

SOT-23 Plastic-Encapsulate Transistors

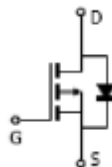
2305A MOSFET(P-Channel)

FEATURES

PWM applications

Load switch

Power management



MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{DS}	Drain-Source voltage	-12	V
V _{GS}	Gate-Source voltage	±12	V
I _D	Drain current	-4.1	A
P _D	Power Dissipation	1.7	W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C

ELECTRICAL CHARACTERISTICS (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250uA	-12			V
Gate-Threshold Voltage	V _{th(GS)}	V _{DS} = V _{GS} , I _D =-250 uA	-0.45	-0.7	-1	V
Gate-body Leakage	I _{GSS}	V _{DS} =0V, V _{GS} = ± 12V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-12V, V _{GS} =0V			-1	uA
Drain-Source On-Resistance	r _{DS(ON)}	V _{GS} =-4.5V, I _D =-4.1A		29	40	m Ω
		V _{GS} =-2.5V, I _D =-3.0A		36	50	m Ω
Forward Trans conductance	g _{fs}	V _{DS} =-5V, I _D =-2.0A	5			S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-4.0V, V _{GS} =0V, f=1MHz		740		pF
Output Capacitance	C _{oss}			290		
Reverse Transfer Capacitance	C _{rss}			190		
Switching Capacitance						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-4.0V, R _L =1.2Ω , V _{GS} =-4.5V R _{GEN} =1.0 Ω		12		nS
Turn-on Rise Time	t _r			35		nS
Turn-off Delay Time	t _{d(off)}			30		nS
Turn-off Fall Time	t _f			10		nS
Total Gate Charge	Q _g	V _{DS} =-4V, I _D =-4.1A, V _{GS} =-4.5V,		7.8		nC
Gate-Source Charge	Q _{gs}			1.2		nC
Gate-Drain Charge	Q _{gd}			1.6		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _D =-1.6A			-1.2	V
Diode Forward Current	I _S				-4.1	A

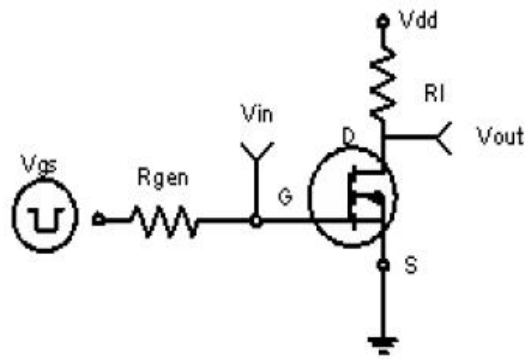


Figure 1: Switching Test Circuit

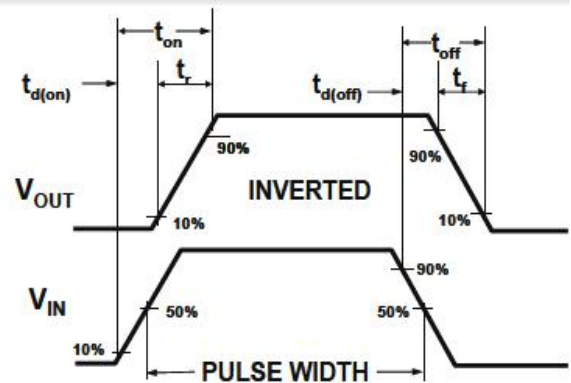


Figure 2: Switching Waveforms

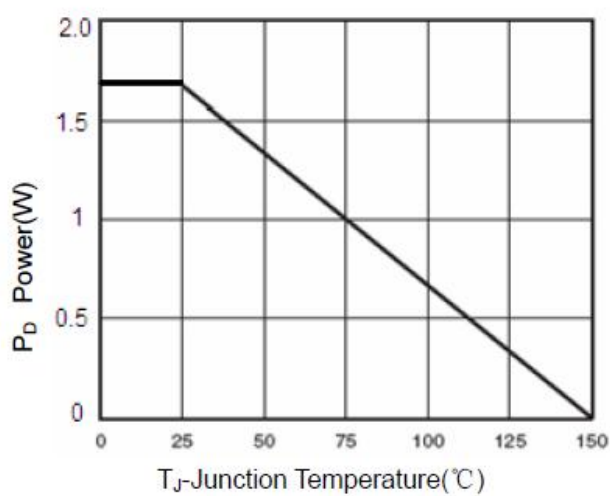


Figure 3 Power Dissipation

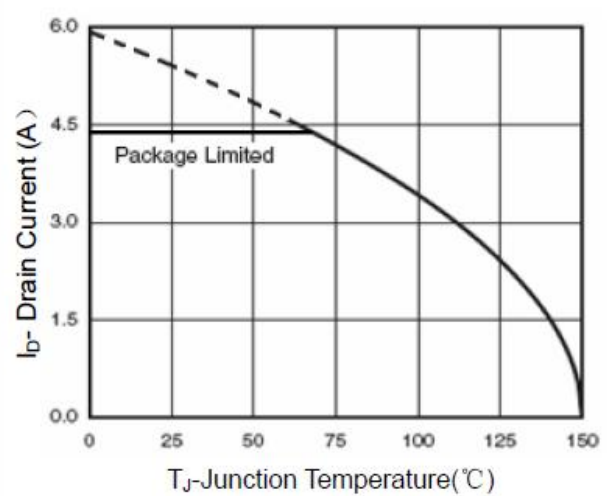


Figure 4 Drain Current

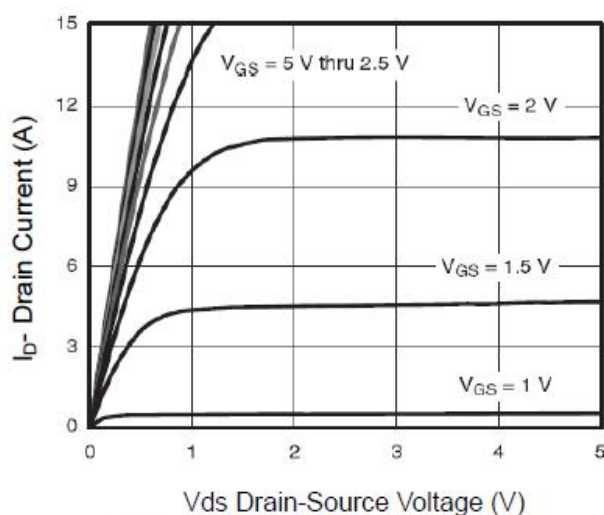


Figure 5 Output Characteristics

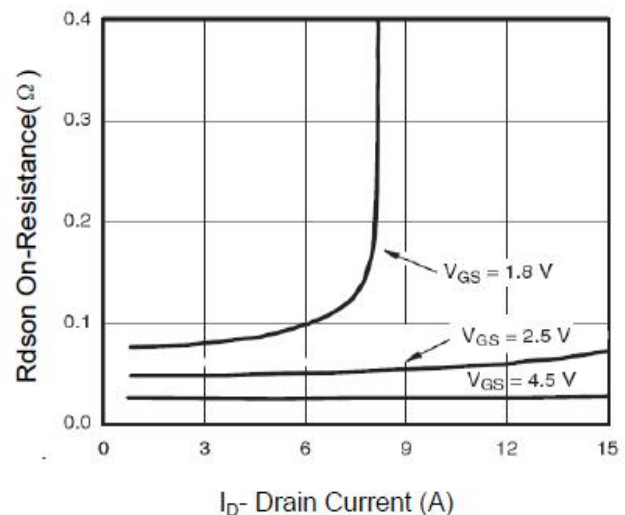


Figure 6 Drain-Source On-Resistance

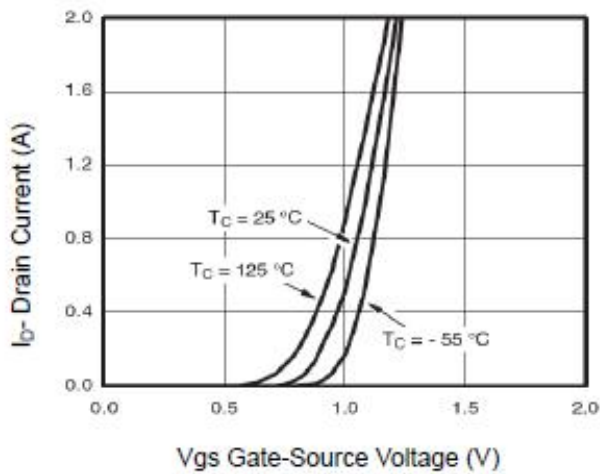


Figure 7 Transfer Characteristics

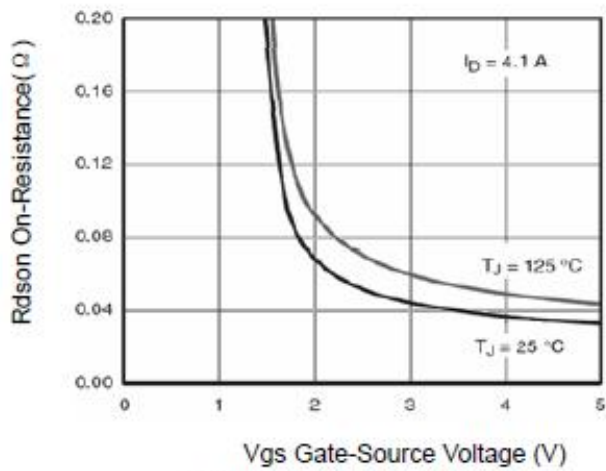


Figure 9 Rdson vs Vgs

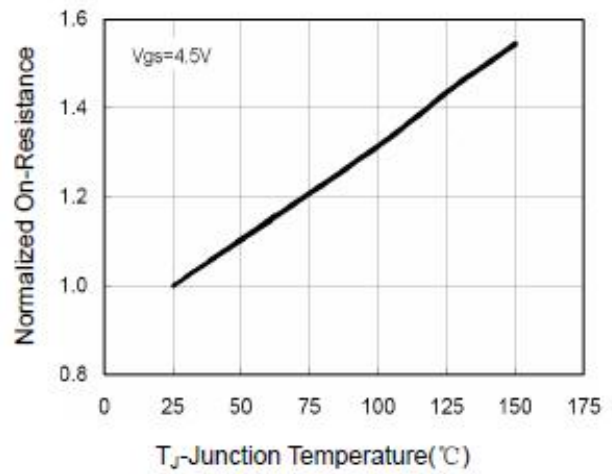


Figure 8 Drain-Source On-Resistance

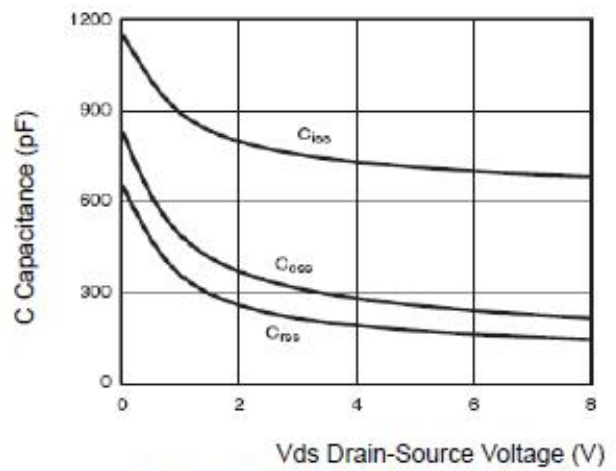


Figure 10 Capacitance vs Vds