

ATM2602NSG

Dual N-Channel Enhancement Mode Power MOSFET

Drain-Source Voltage: 20V Continuous Drain Current: 3A

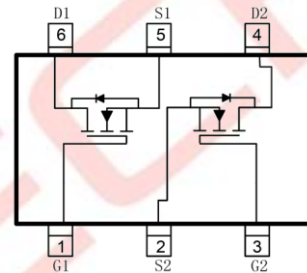
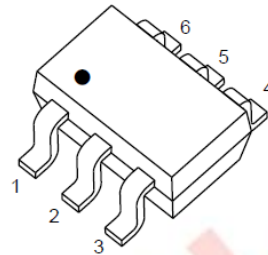
Features

- ◆ Trench FET Power MOSFET
- ◆ Excellent $R_{DS(on)}$ and Low Gate Charge
- ◆ $R_{DS(on)} < 65m\Omega$ ($V_{GS}=4.5V$)
- ◆ $R_{DS(on)} < 85m\Omega$ ($V_{GS}=2.5V$)

Application

- ◆ Driver for Relay, Solenoid, Motor, LED etc.
- ◆ Power supply converters circuit
- ◆ Load/Power Switching for portable device

SOT-23-6L



Absolute 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}	± 12	V
Continuous Drain Current	I_D	3	A
Plused Drain Current	I_{DM}	10	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

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Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±0.1	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.4		1	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = 4.5V, I _D = 3A			65	mΩ
		V _{GS} = 2.5V, I _D = 2A			85	
Dynamic characteristics						
Input Capacitance ²⁾	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		300		pF
Output Capacitance ²⁾	C _{oss}			120		pF
Reverse Transfer Capacitance ²⁾	C _{rss}			80		pF
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		nC
Gate-drain charge	Q _{gd}			1.5		nC
Switching Characteristics²⁾						
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
Turn-on rise time	t _r			55	80	ns
Turn-off delay time	t _{d(off)}			16	60	ns
Turn-off fall time	t _f			10	25	ns
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = 0.94A		0.76	1.2	V

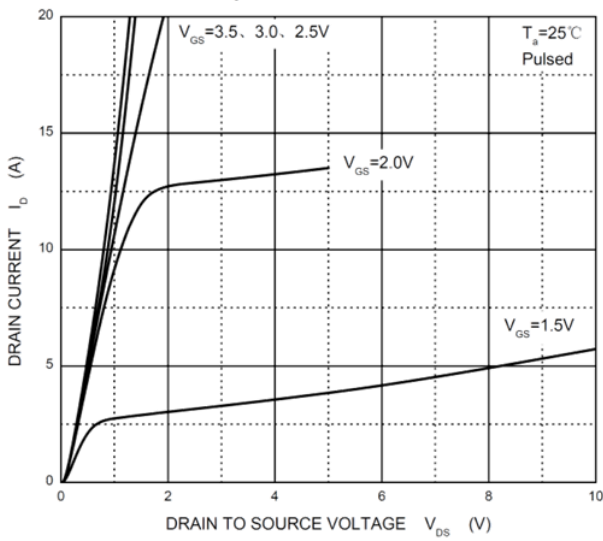
Notes:

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

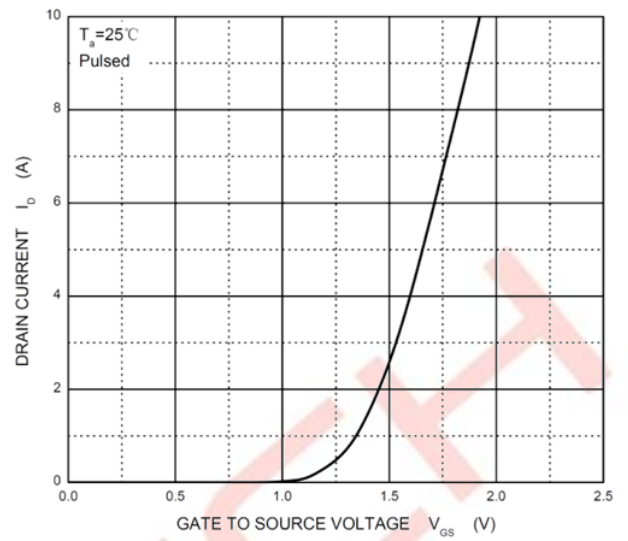
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Typical Characteristics Curves

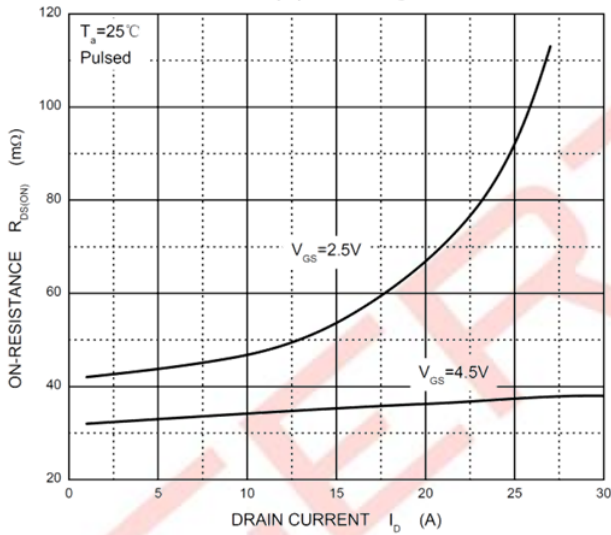
Output Characteristics



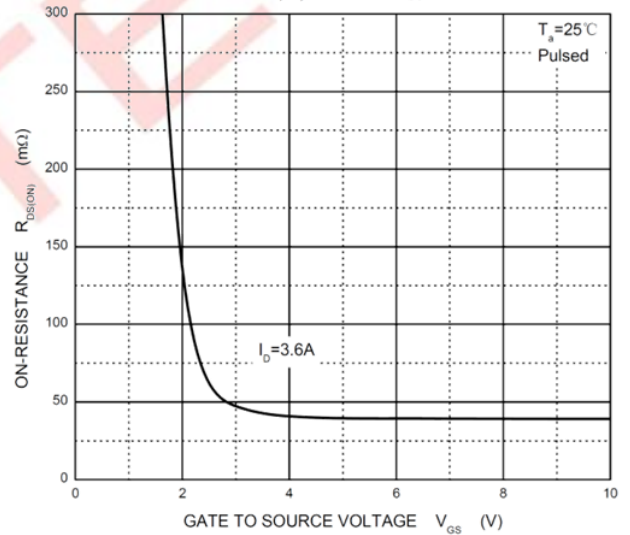
Transfer Characteristics



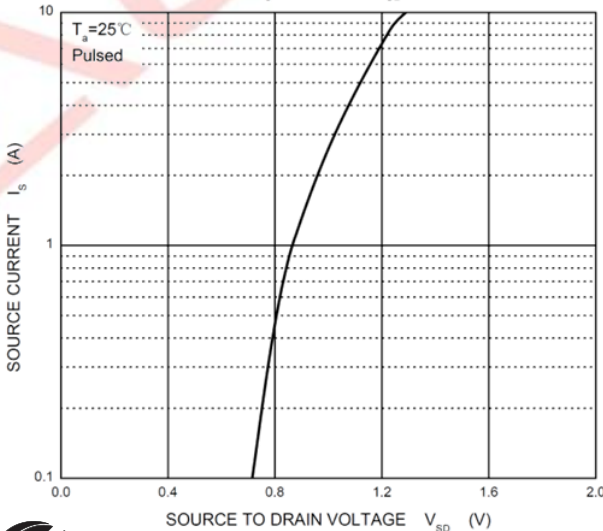
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



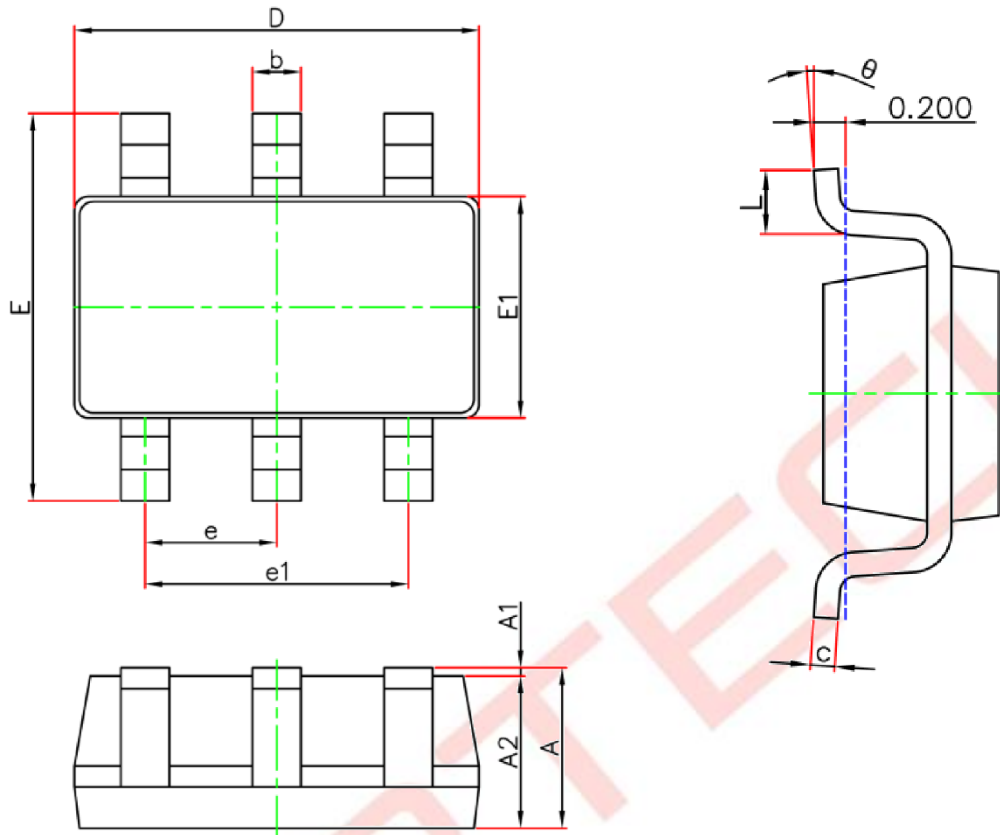
I_S — V_{SD}



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Package Outline

SOT-23-6L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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