

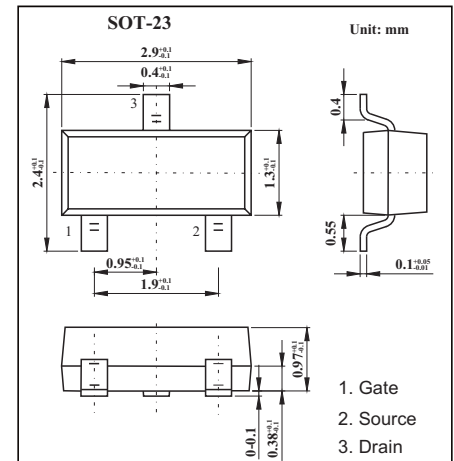
SOT-23 Plastic-Encapsulate MOSFETS

Features

- TrenchFET
- PowerMOSFET ESD Protected: 3000 V
- N-Channel 20-V (D-S) MOSFET

MECHANICAL DATA

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



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	5secs	Steady State	Unit	
Drain-Source Voltage	VDS	20		V	
Gate-Source Voltage	VGS	±12			
Continuous Drain Current (T _J = 150°C) *1	ID	TA = 25 °C	4.9	3.77	A
		TA = 70 °C	3.9	3	
Pulsed Drain Current	IDM	15			
Avalanche Current*2	IAS	15			
Single Avalanche Energy	EAS	11.25			
Continuous Source Current (Diode Conduction)*1	IS	1		W	
Power Dissipation *1	PD	TA = 25 °C	1.25		0.75
		TA = 70 °C	0.8	0.48	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150		°C	

*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 *	R _{thJA}	t ≤ 5 sec	75	100	°C/W
		Steady-State	120	166	
Maximum Junction-to-Foot (Drain)	R _{thJF}	40	50		

* Surface Mounted on 1"X 1" FR4 Board.

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	VGS = 0 V, ID = 250 μA	20			V
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250 μA	0.45			V
Gate-Body Leakage	IGSS	VDS = 0 V, VGS = ±4.5 V			±1.5	μA
Zero Gate Voltage Drain Current	IDSS	VDS = 16V, VGS = 0V			1	μA
		VDS = 16V, VGS = 0V, T _J = 70°C			75	
On-State Drain Current*	ID(on)	VDS ≥ 10 V, VGS = 4.5 V	15			A
Drain Source On State Resistance*	RDS(on)	VGS = 4.5 V, ID = 5.0A		0.027	0.033	Ω
		VGS = 2.5 V, ID = 4.5A		0.033	0.040	
		VGS = 1.8 V, ID = 4.0A		0.042	0.051	
Forward Transconductance	gfs	VDS = 15V, ID = 5.0 A		4.0		S
Schottky Diode Forward Voltage*	VSD	IS = 1.0 A, VGS = 0 V		0.8	1.2	V
Total Gate Charge	Qg	VDS = 10 V, VGS = 4.5 V, ID = 5.0 A		11.0	14.0	nC
Gate-Source Charge	Qgs		1.5			
Gate-Drain Charge	Qgd		2.1			
Turn-On Delay Time	td(on)	VDD = 10V, RL = 10 Ω ID = 1.0A, VGEN = 4.5V, RG = 6 Ω *		0.53	0.8	ns
Rise Time	tr			1.4	2.2	
Turn-Off Delay Time	td(off)			13.5	20	
Fall Time	tf			5.9	9	
Source-Drain Reverse Recovery Time	trr	IF = 1.0 A, di/dt = 100 A/μs		13	25	ns

* Pulse test : Pulse width ≤ 300 μs, duty cycle ≤ 2%