AS03N10M-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	120mΩ@10V	3A
	140mΩ@4.5V	

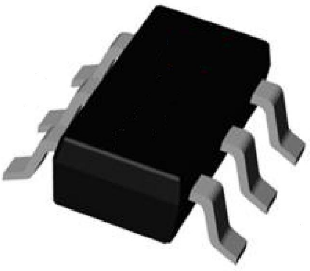
Feature

- Advanced trench process technology
- High density cell design for ultra low on-resistance
- Suffix "-Q1" for AEC-Q101

Application

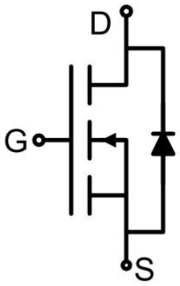
- DC-DC Converters
- Power management functions

Package

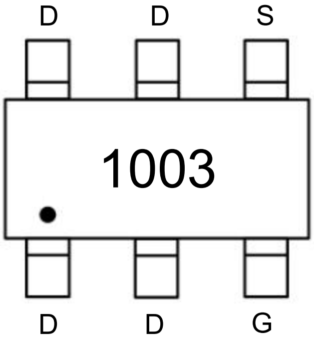


SOT-23-6L

Circuit diagram



Marking



Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current	I_{DM}	12	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83	℃/W
Single pulse avalanche energy	E_{AS}	8	mJ
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	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.1		3.0	V
Drain-source on-resistance¹⁾	$R_{DS(on)}$	V_{GS} =10V, I_D =3.0A			120	mΩ
		V_{GS} =4.5V, I_D =2.4A			140	
Dynamic characteristics²⁾						
Input Capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V,f =1MHz		800		pF
Output Capacitance	C_{oss}			40		
Reverse Transfer Capacitance	C_{rss}			32		
Total Gate Charge	Q_g	V_{DS} =80V,V_{GS} =10V,I_D =2.5A		16		nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			2.6		
Turn-on delay time	$t_{d(on)}$	V_{DD}=50V, V_{GS} =10V, R_{GEN}=3Ω, R_L=6.4Ω		15		nS
Turn-on rise time	t_r			5		
Turn-off delay time	$t_{d(off)}$			30		
Turn-off fall time	t_f			5		
Source-Drain Diode characteristics						
Diode Forward Current¹⁾	I_S				3	A
Diode Forward voltage	V_{DS}	V_{GS} =0V, I_S=3A			1.2	V

Notes:

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

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

Typical Characteristics

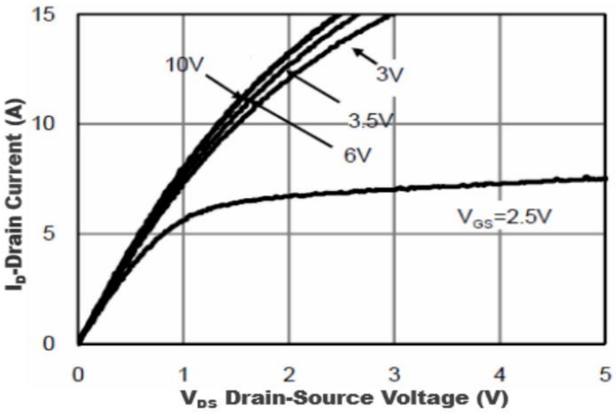


Figure1. Output Characteristics

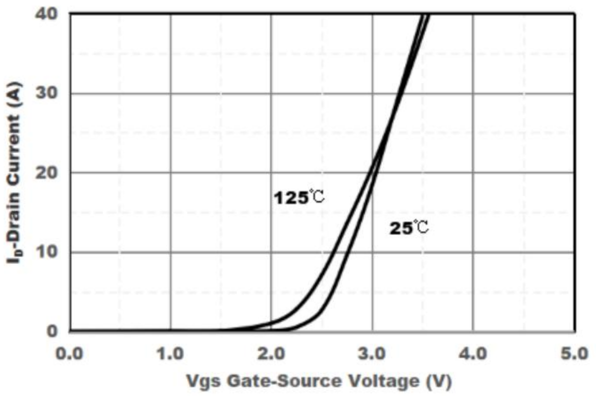


Figure2. Transfer Characteristics

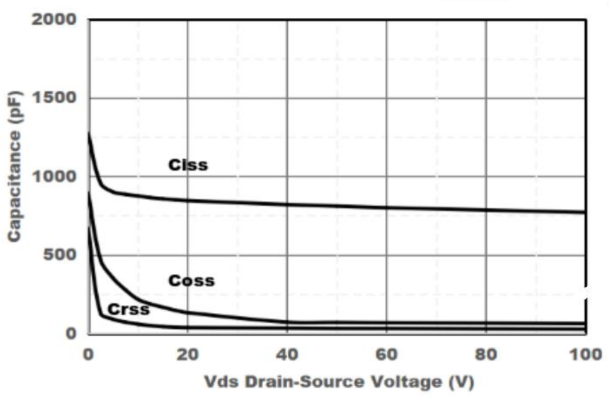


Figure3. Capacitance Characteristics

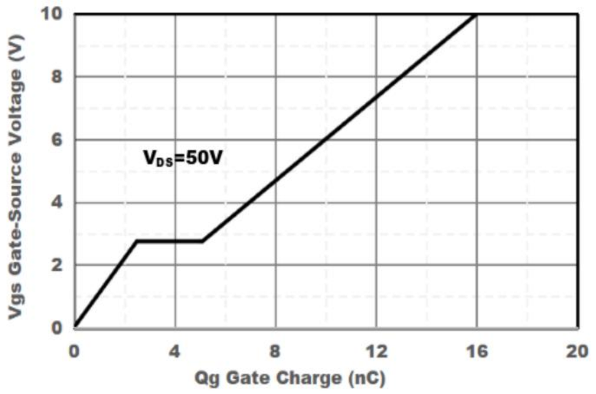


Figure4. Gate Charge

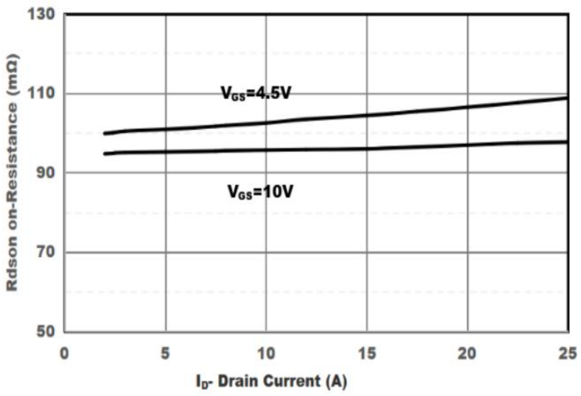


Figure5. Drain-Source on Resistance

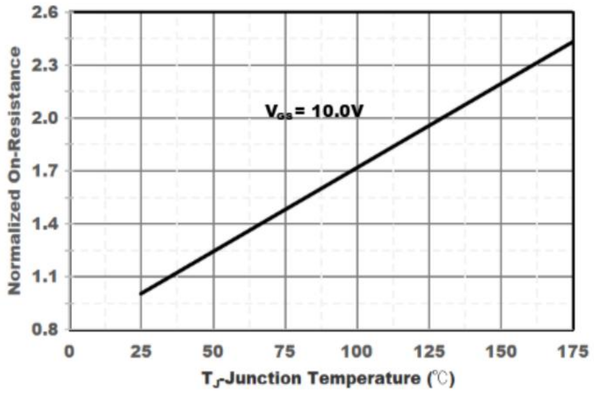
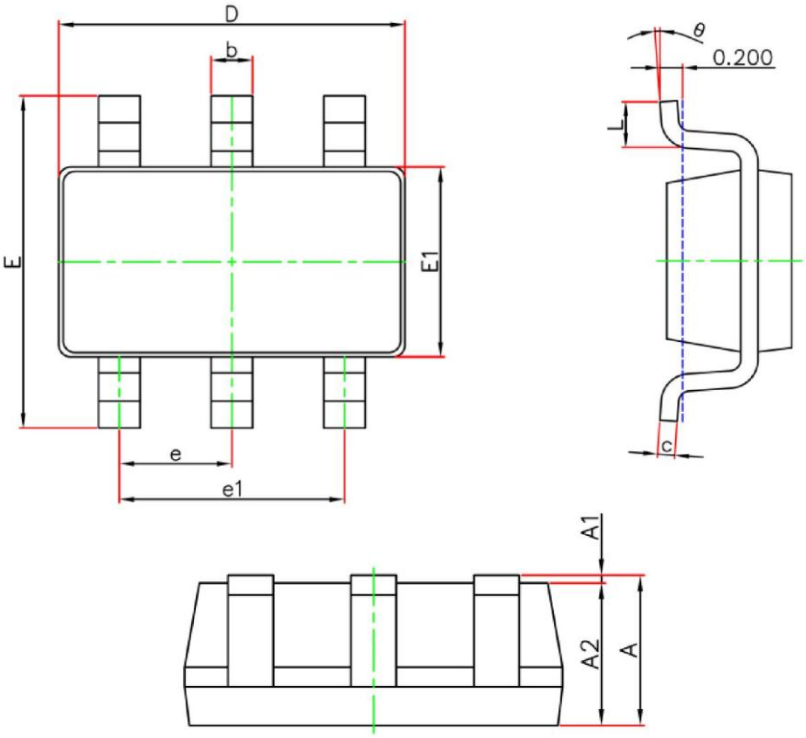


Figure6. Drain-Source on Resistance

SOT-23-6L Package Information



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
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
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°