

SOT-23 Plastic-Encapsulate MOSFETS
N-Channel Enhancement Mode Field Effect Transistor

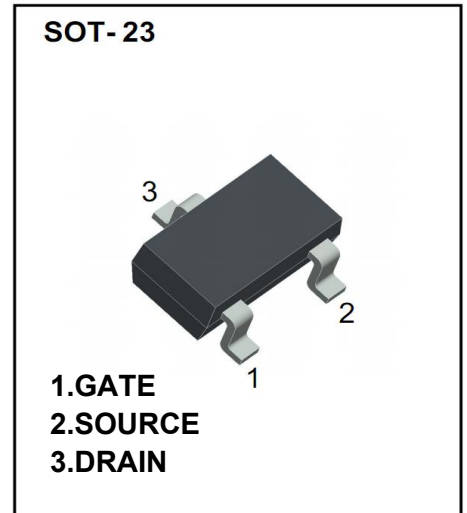
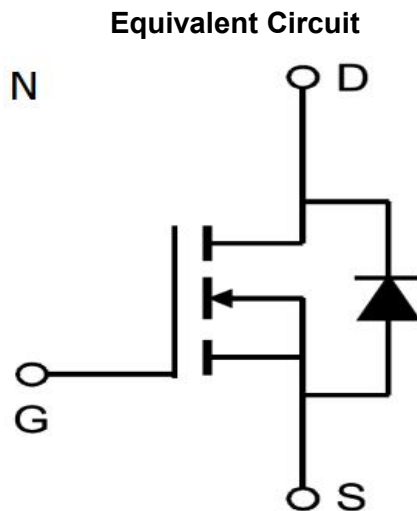
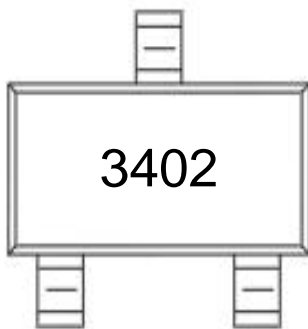
FEATURES

- Lead free product is acquired
- Surface mount package

APPLICATION

- Load Switch and in PWM applications

MARKING



Maximum ratings (T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	4	A
Pulsed Drain Current (note 1)	I _{DM}	15	A
Power Dissipation	P _D	0.35	W
Thermal Resistance from Junction to Ambient (note 2)	R _{θJA}	357	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55~+150	°C

Electrical characteristics (T_a=25°C unless otherwise noted)

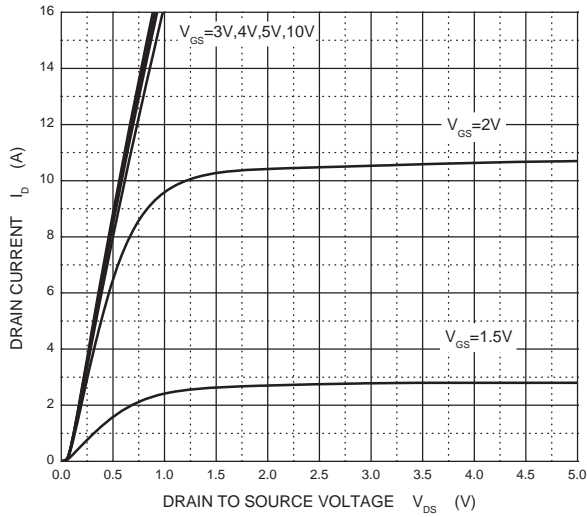
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =24V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			100	μA
Gate threshold voltage (note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.6	1	1.4	V
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} =10V, I _D =4A		45	55	mΩ
		V _{GS} =4.5V, I _D =3A		55	70	mΩ
		V _{GS} =2.5V, I _D =2A		83	110	mΩ
Forward transconductance (note 3)	g _{FS}	V _{DS} =15V, I _D =4A		8		S
Diode forward voltage (note 3)	V _{SD}	I _S =1A, V _{GS} = 0V		0.8	1	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		390		pF
Output capacitance	C _{oss}			54.5		pF
Reverse transfer capacitance	C _{rss}			41		Pf
Gate resistance	R _g	V _{DS} =0V, V _{GS} =0V, f =1MHz		3		Ω
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L =3.75Ω, R _{GEN} =6Ω		3.3		ns
Turn-on rise time	t _r			1		ns
Turn-off delay time	t _{d(off)}			21.7		ns
Turn-off fall time	t _f			2.1		ns
Total gate charge	Q _g	V _{DS} =15V, V _{GS} =4.5V, I _D =4A		4.34		nC
Gate-source Charge	Q _{gs}			0.6		nC
Gate-drain Charge	Q _{gd}			1.38		nC
Body diode reverse recovery time	t _r	I _F =4A, dI/dt=100A/μs		1.2		ns
Body diode reverse recovery charge	Q _{rr}			6.3		nC

Notes :

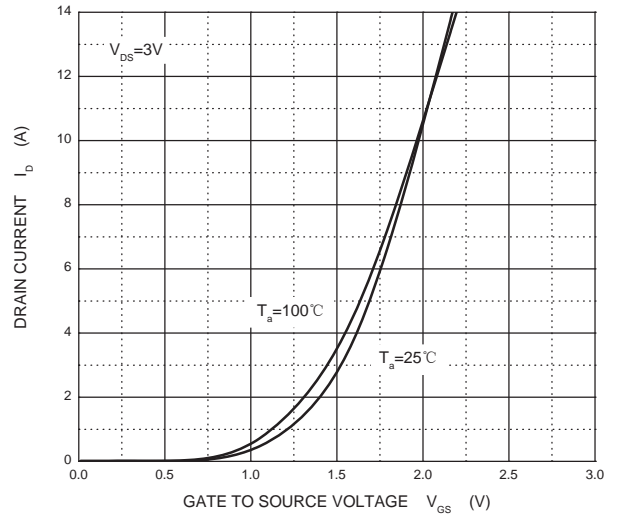
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t_s≤10s.
3. Pulse Test : Pulse Width≤80μs, Duty Cycle≤0.5%.
4. Guaranteed by design, not subject to producing.

Typical Characteristics

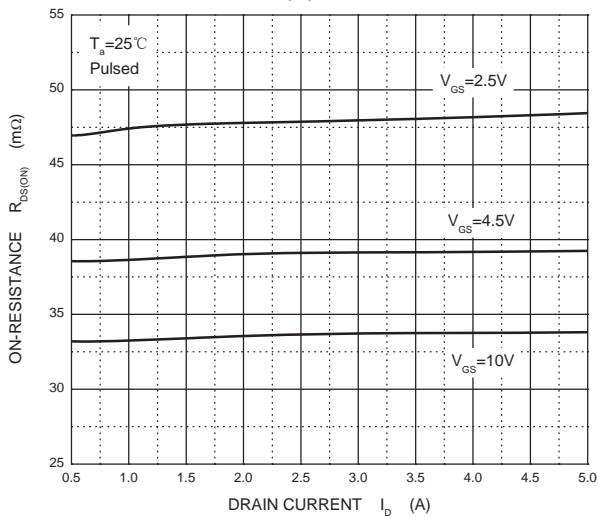
Output Characteristics



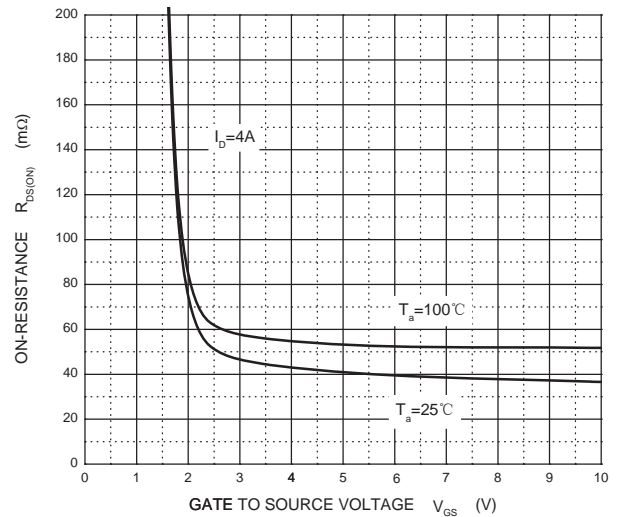
Transfer Characteristics



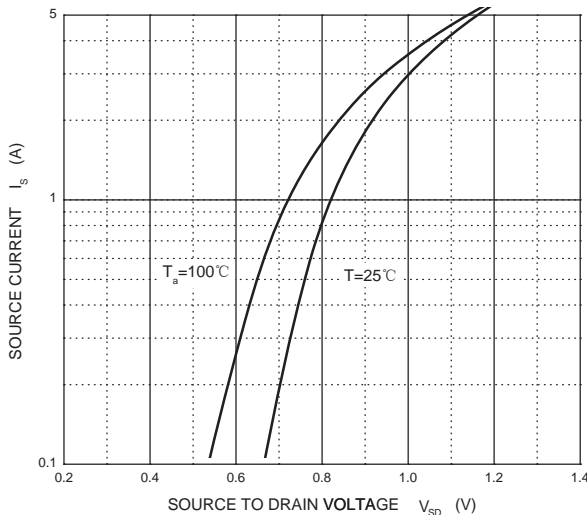
$R_{DS(ON)}$ — I_D



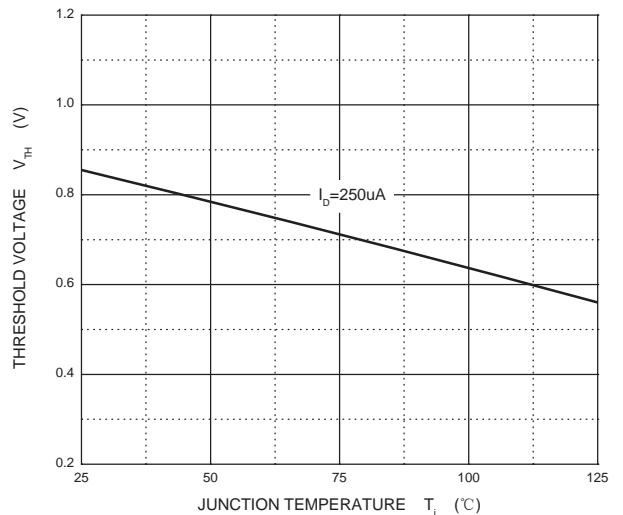
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



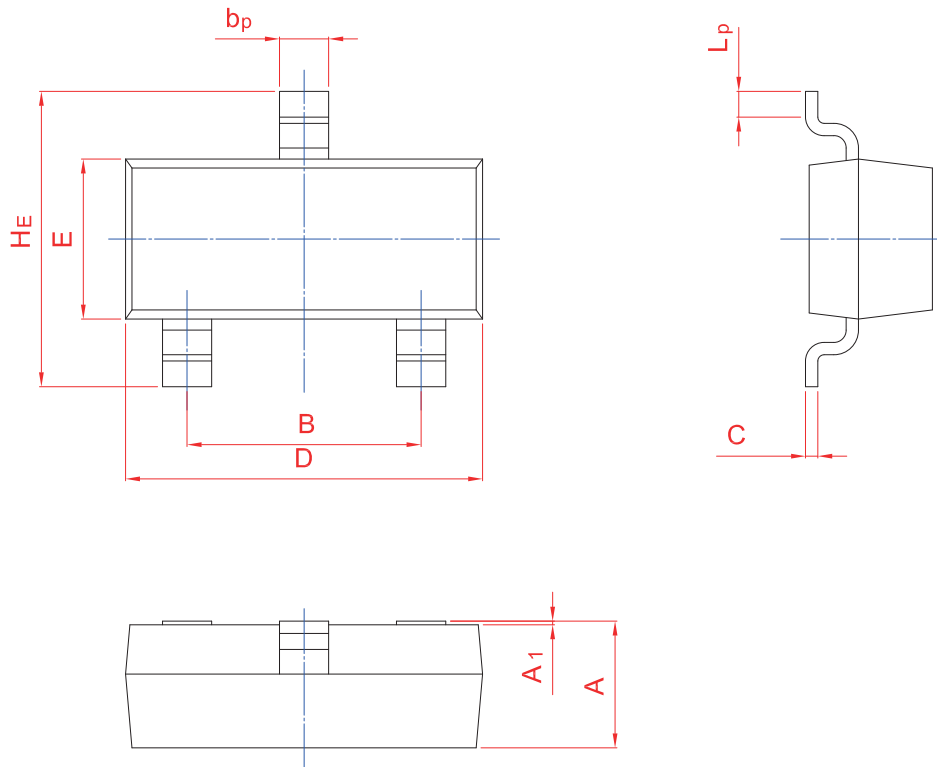
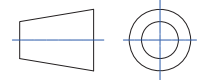
Threshold Voltage



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b _p	C	D	E	H _E	A ₁	L _p
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20