

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	55mΩ@-10V	-4.4A
	68mΩ@-4.5V	
	96mΩ@-2.5V	

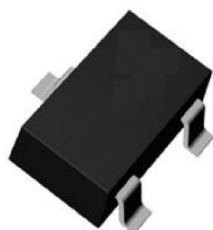
Feature

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

Application

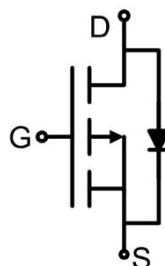
- Battery protection
- Load switch
- Power management

Package

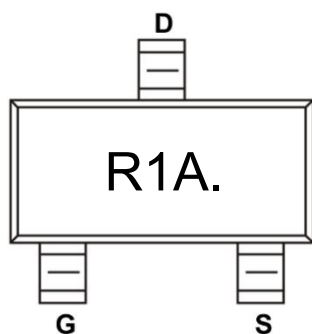


SOT-23-3L

Circuit diagram



Marking



Absolute maximum ratings (Ta=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	-4.4	A
Pulsed Drain Current	I_{DM}	-27	A
Power Dissipation	P_D	1.5	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Electrical characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.6		-1.4	V
Drain-source on-resistance ¹⁾	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.4A$			55	m Ω
		$V_{GS} = -4.5V, I_D = -3.0A$			68	
		$V_{GS} = -2.5V, I_D = -2.0A$			96	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		680		pF
Output Capacitance	C_{oss}			105		
Reverse Transfer Capacitance	C_{rss}			68		
Total Gate Charge	Q_g	$V_{DS} = -15V, V_{GS} = -10V, I_D = -4.4A$		7.2		nC
Gate-Source Charge	Q_{gs}			1.2		
Gate-Drain Charge	Q_{gd}			1.6		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V, V_{GS} = -10V, I_D = -1A, R_{GEN} = 2.5\Omega$		15		nS
Turn-on rise time	t_r			63		
Turn-off delay time	$t_{d(off)}$			21		
Turn-off fall time	t_f			12		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I_S				-4.4	A
Diode Forward voltage	V_{DS}	$V_{GS} = 0V, I_S = -4.4A$			-1.2	V

Notes:

1) Pulse Test: Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

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

Typical Characteristics

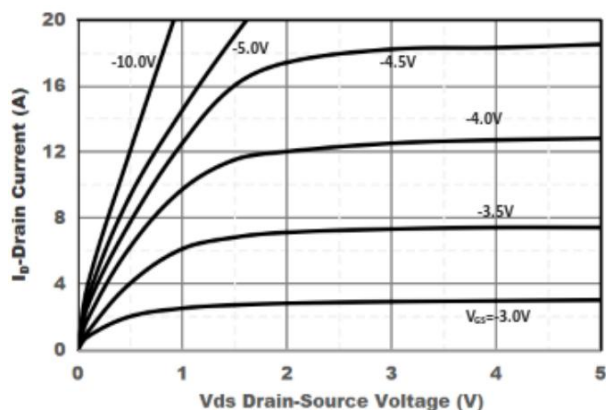


Figure1. Output Characteristics

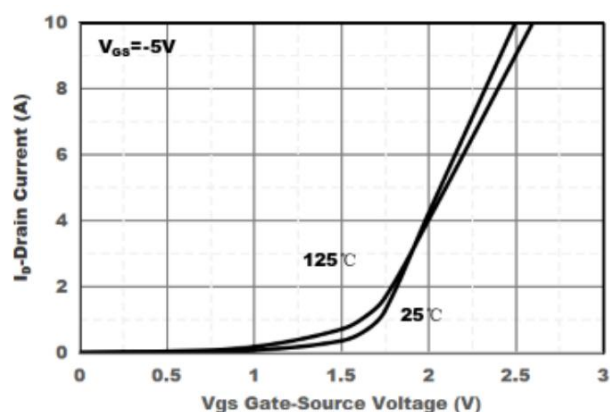


Figure2. Transfer Characteristics

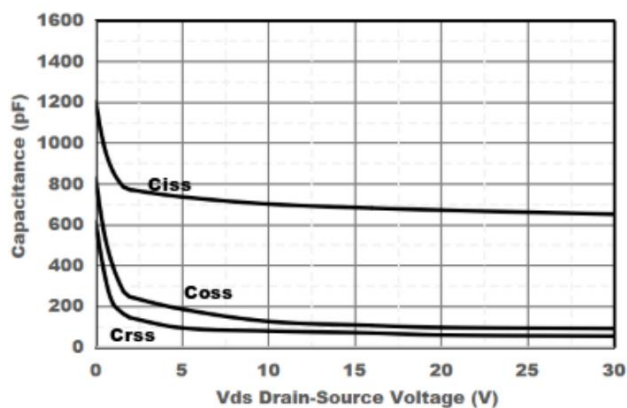


Figure3. Capacitance Characteristics

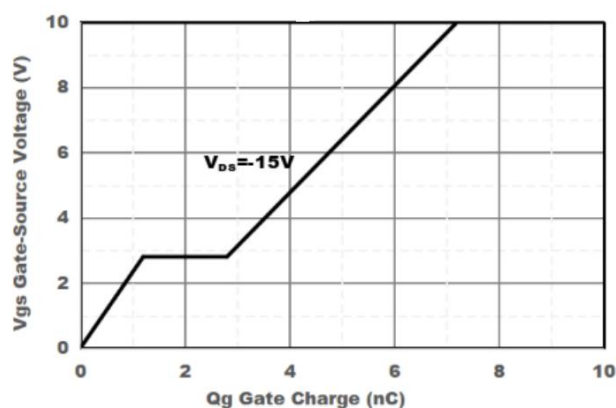


Figure4. Gate Charge

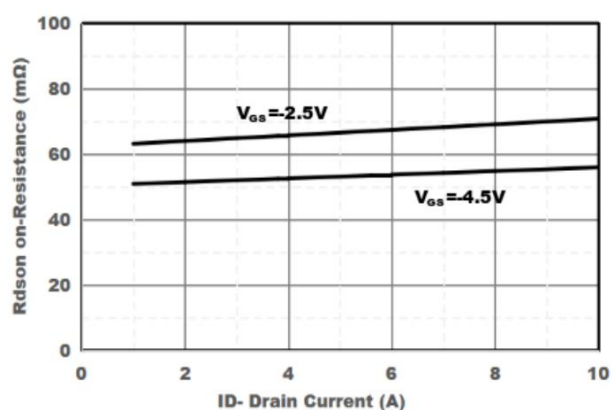


Figure5. Drain-Source on Resistance

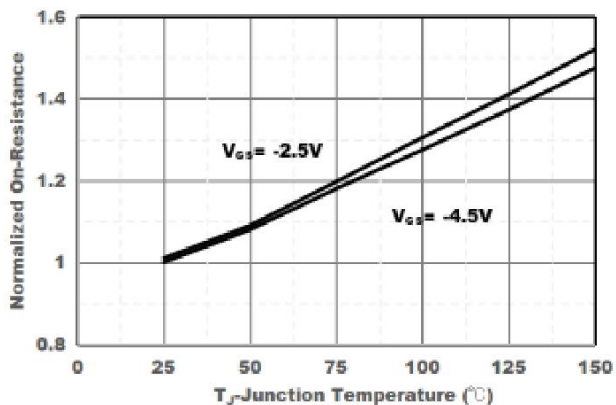
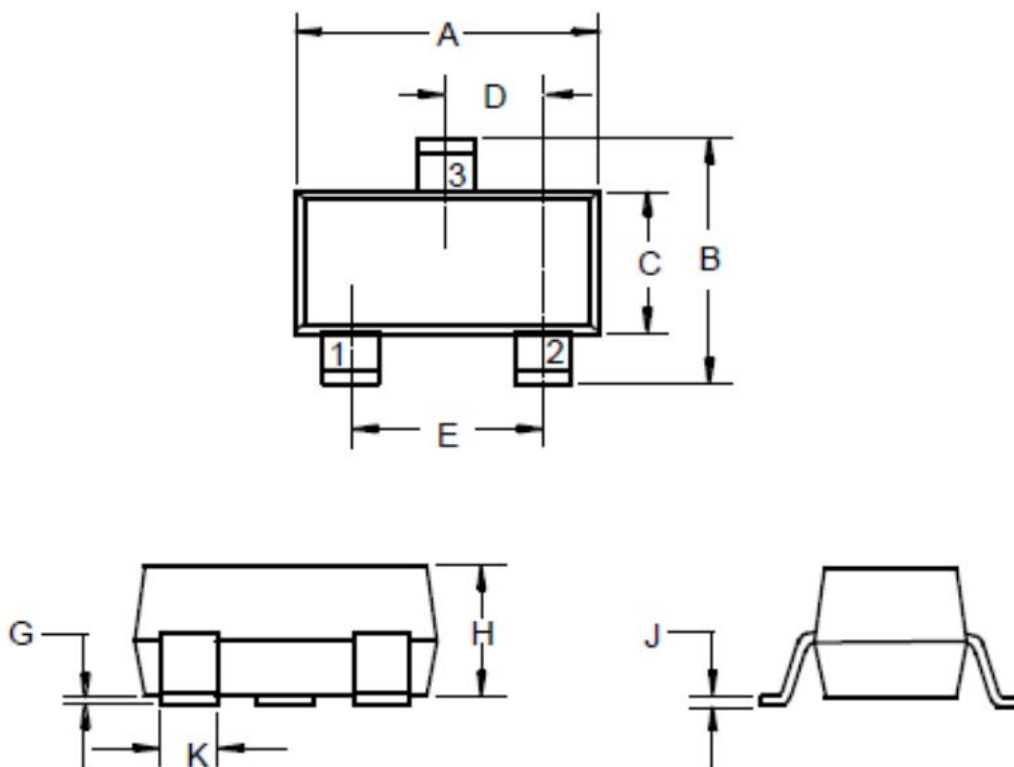


Figure6. Drain-Source on Resistance

SOT-23-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.820	3.020	0.111	0.119
B	2.650	2.950	0.104	0.116
C	1.500	1.700	0.059	0.067
D	0.865	1.015	0.034	0.040
E	1.800	2.000	0.071	0.079
G	0.040	0.100	0.002	0.004
H	1.050	1.250	0.041	0.049
J	0.100	0.200	0.004	0.008
K	0.300	0.500	0.012	0.020