



PRODUCT DATA SHEET



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Datasheet



Resources



Samples

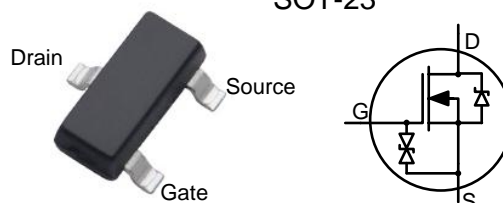
Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

General Features

ESD improved Capability
 Depletion Mode (Normally On)
 Proprietary Advanced Planar Technology
 Rugged Polysilicon Gate Cell Structure
 Fast Switching Speed
 RoHS Compliant
 Halogen-free available

BV_{DSX}	$R_{DS(ON)} (Max.)$	$I_{DSS,min}$
600V	700 Ω	5mA

SOT-23



Applications

Normally-on Switches
 SMPS Start-up Circuit
 Linear Amplifier
 Converters
 Constant Current Source
 Telecom

Absolute Maximum Ratings

 $T_A=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	SVD501DEAG	Unit
V_{DSX}	Drain-to-Source Voltage ^[1]	600	V
V_{DGX}	Drain-to-Gate Voltage ^[1]	600	V
I_D	Continuous Drain Current	0.02	A
I_{DM}	Pulsed Drain Current	0.08	
P_D	Power Dissipation	0.50	W
V_{GS}	Gate-to-Source Voltage	± 20	V
$V_{ESD(G-S)}$	Gate Source ESD HBM, C=100pF, R=1.5k Ω	700	V
T_L	Soldering Temperature Distance of 1.6mm from case for 10 seconds	300	$^{\circ}\text{C}$
T_J and T_{STG}	Operating and Storage Temperature Range	-55 to 150	

Thermal Characteristics

Symbol	Parameter	SVD501DEAG	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	250	K/W

Electrical Characteristics

OFF Characteristics

 $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSX}	Drain-to-Source Breakdown Voltage	600	--	--	V	$V_{GS} = -5V, I_D = 250\mu A$
$I_{D(OFF)}$	Drain-to-Source Leakage Current	--	--	0.1	μA	$V_{DS} = 600V, V_{GS} = -5V$
		--	--	10	μA	$V_{DS} = 600V, V_{GS} = -5V$ $T_J = 125^\circ\text{C}$
I_{GSS}	Gate-to-Source Leakage Current	--	--	20	μA	$V_{GS} = +20V, V_{DS} = 0V$
		--	--	-20		$V_{GS} = -20V, V_{DS} = 0V$

ON Characteristics

 $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
I_{DSS}	Saturated Drain-to-Source Current	5	--	25	mA	$V_{GS} = 0V, V_{DS} = 25V$
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	500	700	Ω	$V_{GS} = 0V, I_D = 3mA^{[4]}$
$V_{GS(OFF)}$	Gate-to-Source Cut-off Voltage	-3.0	--	-1.8	V	$V_{DS} = 3V, I_D = 8\mu A$
gfs	Forward Transconductance	--	15.4	--	mS	$V_{DS} = 10V, I_D = 5mA$

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
C_{ISS}	Input Capacitance	--	12.3	--	pF	$V_{GS} = -5V$ $V_{DS} = 25V$ $f = 1.0MHz$
C_{OSS}	Output Capacitance	--	2.6	--		
C_{RSS}	Reverse Transfer Capacitance	--	1.8	--		
Q_G	Total Gate Charge	--	1.55	--	nC	$V_{GS} = -5V \sim 5V$ $V_{DS} = 300V, I_D = 7mA$
Q_{GS}	Gate-to-Source Charge	--	0.12	--		
Q_{GD}	Gate-to-Drain (Miller) Charge	--	0.56	--		

Resistive Switching Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(ON)}$	Turn-on Delay Time	--	4	--	ns	$V_{GS} = -5V \sim 5V$ $V_{DD} = 300V, I_D = 7mA$ $R_G = 20\Omega$
t_{rise}	Rise Time	--	9	--		
$t_{d(OFF)}$	Turn-off Delay Time	--	14	--		
t_{fall}	Fall Time	--	84	--		

Figure 1. Maximum Power Dissipation vs. Case Temperature

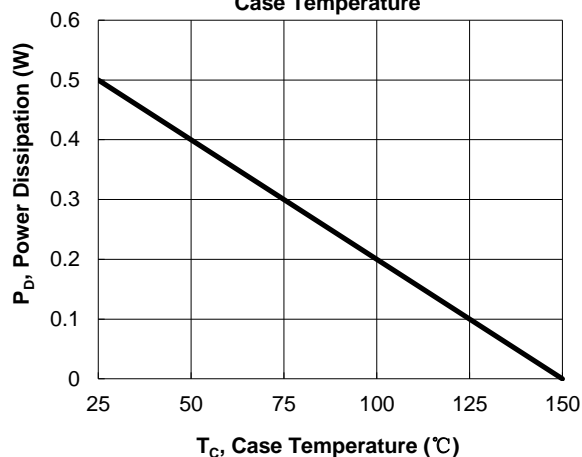


Figure 2. Maximum Continuous Drain Current vs Case Temperature

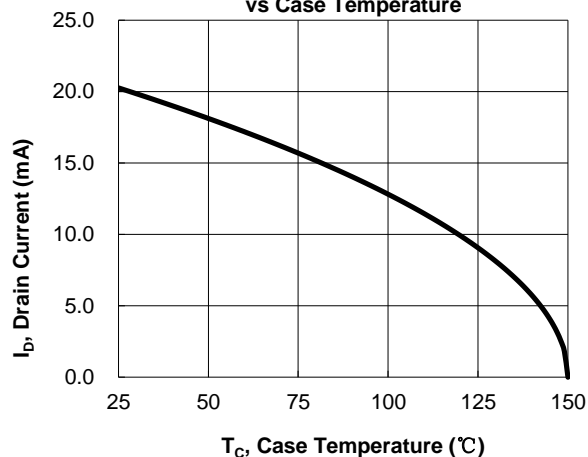


Figure 3. Typical Output Characteristics

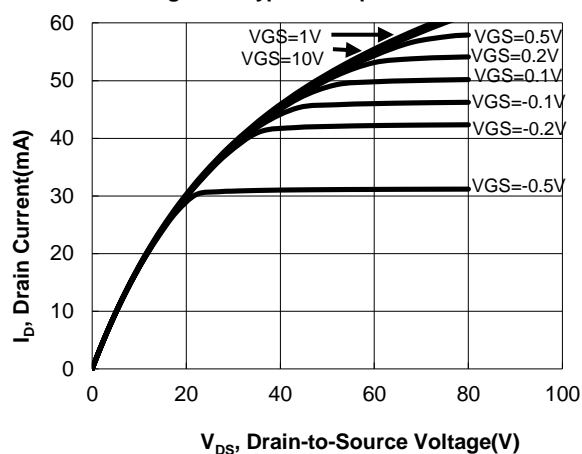


Figure 4. Typical Transfer Characteristics

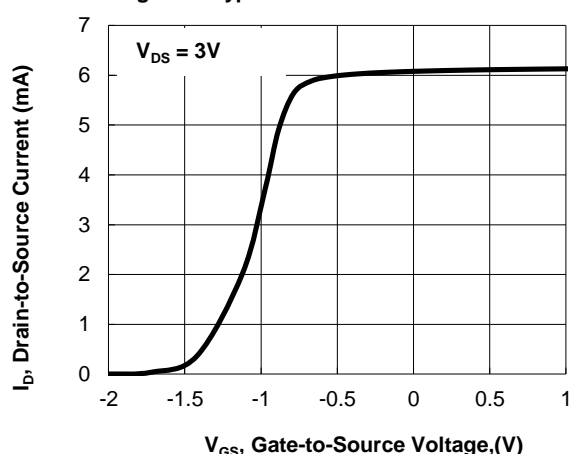


Figure 5. Typical Capacitance vs. Drain-to-Source Voltage

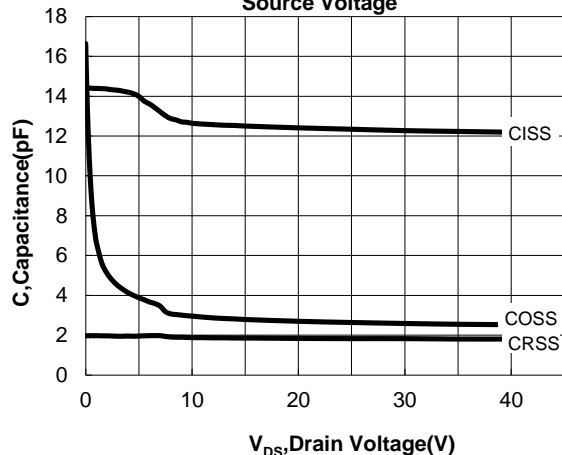
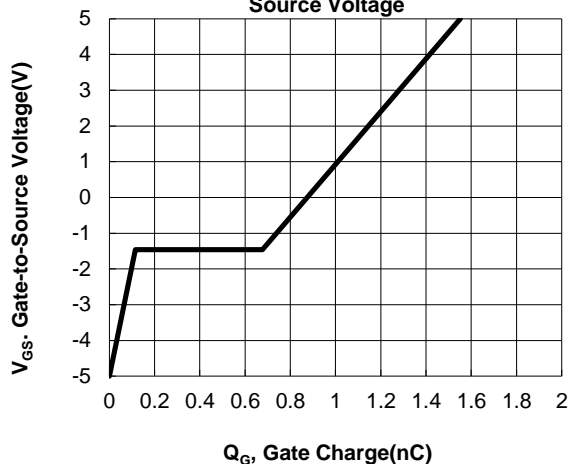
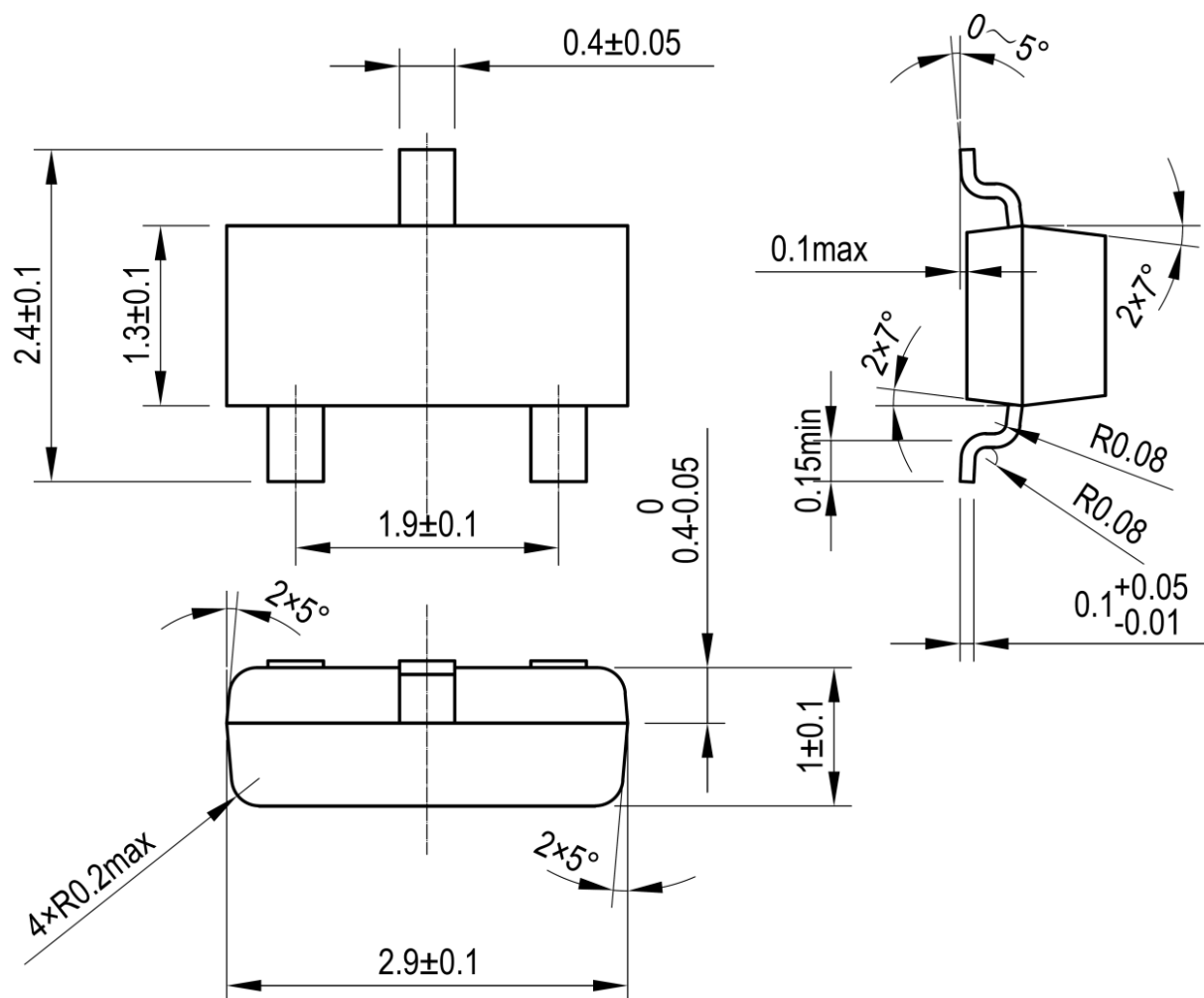


Figure 6. Typical Gate Charge vs. Gate-to-Source Voltage



Package Dimensions

SOT-23



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