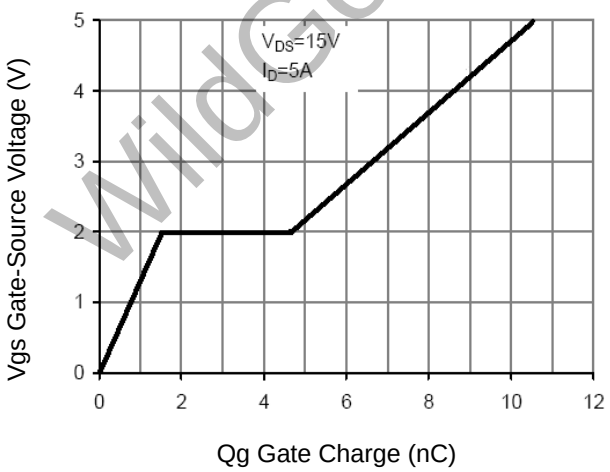


Figure 11 Gate Charge

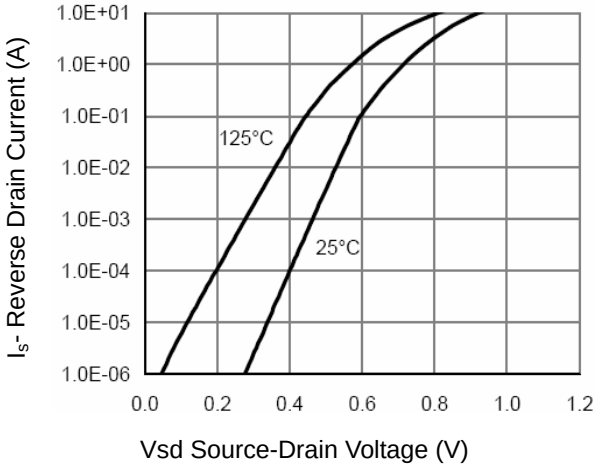


Figure 12 Source- Drain Diode Forward

Typical Characteristics (Continued)

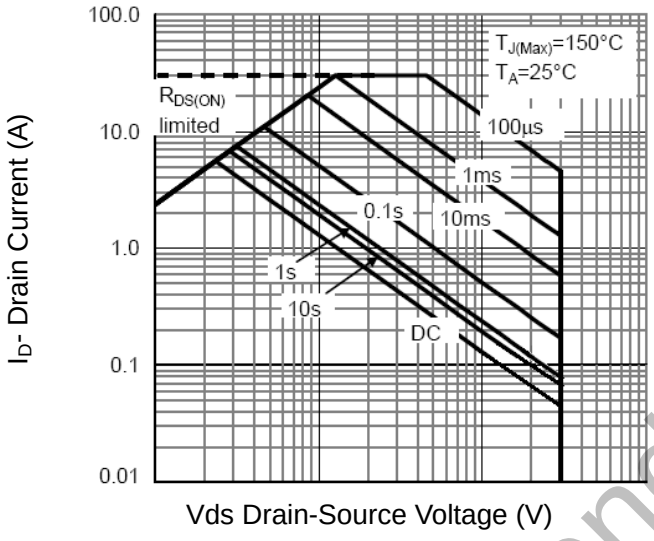


Figure 13 Safe Operation Area

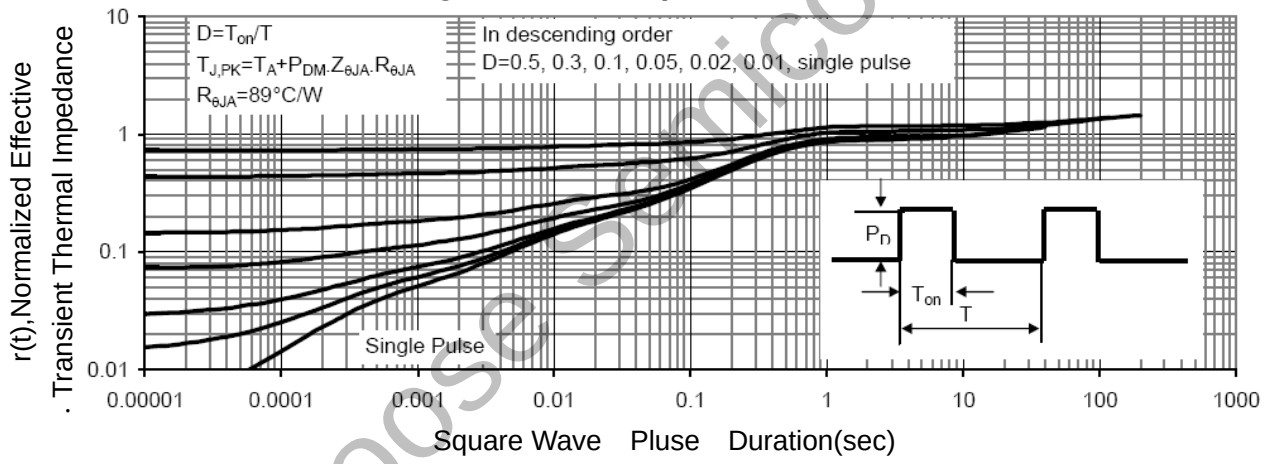


Figure 14 Normalized Maximum Transient Thermal Impedance