AS2002ET-Q1

N-Channel SMD MOSFET ESD Protection

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	380mΩ@4.5V	0.75A
	450m Ω@2.5V	
	800m Ω@1.8V	

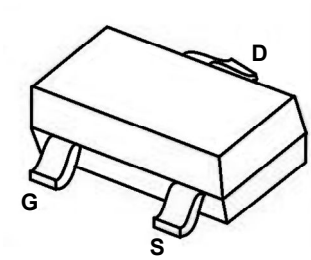
Feature

- High density cell design for ultra low on-resistance
- High-Side Switching
- Rugged and reliable
- ESD Protect
- Suffix "-Q1" for AEC-Q101

Application

- Battery Management for Ultra Small Portable Electronics
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package



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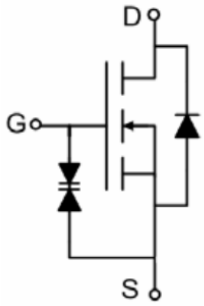
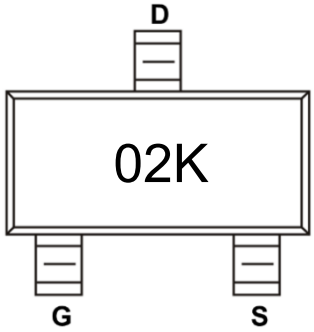
Circuit diagram



Marking



Absolute maximum ratings (Ta=25℃ 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	0.75	A
Pulsed Drain Current	I_{DM}	1.8	A
Power Dissipation	P_D	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

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} =16V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±10	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.3	0.65	1	V
Drain-source on-resistance[1]	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.5A		250	380	mΩ
		V_{GS} =2.5V, I_D =0.5A		350	450	
		V_{GS} =1.8V, I_D =0.5A		400	800	
Dynamic characteristics[2]						
Input Capacitance	C_{iss}	V_{DS} =16V,V_{GS} =0V,f =1MHz		79		pF
Output Capacitance	C_{oss}			13		
Reverse Transfer Capacitance	C_{rss}			9		
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V,V_{GS}=4.5V, I_D =0.5A,R_{GEN}=10Ω		6.7		nS
Turn-on rise time	t_r			4.8		
Turn-off delay time	$t_{d(off)}$			17.3		
Turn-off fall time	t_f			7.4		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	V_{GS} =0V, I_S=0.5A			1.3	V

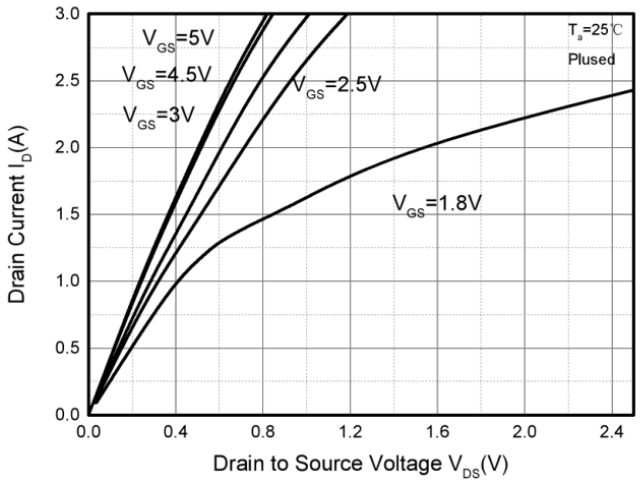
Notes:

1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.

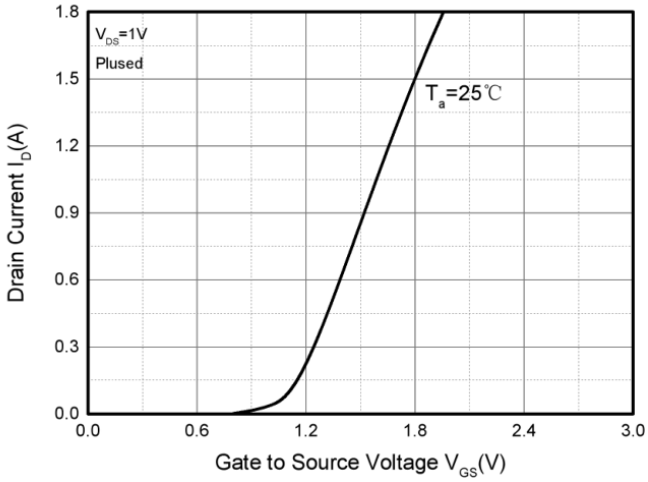
2) Guaranteed by design, not subject to production testing.

Typical Characteristics

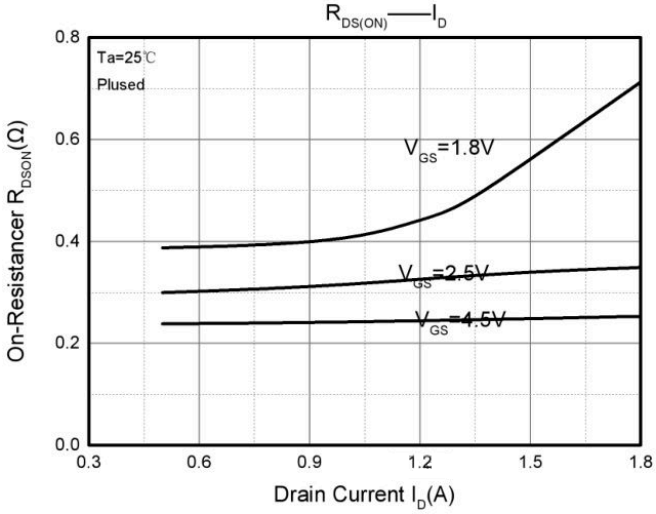
Output Characteristics



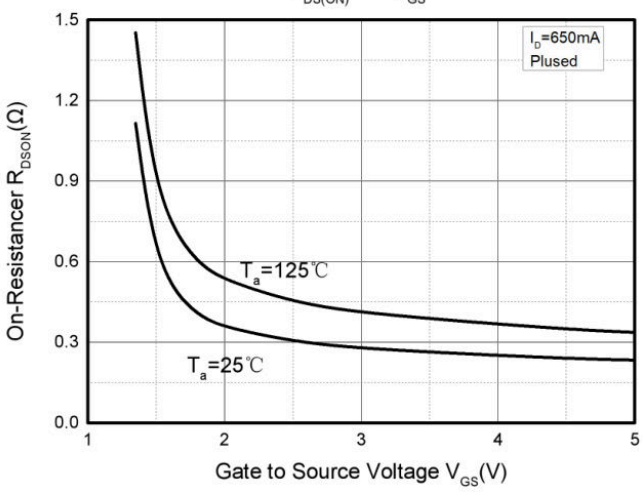
Transfer Characteristics



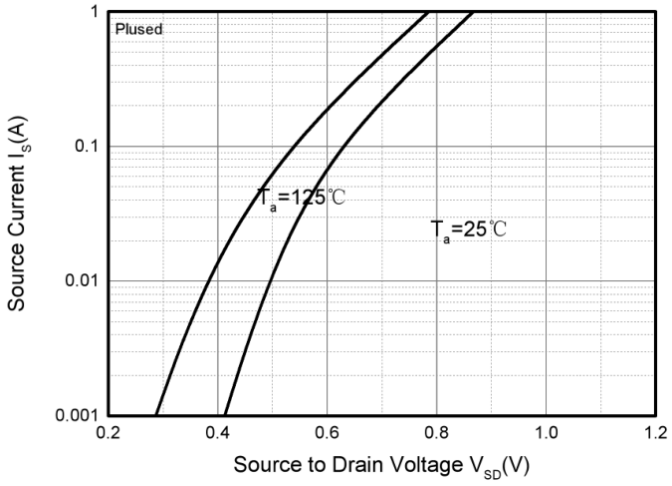
$R_{DS(ON)}$——I_D



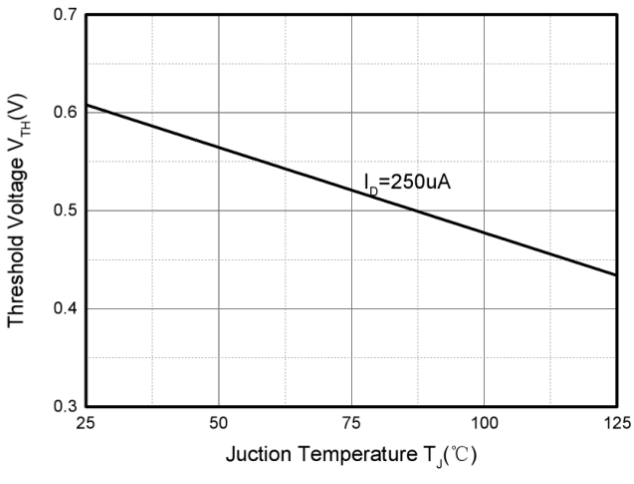
$R_{DS(ON)}$——V_{GS}



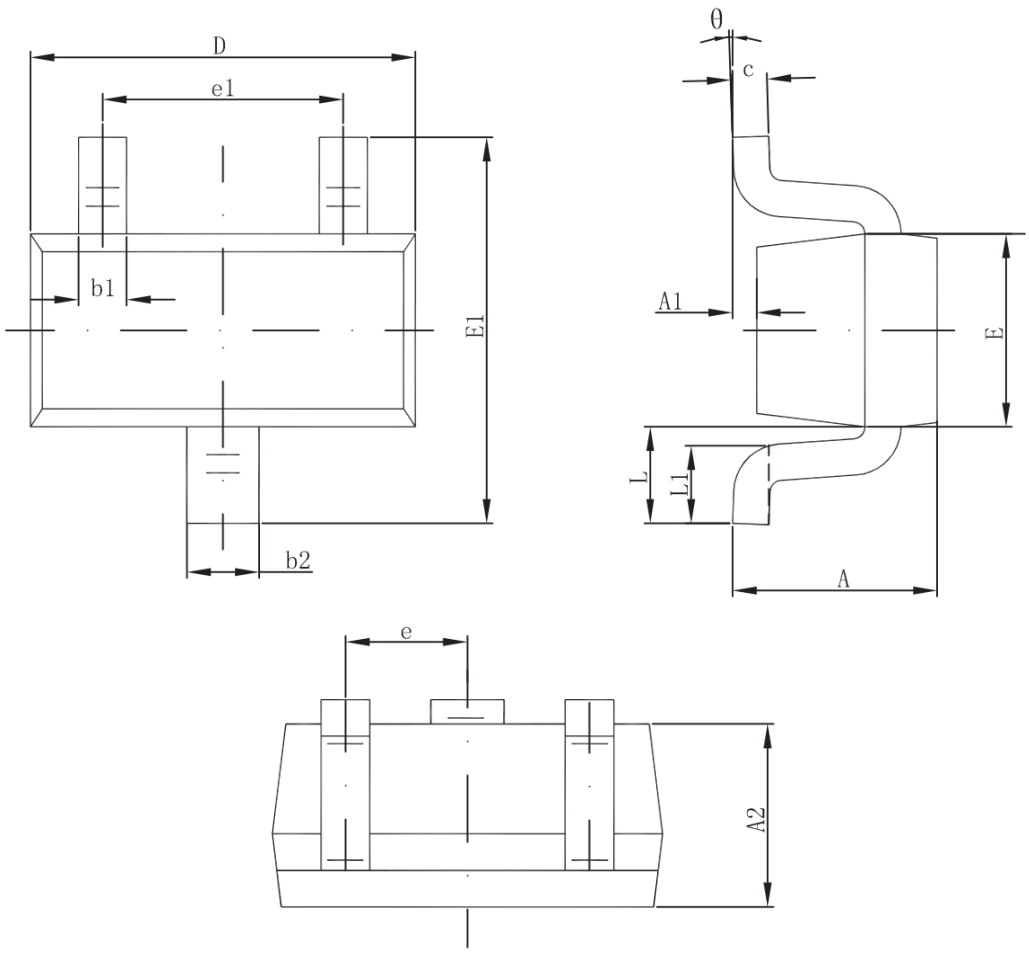
I_S——V_{SD}



Threshold Voltage



SOT-523 Package Information



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°