SI2305

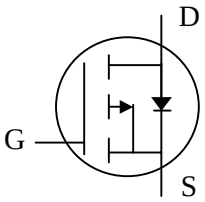
P-Channel MOSFET

FEATURES

- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable
- Case Material: Molded Plastic.

1.Gate
2.Source
3.Drain

SOT-23



Absolute Maximum Ratings (T_A=25°C, unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-source Voltage	V_{GS}	± 8	V
Drain Current (Continuous)	I_D	-4.1	A
Drain Current (Pulsed) [a]	I_{DM}	-10	A
Total Power Dissipation @T_A=25°C	P_D	0.35	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 to +150	°C
Thermal Resistance Junction to Ambient (PCB mounted)[b]	$R_{\theta JA}$	357	°C/W

Electrical Characteristics (T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-12			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.5		-0.9	V
Gate-source leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±8V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =-8V, V_{GS} =0V			-1	μA
Drain-source on-state resistance[a]	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-3.5A		30	45	mΩ
		V_{GS} =-2.5V, I_D =-3A		40	60	mΩ
		V_{GS} =-1.8V,I_D=-2.0A		60	90	mΩ
Forward transconductance[a]	g_{fs}	V_{DS} =-5V, I_D =-4.1A	6			S
Dynamic						
Input capacitance[b,c]	C_{iss}	V_{DS} =-4V,V_{GS} =0V,f =1MHz		740		pF
Output capacitance[b,c]	C_{oss}			290		pF
Reverse transfer capacitance[b,c]	C_{rss}			190		pF
Total gate charge[b]	Q_g	V_{DS} =-4V,V_{GS} =-4.5V, I_D =-4.1A		7.8	15	nC
		V_{DS} =-4V,V_{GS} =-2.5V, I_D =-4.1A		4.5	9	nC
Gate-source charge[b]	Q_{gs}			1.2		nC
Gate-drain charge[b]	Q_{gd}			1.6		nC
Gate resistance[b,c]	R_g	f =1MHz	1.4	7	14	Ω

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Electrical Characteristics (TA=25°C, unless otherwise noted)

Turn-on delay time[b,c]	$t_{d(on)}$	V_{DD}=-4V, R_L=1.2Ω, I_D ≈-3.3A, V_{GEN}=-4.5V,Rg=1Ω		13	20	ns
Rise time[b,c]	t_r			35	53	
Turn-off Delay time[b,c]	$t_{d(off)}$			32	48	
Fall time[b,c]	t_f			10	20	
Turn-on delay time[b,c]	$t_{d(on)}$	V_{DD}=-4V, R_L=1.2Ω, I_D ≈-3.3A, V_{GEN}=-8V,Rg=1Ω		5	10	
Rise time[b,c]	t_r			11	17	
Turn-off delay time[b,c]	$t_{d(off)}$			22	33	
Fall time[b,c]	t_f			16	24	
Drain-source body diode characteristics						
Continuous source-drain diode current	I_S	T_C=25℃			-1.4	A
Pulse diode forward current[a]	I_{SM}				-10	
Body ciode voltage	V_{SD}	I_F=-3.3A			-1.2	V

Note :

a. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.

b. Guaranteed by design, not subject to production testing.

c. These parameters have no way to verify.

SI2305 Typical Characteristics