

TO-92 Plastic-Encapsulate Mosfets

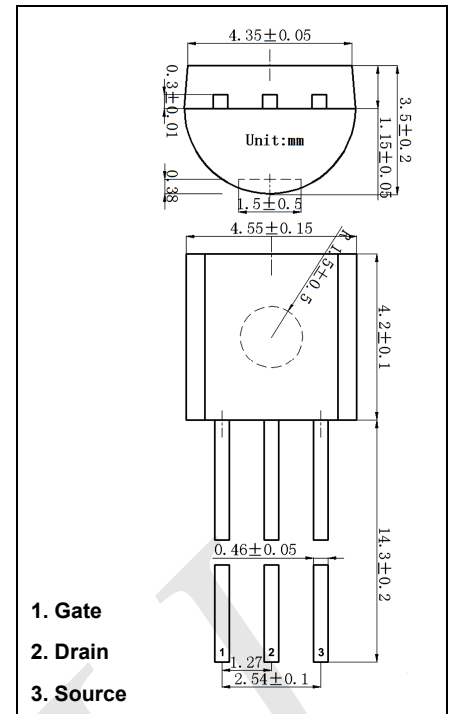
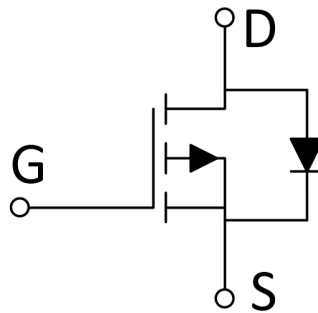
2301 P-Channel Mosfet

Features

- TrenchFET Power MOSFET

Applications

- Load Switch for Portable Devices
- DC/DC Converter



Maximum Ratings ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source voltage	-20	V
V_{GS}	Gate-Source voltage	± 8	
I_D	Continuous Drain Current	-2.3	A
I_{DM}	Pulsed Drain Current	-10	
I_S	Continuous Source-Drain Diode Current	-0.72	
P_D	Maximum Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient($t \leq 5s$)	357	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55 ~ +150	$^{\circ}\text{C}$

Electrical Characteristics (T_a=25°C unless otherwise specified)

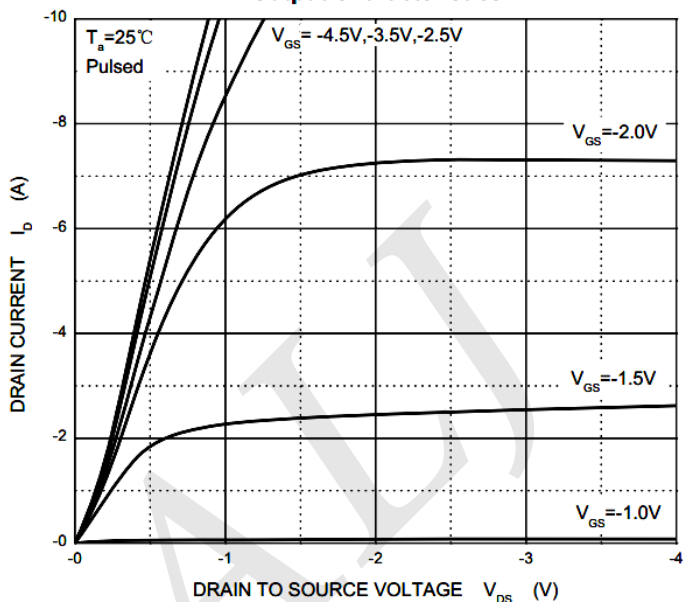
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-20			V
V _{GS(th)}	Gate-Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.4		-1	
I _{GSS}	Gate-body Leakage current	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} = 0V			-1	μA
R _{DS(on)}	Drain-Source On-Resistance ¹⁾	V _{GS} = -4.5V, I _D = -2.8A		90	112	mΩ
		V _{GS} = -2.5V, I _D = -2.0A		110	142	
g _{fs}	Forward Trans conductance ¹⁾	V _{DS} = -5V, I _D = -2.8A		6.5		S
Dynamic ²⁾						
C _{iss}	Input Capacitance	V _{GS} = 0V		405		pF
C _{oss}	Output Capacitance	V _{DS} = -10V		75		
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz		55		
Q _g	Total Gate Charge	V _{GS} = -4.5V, I _D = -3A, V _{DS} = -10V		5.5	10	nC
				3.3	6	
Q _{gs}	Gate-Source Charge	V _{GS} = -2.5V, I _D = -3A, V _{DS} = -10V		0.7		
Q _{gd}	Gate-Drain Charge			1.3		
R _g	Gate resistance	f = 1MHz		6.0		Ω
t _{d(on)}	Turn-On Delay Time	V _{DD} = -10V, R _L = 10Ω, I _D = -1A, V _{GEN} = -4.5V, R _g = 1Ω		11	20	ns
t _r	Rise Time			35	60	
t _{d(off)}	Turn-Off Delay Time			30	50	
t _f	Fall Time			10	20	
Drain-source body diode characteristics						
I _s	Continuous Source-Drain Diode Current	T _C = 25°C			-1.3	A
I _{SM}	Pulsed Diode Forward Current ¹⁾				-10	
V _{SD}	Diode Forward Voltage	I _s = -0.7A		-0.8	-1.2	V

Notes:

1. Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics

Output Characteristics



Transfer Characteristics

