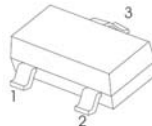


FEATURE

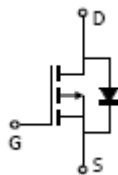
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

SOT-23



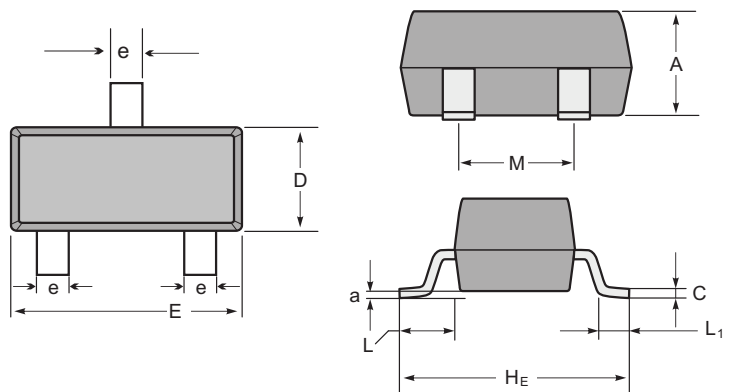
1. GATE
2. SOURCE
3. DRAIN

Equivalent Circuit



Marking

Type number	Marking code
SI2305	A5SHB



SOT-23 mechanical data

UNIT		A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current	I_D	-4.1	A
Continuous Source-Drain Diode Current	I_S	-0.8	
Maximum Power Dissipation ^d	P_D	1.3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	96.2	$^\circ\text{C/W}$
Operation Junction and Storage Temperature Range	T_J, T_{STG}	-50 ~ +150	$^\circ\text{C}$

SI2305A

T_a=25 °C unless otherwise specified

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		-1	
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		40	50	mΩ
		V _{GS} =-2.5V, I _D =-3A		55	65	
		V _{GS} =-1.8V,I _D =-2.0A		90	120	
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		
Reverse transfer capacitance ^{b,c}	C _{rss}			190		
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	
Gate-source charge ^b	Q _{gs}	V _{DS} =-4V,V _{GS} =-2.5V, I _D =-4.1A		1.2		
Gate-drain charge ^b	Q _{gd}			1.6		
Gate resistance ^{b,c}	R _g	f =1MHz	1.4	7	14	Ω
Turn-on delay time ^{b,c}	t _{d(on)}	V _{DD} =-4V, R _L =1.2Ω, I _D ≈-3.3A, V _{GEN} =-4.5V,R _g =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,R _g =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°C			-1.4	A
Pulse diode forward current ^a	I _{SM}				-10	
Body diode voltage	V _{SD}	I _F =-3.3A			-1.2	V

Note :

- Pulse Test ; Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.
- These parameters have no way to verify.
- Device mounted on 1"×1" FR-4 PCB with high coverage 2oz Copper ,double sided. Copper, t≤10s.

RATING AND CHARACTERISTIC CURVES (SI2305A)

