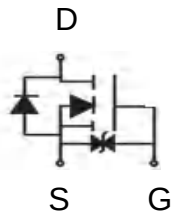
迈拓电子
MAITUO ELECTRONIC

MT2302ET N-Channel MOSFET

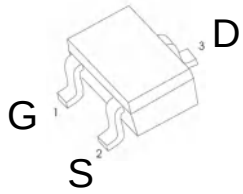


Feature

- 20V N-Channel MOSFET High Dense Design.
- $R_{DS(ON)}$ =280mΩ(typ.) @ V_{GS}= 4.5V
- $R_{DS(ON)}$ =360mΩ(typ.) @ V_{GS}= 2.5V
- Reliable and Rugged
- ESD Protected

Applications

- Portable Equipment and Battery Power Systems



MARKING: S2

SOT-523

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	±8	
I_D	Continue Drain Current	0.82	A
I_{DM}	Pulsed Drain Current	1.9	
I_S	Diode Continuous Forward Current	0.27	A
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	
$R_{\theta JA}$*	Thermal Resistance-Junction to Ambient(SOT23)	350	°C/W

Static Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

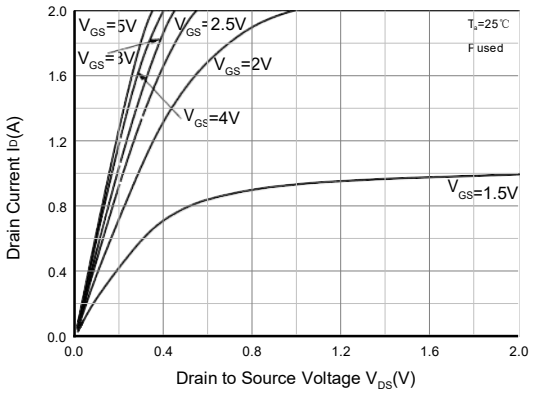
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics*						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	0.45	0.75	1	V
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V	-	-	±10	μA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=4.5V, I_{DS}=0.5A	-	280	420	mΩ
		V_{GS}=2.5V, I_{DS}=0.3A	-	360	585	
V_{SD}	Diode Forward Voltage	I_{SD}=0.5A, V_{GS}=0V	-	0.7	1.3	V

*Note:
a : Current maybe limit by junction temperature.
b : The $R_{\Theta JC}$ is the sum of the thermal impedance from junction to ambient and depend on package type.
c : MOS static characteristics test by wafer level(CP).

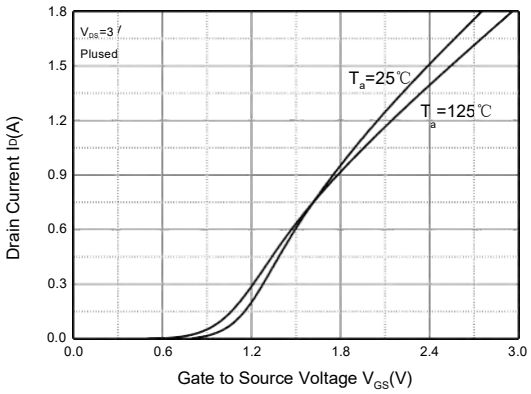
迈拓电子
MAITUO ELECTRONIC

Typical Electrical and Thermal Characteristics

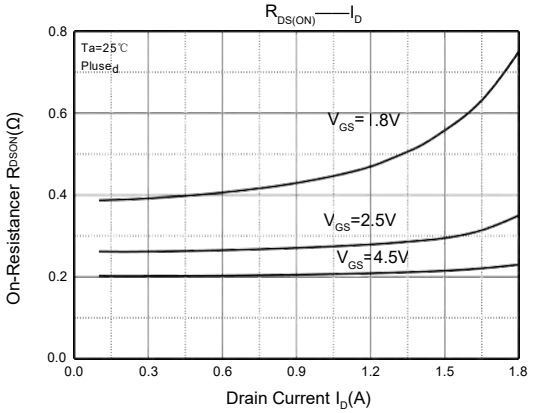
Output Characteristics



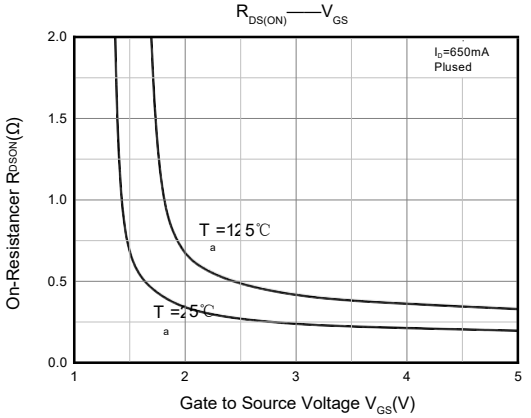
Transfer Characteristics



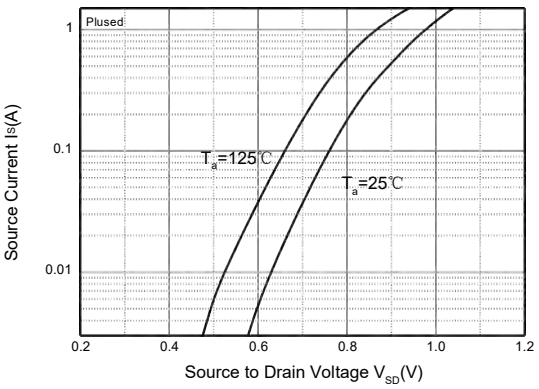
$R_{DS(ON)}$——I_D



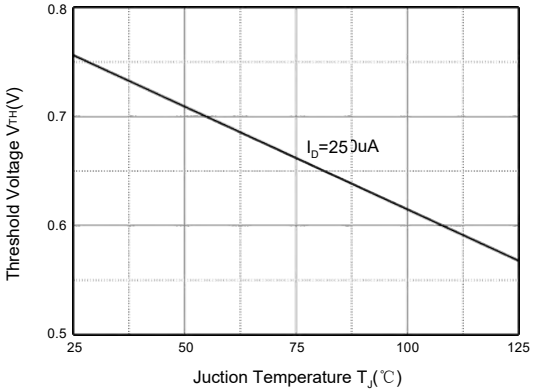
$R_{DS(ON)}$——V_{GS}



I_S——V_{SD}

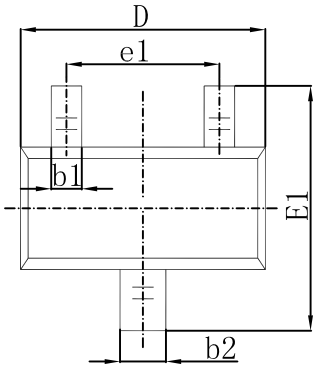


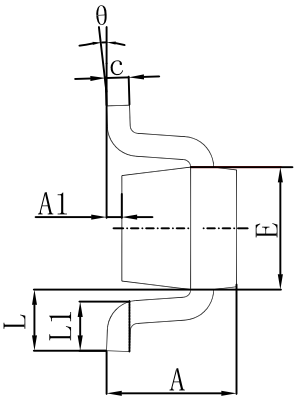
Threshold Voltage

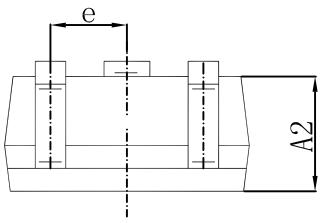


迈拓电子
MAITUO ELECTRONIC

SOT-523 Package Outline Dimensions

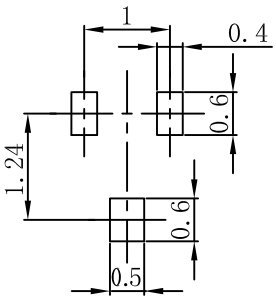






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.