

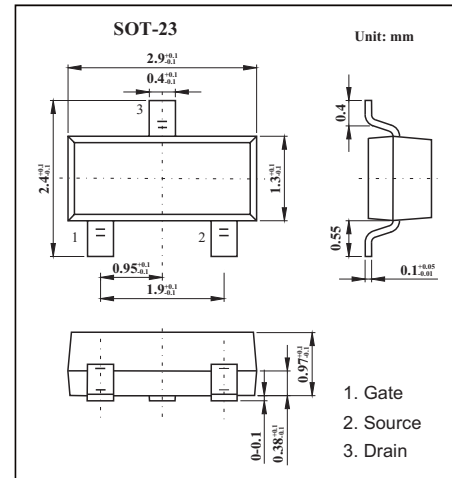
SOT-23 Plastic-Encapsulate MOSFETS

Features

- VDS (V) = 20V
- ID = 4.2A(VGS=4.5V)
- RDS(ON) < 50m Ω (VGS =4.5V)
- RDS(ON) < 63m Ω (VGS =2.5V)
- RDS(ON) < 87m Ω (VGS =1.8V)
- N-Channel Enhancement Mode Field Effect Transistor

MECHANICAL DATA

- Case style:SOT-23molded plastic
- Mounting position:any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±8	V
Continuous Drain Current *1 T _A =25°C	I _D	4.2	A
Current *1 T _A =70°C		3.2	
Pulsed Drain Current *2	I _{DM}	15	
Power Dissipation *1 T _A =25°C	P _D	1.4	W
T _A =70°C		0.9	
Thermal Resistance.Junction-to-Ambient *1	R _{thJA}	125	°C/W
Thermal Resistance.Junction-to-Case	R _{thJC}	80	°C/W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C

*1The value of R_{thJA} is measured with the device mounted on 1in² FR-4 board with 2oz.

Copper, in a still air environment with T_A =25°C

MOSFET ELECTRICAL CHARACTERISTICS $T_a=25\text{ }^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16\text{V}, V_{GS}=0\text{V}$			1	μA
		$V_{DS}=16\text{V}, V_{GS}=0\text{V}, T_J=55^{\circ}\text{C}$			5	
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 8\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.4	0.6	1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5\text{V}, I_D=4.2\text{A}$		41	50	m Ω
		$V_{GS}=4.5\text{V}, I_D=4.2\text{A}, T_J=125^{\circ}\text{C}$		58	70	
		$V_{GS}=2.5\text{V}, I_D=3.7\text{A}$		52	63	
		$V_{GS}=1.8\text{V}, I_D=3.2\text{A}$		67	87	
On state drain current	$I_{D(on)}$	$V_{GS}=4.5\text{V}, V_{DS}=5\text{V}$	15			A
Forward Transconductance	g_{FS}	$V_{DS}=5\text{V}, I_D=4.2\text{A}$		11		S
Input Capacitance	C_{iss}			436		pF
Output Capacitance	C_{oss}	$V_{GS}=0\text{V}, V_{DS}=-10\text{V}, f=1\text{MHz}$		66		pF
Reverse Transfer Capacitance	C_{rss}			44		pF
Gate resistance	R_g	$V_{GS}=0\text{V}, V_{DS}=0\text{V}, f=1\text{MHz}$		3		Ω
Total Gate Charge	Q_g			6.2		nC
Gate Source Charge	Q_{gs}	$V_{GS}=4.5\text{V}, V_{DS}=10\text{V}, I_D=4.2\text{A}$		1.6		nC
Gate Drain Charge	Q_{gd}			0.5		nC
Turn-On DelayTime	$t_{D(on)}$			5.5		ns
Turn-On Rise Time	t_r			6.3		ns
Turn-Off DelayTime	$t_{D(off)}$	$V_{GS}=4.5\text{V}, V_{DS}=10\text{V}, R_L=2.7\Omega, R_{GEN}=6\Omega$		40		ns
Turn-Off FallTime	t_f			12.7		ns
Body Diode Reverse Recovery Time	t_{rr}	$I_F=4\text{A}, di/dt=100\text{A}/\mu\text{s}$		12.3		ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=4\text{A}, di/dt=100\text{A}/\mu\text{s}$		3.5		nC
Maximum Body-Diode Continuous Current	I_S				2	A
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}, V_{GS}=0\text{V}$		0.76	1	V