TECH PUBLIC
台舟电子

TPM2302HS3L

N-Channel Enhancement-Mode MOS FETs

www.sot23.com.tw

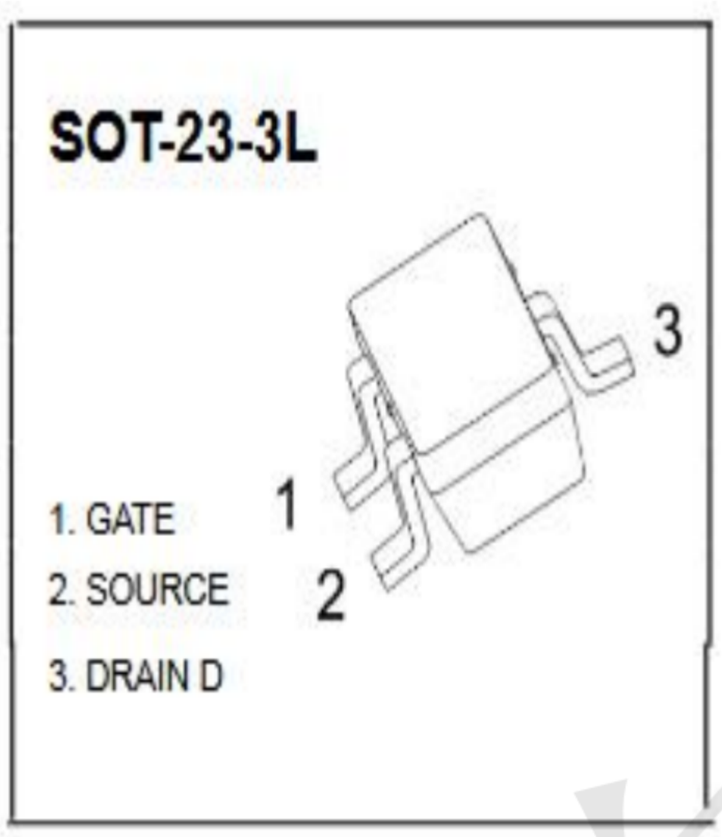
Features

- 20 V 3A **RDS(on)MAX**
  35mΩ@4.5V
  50mΩ@2.5V
- SOT23-3L

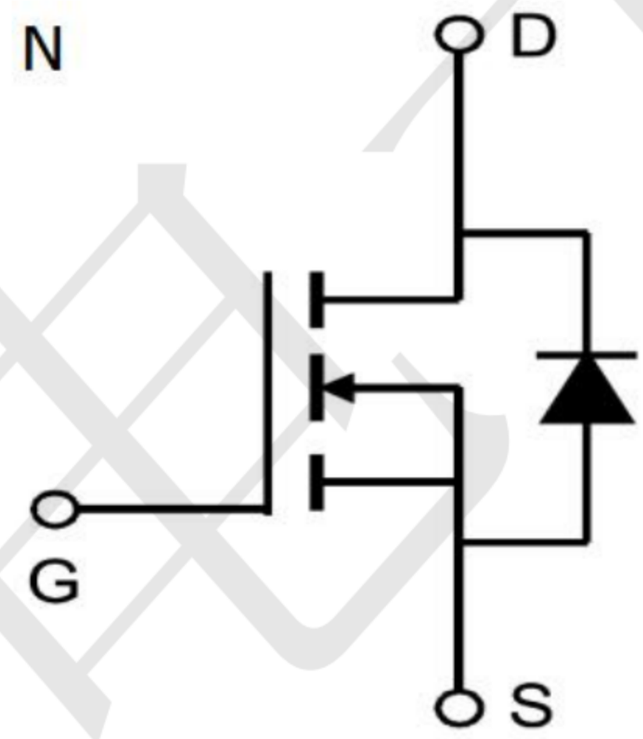
Application

- Load Switch for Portable Devices
- DC/DC Converter

Package and Pin Configuration



Circuit diagram



Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

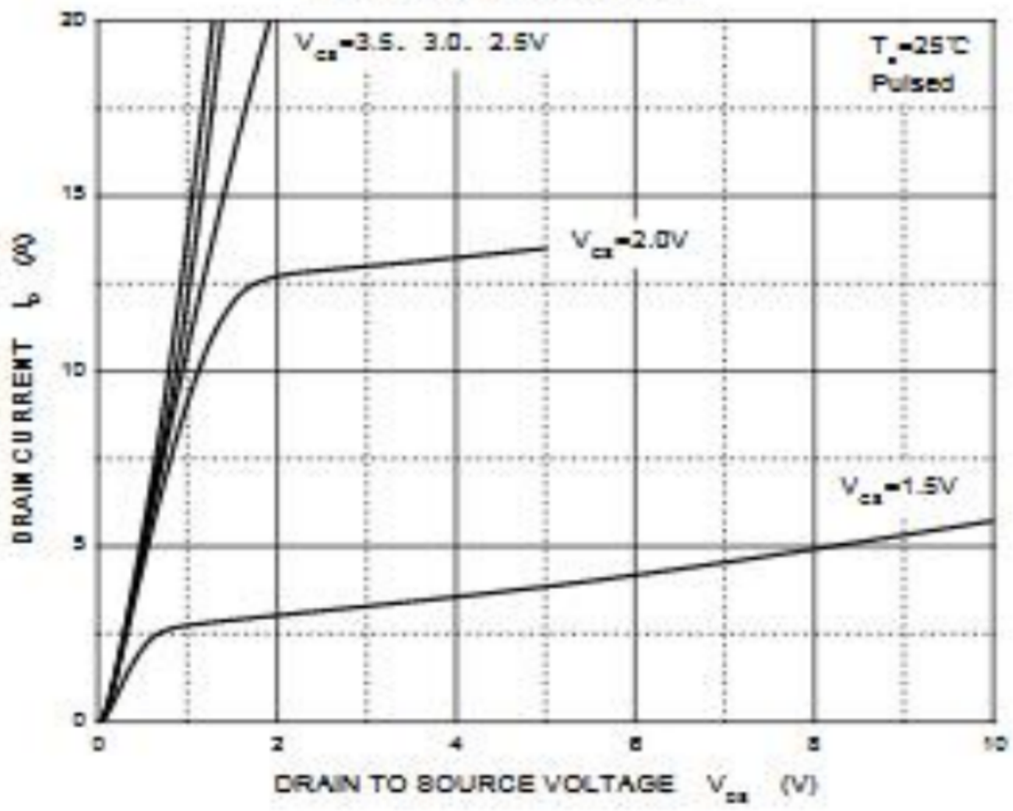
Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	20	V
Gate-Source Voltage	VGS	±12	
Continuous Drain Current	ID	3	A
Pulsed Diode Curren	IDM	20	
Continuous Source-Drain Current(Diode Conduction)	IS	0.8	
Power Dissipation	PD	1.5	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	150	℃/W
Operating Junction	TJ	150	℃
Storage Temperature	TSTG	-55~+150	℃

Electrical Characteristics (T_A=25°C unless otherwise specified)

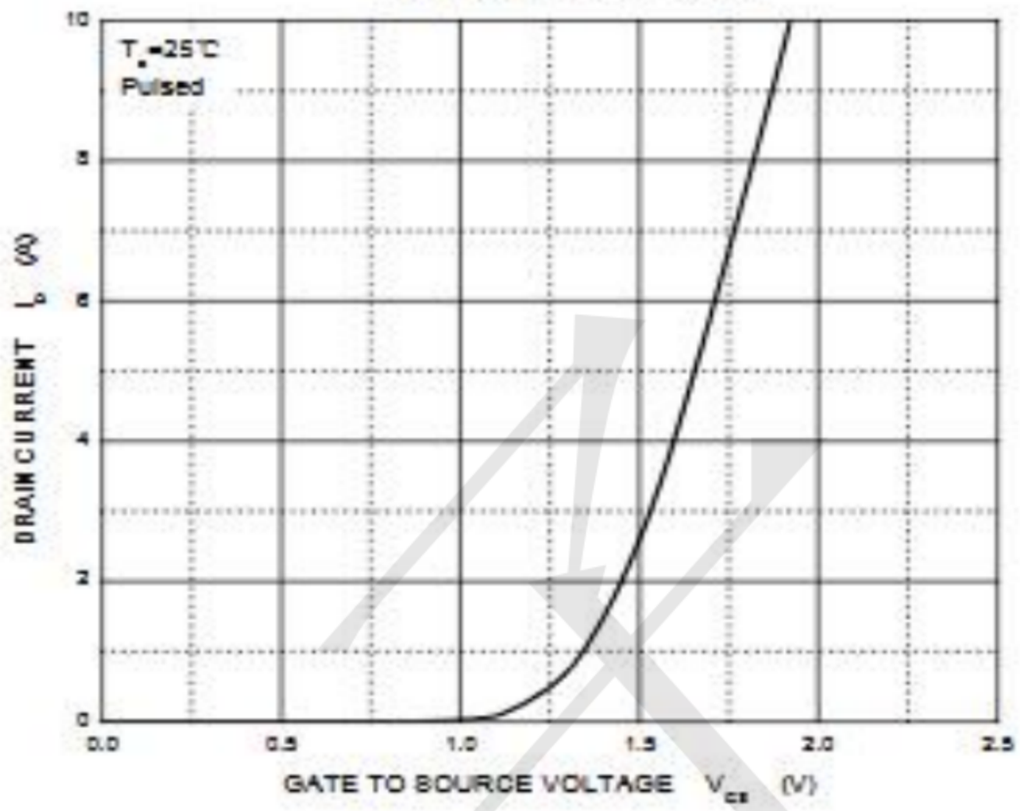
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = 250μA	20			V
Gate-source threshold voltage	VGS(th)	VDS =VGS, ID = 250μA	0.4		1.1	V
Gate-source leakage	IGSS	VDS =0V, VGS = ±12V			±100	nA
Zero gate voltage drain current	IDSS	VDS = 20V, VGS =0V			1	μA
Drain-source on-state resistancea	RDS(on)	VGS = 4.5V, ID = 3A		25	35	mΩ
		VGS = 2.5V, ID = 2A		35	50	mΩ
Forward transconductancea	gfs	VDS = 4.5V, ID = 2.8A	8			S
Diode forward voltage	VSD	IS= 1A,VGS=0V		0.8	1.3	V
Dynamic						
Input capacitance	Ciss	VDS = 18V,VGS = 0V, f=1MHz		405		pF
Output capacitance	Coss			75		pF
Reverse transfer capacitanceb	Crss			55		pF
Total gate charge	Qg	VDS = 18V,VGS = 4.5V, ID =-3A		5.5	10	nC
Gate-source charge	Qgs			3.3	6	nC
Gate-drain charge	Qgd			1.5		nC
Gate resistance	Rg	f=1MHz		6.0		Ω
Switchingb						
Turn-on delay time	td(on)	VDD= 10V RL=6Ω, ID ≈ 3A, VGEN= 4.5V,Rg=6Ω		11	20	ns
Rise time	tr			35	60	ns
Turn-off delay time	td(off)			30	50	ns
Fall time	tf			10	20	ns
Drain-source body diode characteristics						
Continuous Source-Drain Diode Current	IS	Tc=25℃			1.3	A
Pulsed Diode forward Curren	ISM				10	A

TYPICAL ELEC TRICAL AND THERMAL CHARACTERISTICS

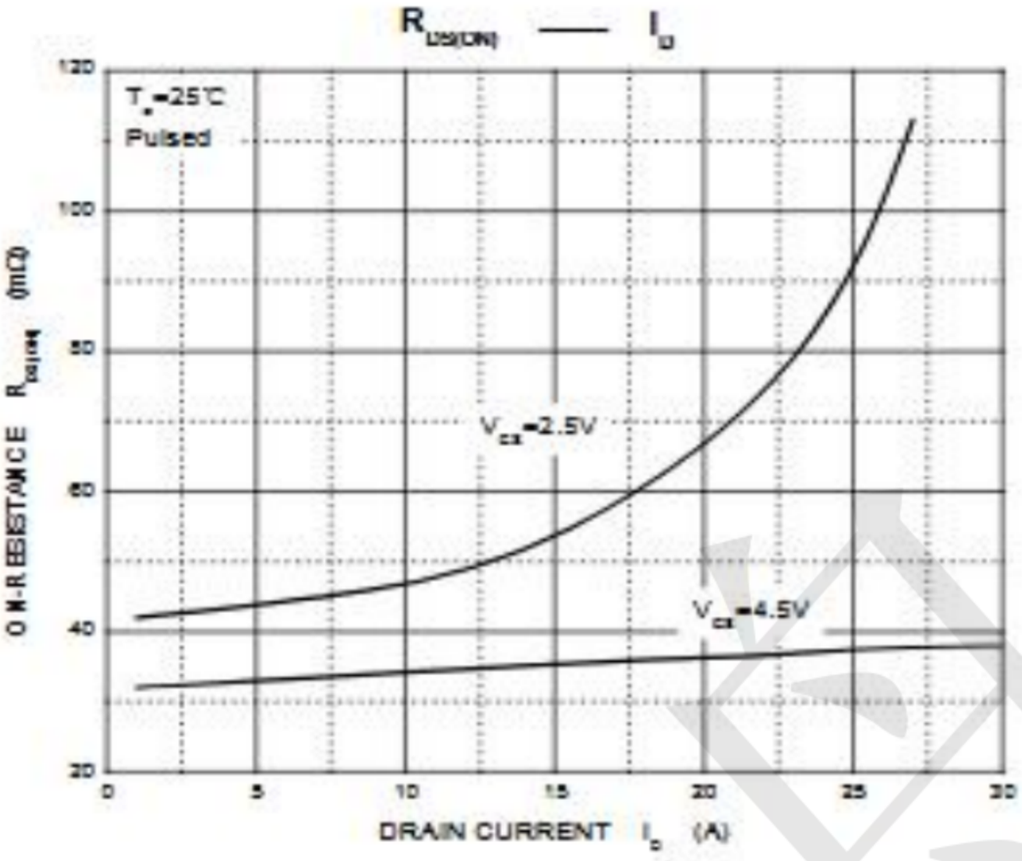
Output Characteristics



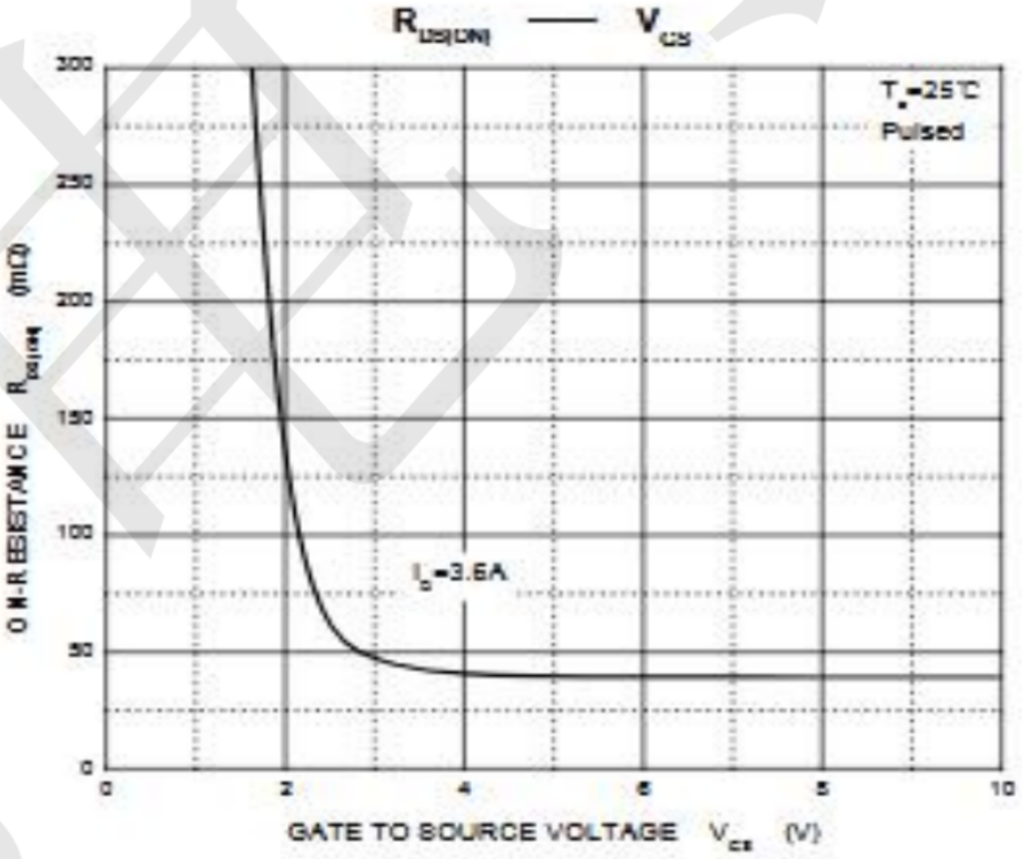
Transfer Characteristics



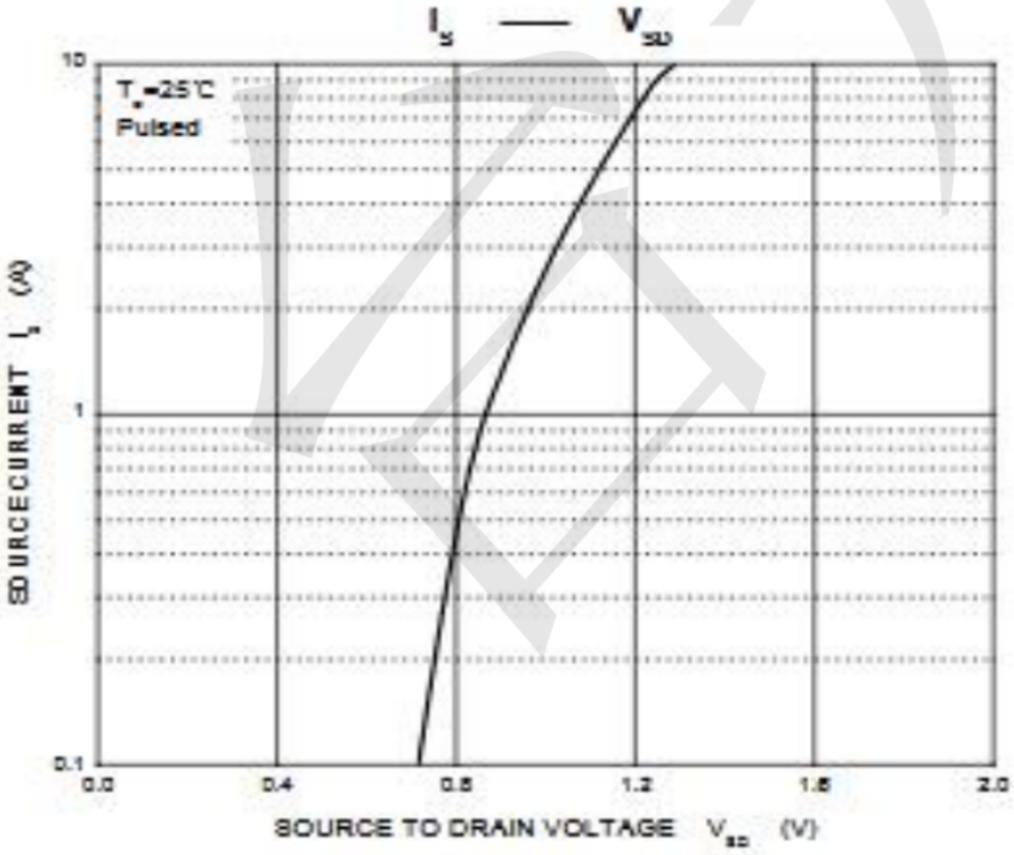
$R_{DS(ON)}$ —— I_D



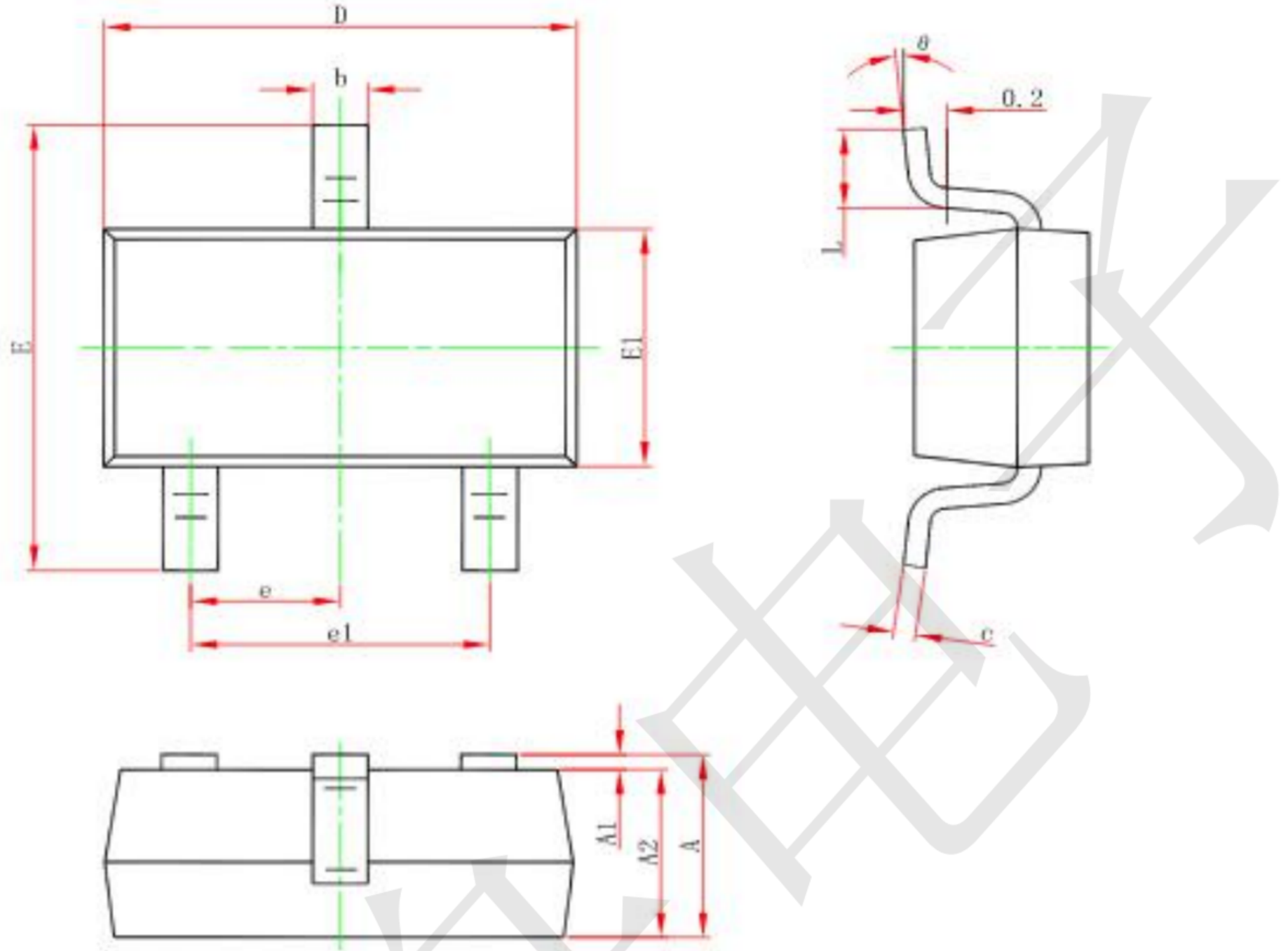
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



SOT-23-3L PACKAGE OUTLINE DIMENSIONS



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°