

FEATURES

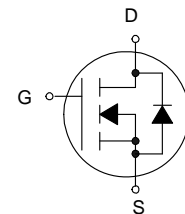
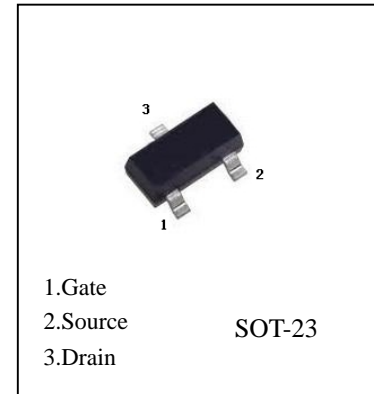
- Lower on-resistance
- Reliable and Rugged

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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-source Voltage	V _{GS}	±20	V
Drain Current (Continuous)	I _D	3.16	A
Drain Current (Pulsed) ^a	I _{DM}	10	A
Total Power Dissipation @TA=25°C	P _D	0.75	W
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55 to +150	°C
Thermal Resistance Junction to Ambient (PCB mounted)	R _{JA}	100	°C/W

SI2306

N-Channel MOSFET



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

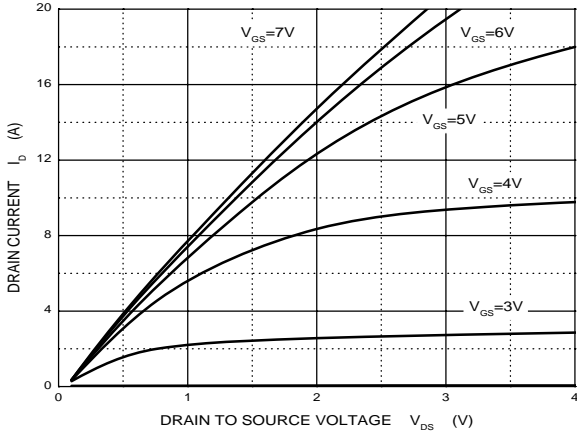
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0		3.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			0.5	μA
Drain-Source On-Resistance ^a	R _{DS(on)}	V _{GS} = 10V, I _D = 3.5A		0.038	0.047	Ω
		V _{GS} = 4.5V, I _D = 2.8A		0.052	0.065	
Forward Transconductance ^a	g _{fs}	V _{DS} = 4.5V, I _D = 2.5A		7.0		S
Diode Forward Voltage	V _{SD}	I _S = 1.25A, V _{GS} = 0V		0.8	1.2	V
Dynamic						
Gate Charge	Q _g	V _{DS} = 15V, V _{GS} = 5V, I _D = 2.5A		3.0	4.5	nC
Total Gate Charge	Q _{gt}	V _{DS} = 15V, V _{GS} = 10V, I _D = 2.5A		6	9	
Gate-Source Charge	Q _{gs}			1.6		
Gate-Drain Charge	Q _{gd}			0.6		
Gate Resistance	R _g	f = 1.0MHz	2.5	5	7.5	Ω
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		305		pF
Output Capacitance	C _{oss}			65		
Reverse Transfer Capacitance	C _{rss}			29		
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15V, R _L = 15Ω, I _D ≈ 1A, V _{GEN} = 10V, R _g = 6Ω		7	11	ns
Rise Time	t _r			12	18	
Turn-Off Delay Time	t _{d(off)}			14	25	
Fall Time	t _f			6	10	

Notes :

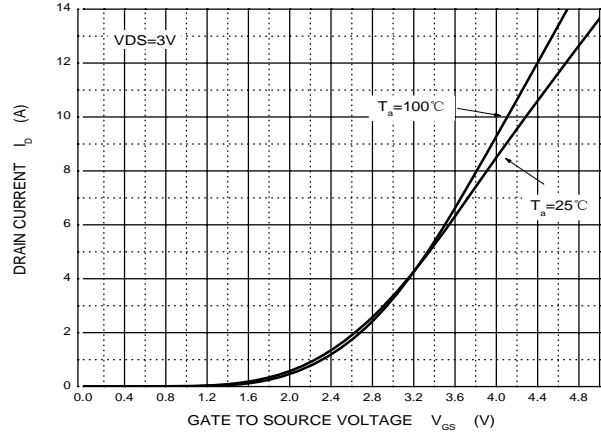
a.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

SI2306 Typical Characteristics

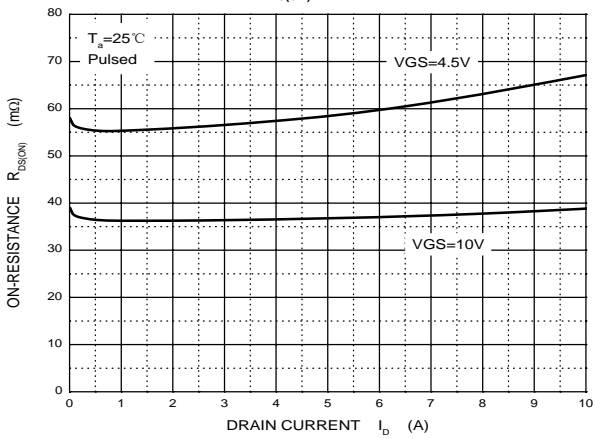
Output Characteristics



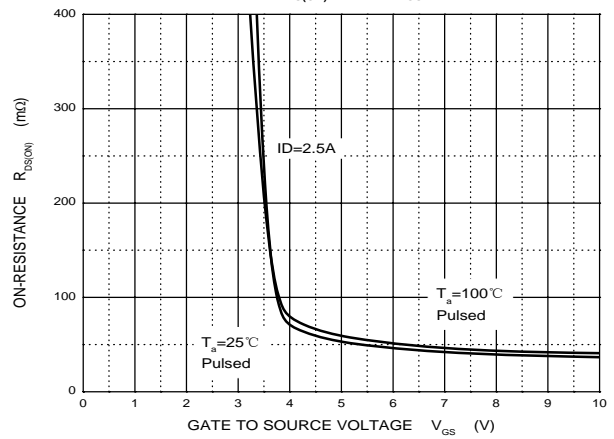
Transfer Characteristics



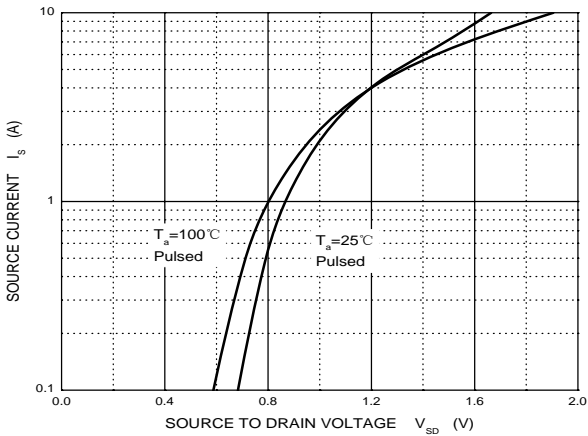
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

