

TAP2302B

N-Channel Power MOSFET

FEATURE

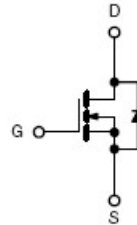
TrenchFET Power MOSFET

APPLICATIONS

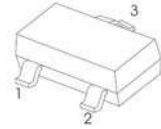
Load Switch for Portable Devices

DC/DC Converter

Equivalent Circuit



SOT-23



- 1. GATE
- 2. SOURCE
- 3. DRAIN

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	
Continuous Drain Current	I_D	2.8	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Operating Junction	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	

TAP2302B

N-Channel Power MOSFET

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 = 10μA	20			V
Gate-threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 50μA	0.55	0.70	1.2	
Gate-body leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±10V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1	μA
Drain-source on-resistance ^a	r _{DS(on)}	V _{GS} = 4.5V, I _D = 2.8A		0.045	0.055	Ω
		V _{GS} = 2.5V, I _D = 2.0A		0.055	0.070	
Forward transconductance ^a	g _{fs}	V _{DS} = 5V, I _D = 2.8A		8		S
Diode forward voltage	V _{SD}	I _S = 0.94A, V _{GS} = 0V		0.76	1.2	V
Dynamic						
Total gate charge	Q _g	V _{DS} = 10V, V _{GS} = 4.5V, I _D = 3.6A		4.0	10	nC
Gate-source charge	Q _{gs}			0.65		
Gate-drain charge	Q _{gd}			1.5		
Input capacitance ^b	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		300		pF
Output capacitance ^b	C _{oss}			120		
Reverse transfer capacitance ^b	C _{rss}			80		
Switching^b						
Turn-on delay time	t _{d(on)}	V _{DD} = 10V, R _L = 5.5Ω, I _D ≈ 3.6A, V _{GEN} = 4.5V, R _g = 6Ω		7	15	ns
Rise time	t _r			55	80	
Turn-off delay time	t _{d(off)}			16	60	
Fall time	t _f			10	25	

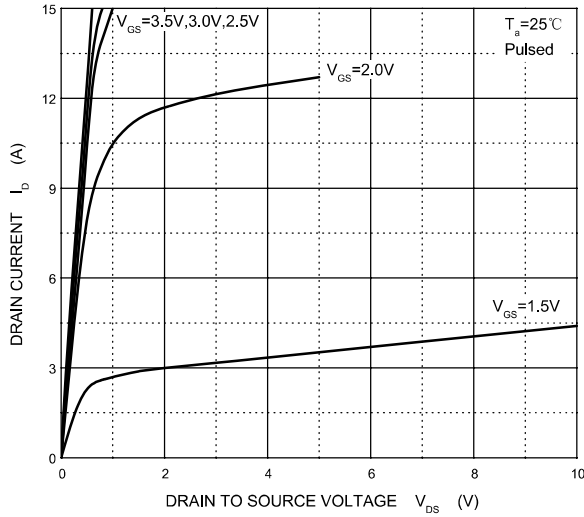
Notes :

- a. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
- b. These parameters have no way to verify

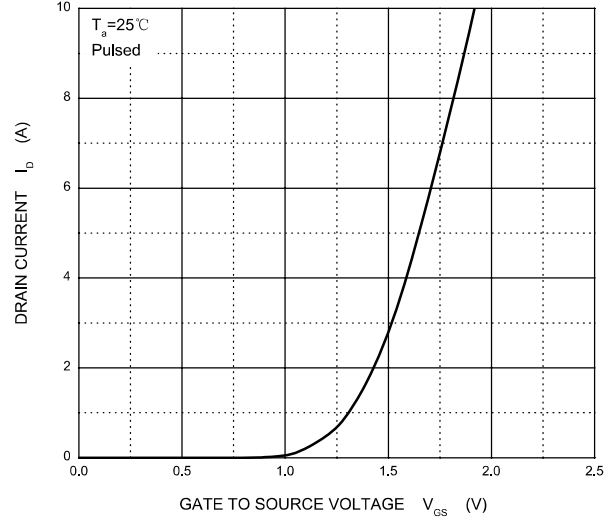
TAP2302B

N-Channel Power MOSFET

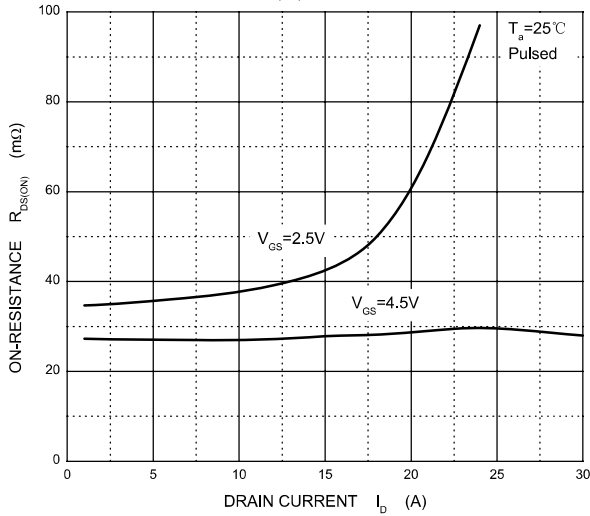
Output Characteristics



Transfer Characteristics



$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}

