SOT-23 Plastic-Encapsulate MOSFETS

P-Channel 12-V(D-S) MOSFET

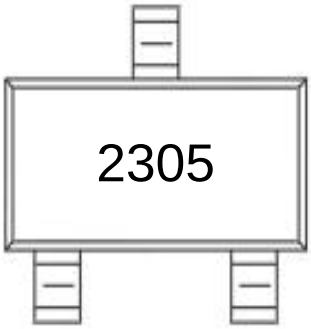
FEATURE

TrenchFET Power MOSFET

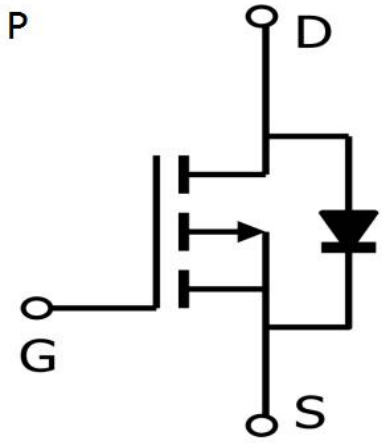
APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter

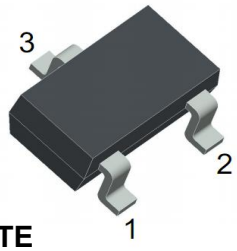
MARKING



Equivalent Circuit



SOT-23



1.GATE
2.SOURCE
3.DRAIN

Maximum ratings (T_a=25℃ 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	P_D	0.35	W
Thermal Resistance from Junction to Ambient(t≤10s)	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-50 ~+150	

Electrical characteristics (T_a=25℃ 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	
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			0.045	Ω
		V_{GS} =-2.5V, I_D =-3A			0.060	
		V_{GS} =-1.8V,I_D=-2.0A			0.090	
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}			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,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		-0.8	-1.2	V

Note :

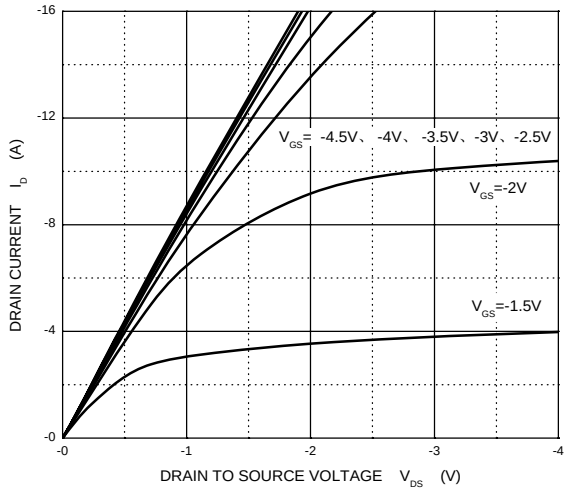
a. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.

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

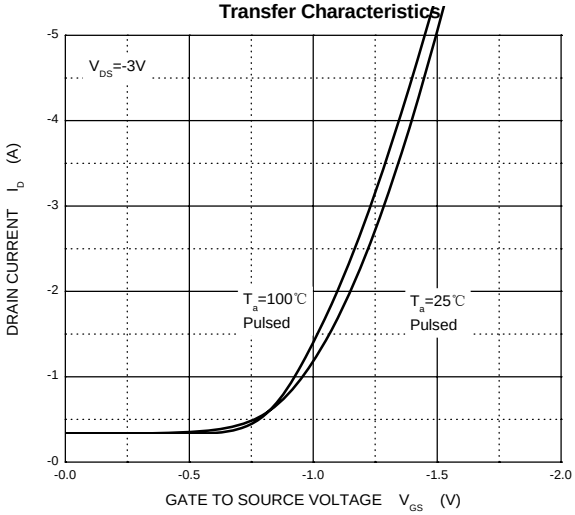
c. These parameters have no way to verify.

Typical Characteristics

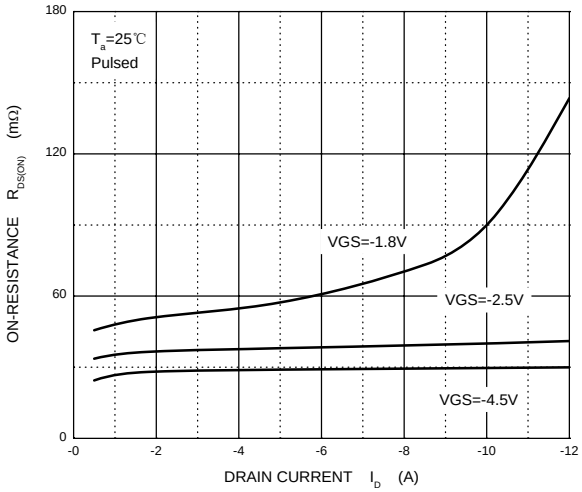
Output Characteristics



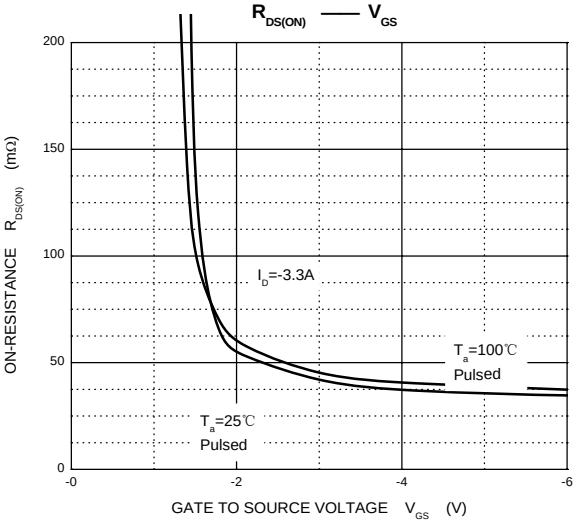
Transfer Characteristics



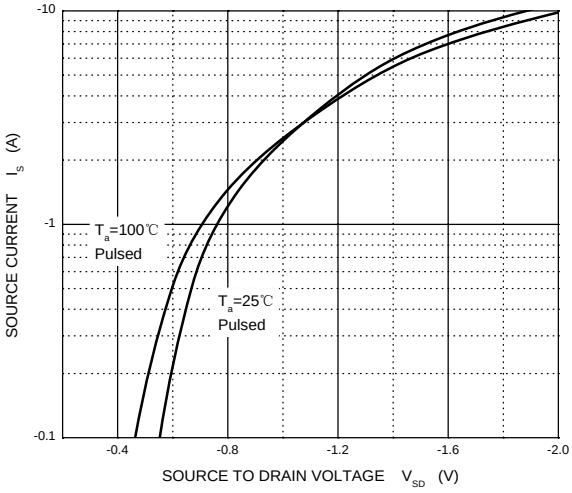
$R_{DS(ON)}$ —— I_D



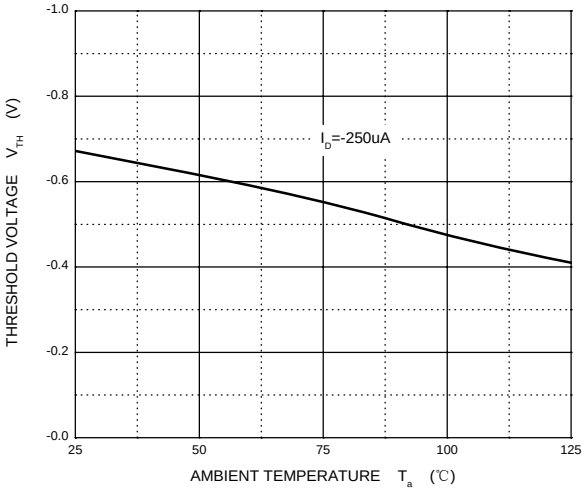
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}

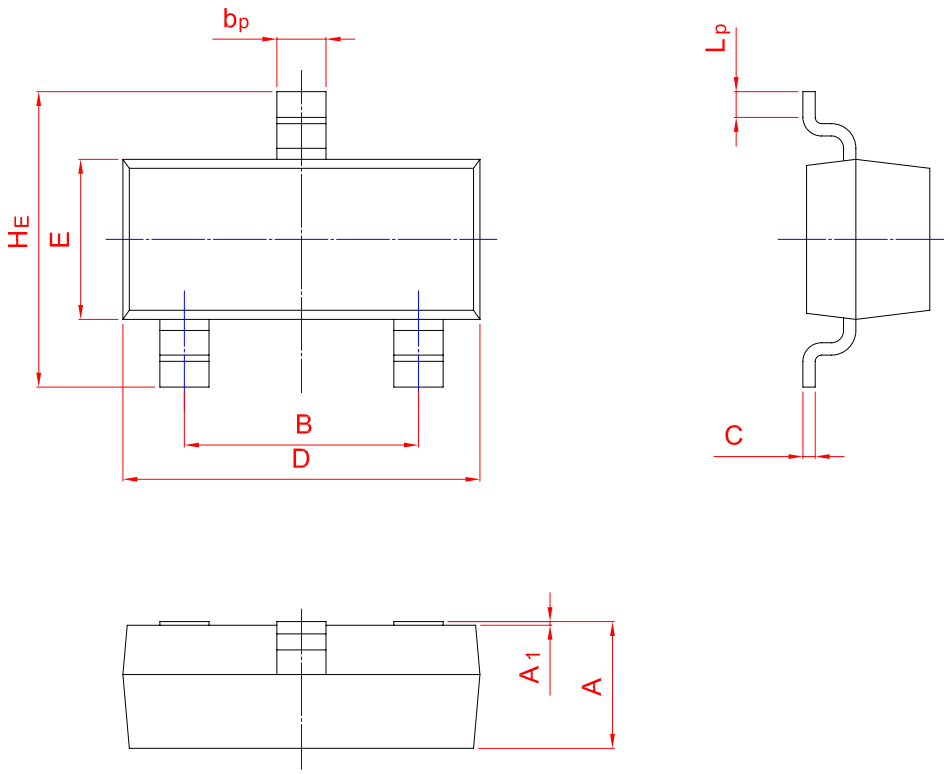


Threshold Voltage



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20