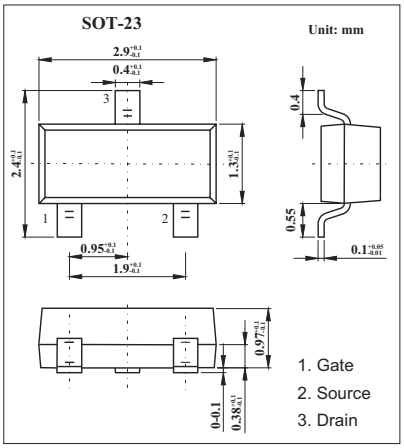
SOT-23 Plastic-Encapsulate MOSFETS

Features

- 1.8-V Rated
- RoHS Compliant
- N-Channel 20 -V (D-S) MOSFET

MECHANICAL DATA

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



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	V_{DS}	20		V
Gate-Source Voltage	V_{GS}	±8		V
Continuous Drain Current (T_J=150℃) *2 T_A=25℃ T_A=70℃	I_D	4.9 3.9	3.77 3.0	A
Pulsed Drain Current *2	I_{DM}	15		A
Avalanche Current*2 L = 0.1 mH	I_{AS}	15		A
Single Avalanche Energy L = 0.1 mH	E_{AS}	11.25		mJ
Continuous Source Current (diode conduction) *2	I_S	1.0		A
Power Dissipation *2 T_A=25℃ T_A=70℃	P_D	1.25 0.8	0.75 0.48	W
Jumction Temperature and Storage Temperature	T_j.T_{stg}	-55 to 150		℃

*1 Surface Mounted on 1□x 1□FR4 Board.

*2 Pulse width limited by maximum junction temperature

Thermal Resistance Ratings

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient * t≤5 s e c	R_{thJA}	75	100	℃/W
Maximum Junction-to-Ambient * Steady State		120	166	
Maximum Junction-to-Foot Steady State	R_{thJF}	40	50	

* Surface Mounted on 1□x 1□FR4 Board.

RATINGS AND CHARACTERISTIC CURVES

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 ℃ unless otherwise specified

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250 μA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	0.45	0.65	0.85	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20 V, V_{GS} = 0 V			1	μA
		V_{DS} = 20 V, V_{GS} = 0 V, T_J = 70 ℃			75	
On-State Drain Current	$I_{D(on)}$	V_{DS} ≥10V, V_{GS} = 4.5 V	15			A
Drain-Source On-State Resistance *	$r_{DS(on)}$	V_{GS} = 4.5 V, I_D = 5.0A		0.027	0.033	Ω
		V_{GS} = 2.5 V, I_D = 4.5A		0.033	0.040	
		V_{DS} =1.8V, I_D = 4.0 A		0.042	0.051	
Forward Transconductance *	g_{fs}	V_{DS} =15V, I_D = 5.0 A		40		S
Diode Forward Voltage *	V_{SD}	I_S =1.0 A, V_{GS} = 0 V		0.8	1.2	V
Total Gate Charge	Q_g	V_{DS} = 10V ,V_{GS} = 4.5 V , I_D=5.0 A		11.2	14	nC
Gate-Source Charge	Q_{gs}			1.4		
Gate-Drain Charge	Q_{gd}			2.2		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} =10V , R_L = 10Ω , I_D = 1A , V_{GEN} =-4.5V , R_G = 6Ω		15	25	ns
Rise Time	t_r			40	60	
Turn-Off Delay Time	$t_{d(off)}$			48	70	
Fall-Time	t_f			31	45	
Source-Drain Reverse Recovery Time	t_{rr}	I_F=1.0A,d_i/d_t=100A/μs		13	25	

*Pulse test: PW ≤300μs duty cycle≤ 2%.