

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	64mΩ@-4.5V	-3.7A
	80mΩ@-2.5V	
	95mΩ@-1.8V	

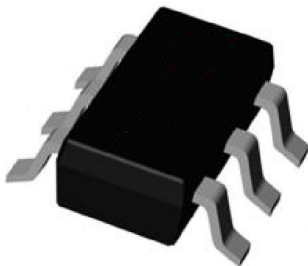
Feature

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

Application

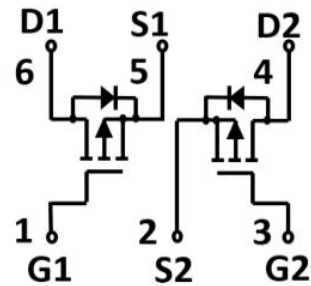
- Video monitor
- Power managemen

Package

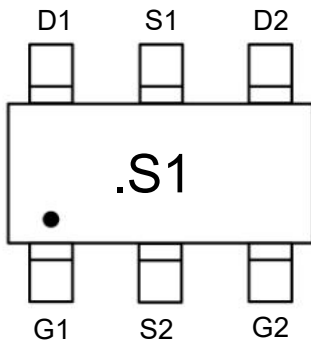


SOT-23-6L

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current	I_D	-3.7	A
Pulsed Drain Current	I_{DM}	-16	A
Power Dissipation	P_D	1.3	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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4		-1.0	V
Drain-source on-resistance ¹⁾	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -3.4A$			64	m Ω
		$V_{GS} = -2.5V, I_D = -3.0A$			80	
		$V_{GS} = -1.8V, I_D = -2.5A$			95	
Dynamic characteristics²⁾						
Input Capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		550		pF
Output Capacitance	C_{oss}			89		
Reverse Transfer Capacitance	C_{rss}			65		
Total Gate Charge	Q_g	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3.7A$		4.3		nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.1		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -10V, V_{GS} = -4.5V, I_D = -1A, R_{GEN} = 2.5\Omega$		12		nS
Turn-on rise time	t_r			54		
Turn-off delay time	$t_{d(off)}$			15		
Turn-off fall time	t_f			9		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I_S				-3.7	A
Diode Forward voltage	V_{DS}	$V_{GS} = 0V, I_S = -3.7A$			-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

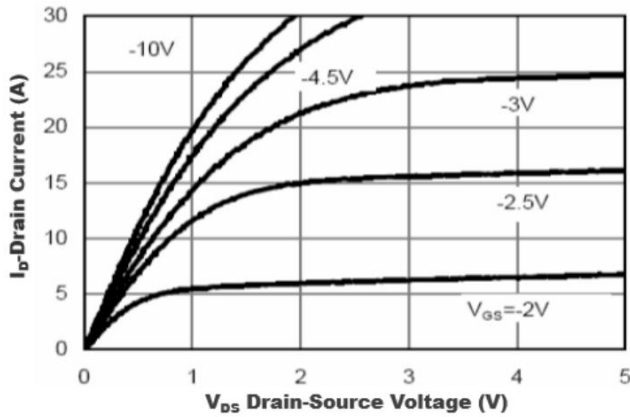


Figure1. Output Characteristics

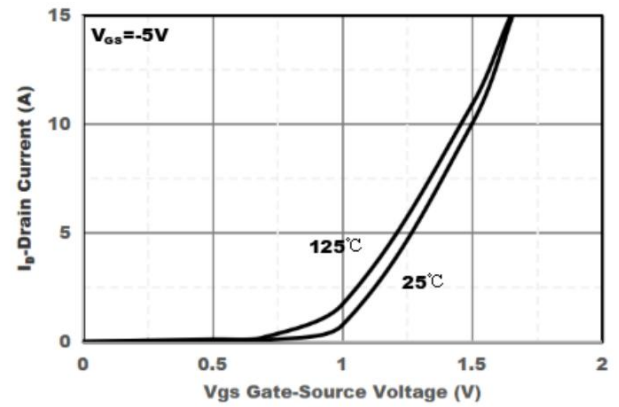


Figure2. Transfer Characteristics

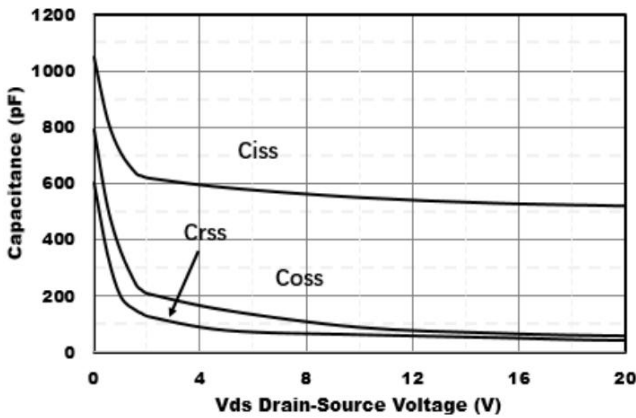


Figure3. Capacitance Characteristics

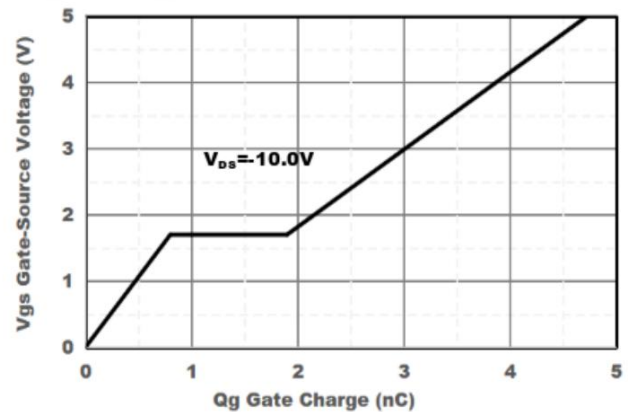


Figure4. Gate Charge

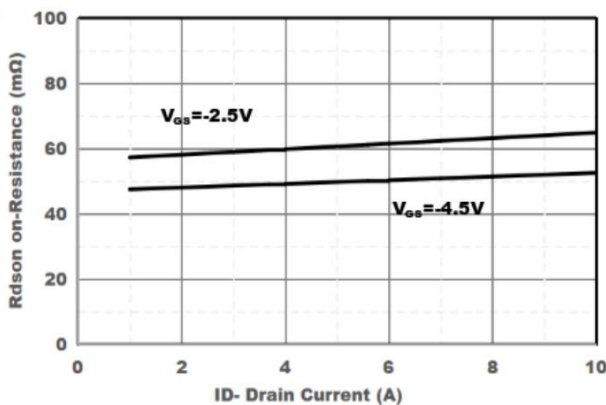


Figure5. Drain-Source on Resistance

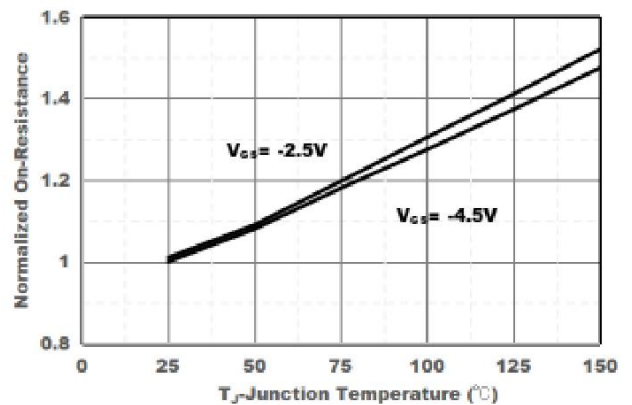
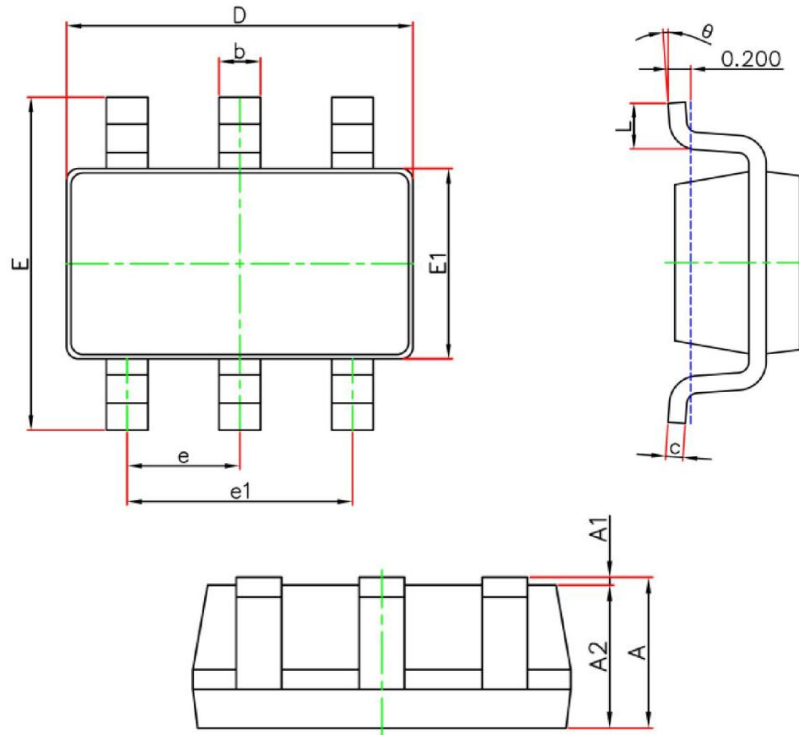


Figure6. Drain-Source on Resistance

SOT-23-6L 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°