

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	$8\Omega @ -10V$	-0.17A
	$9.9\Omega @ -4.5V$	

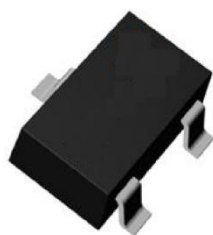
Feature

- Trench Power LV MOSFET technology
- Low Gate Charge
- Suffix "-Q1" for AEC-Q101

Application

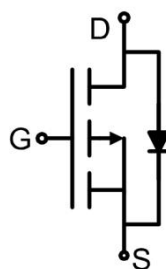
- Video monitor
- Power management

Package

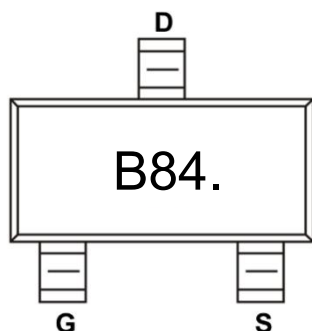


SOT-23

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-0.17	A
Continuous Drain Current($T_A=70^{\circ}\text{C}$)	$I_{D(70^{\circ}\text{C})}$	-0.14	A
Pulsed Drain Current ¹⁾	I_{DM}	-1.2	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient ²⁾	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -60V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.9	-1.4	-2.0	V
Drain-source on-resistance ¹⁾	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -0.15A$		3.3	8	Ω
		$V_{GS} = -4.5V, I_D = -0.15A$		3.5	9.9	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS} = -30V, V_{GS} = 0V, f = 1MHz$		43		pF
Output Capacitance	C_{oss}			2.9		
Reverse Transfer Capacitance	C_{rss}			1.8		
Gate Charge	Q_g	$V_{DS} = -30V, V_{GS} = -10V$ $I_D = -0.15A$		1.77		nC
Gate-Source Charge	Q_{gs}			0.57		
Gate-Drain Charge	Q_{gd}			0.18		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -30V, V_{GS} = -4.5V,$ $I_D = -0.15A, R_{GEN} = 2.5\Omega$		8.6		nS
Turn-on rise time	t_r			20		
Turn-off delay time	$t_{d(off)}$			15		
Turn-off fall time	t_f			77		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I_S				-0.17	A
Diode Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = -0.17A$			-1.2	V
Reverse Recovery Time	t_{rr}	$I_F = -0.15A, di/dt = 100A/\mu s$		23		nS
Reverse Recovery Charge	Q_{rr}			13		nC

Notes:

- 1) Pulse Test: Pulse Width $\leq 10\mu s$, Duty Cycle $\leq 2\%$.
- 2) Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.
- 3) Guaranteed by design, not subject to production testing.

Typical Characteristics

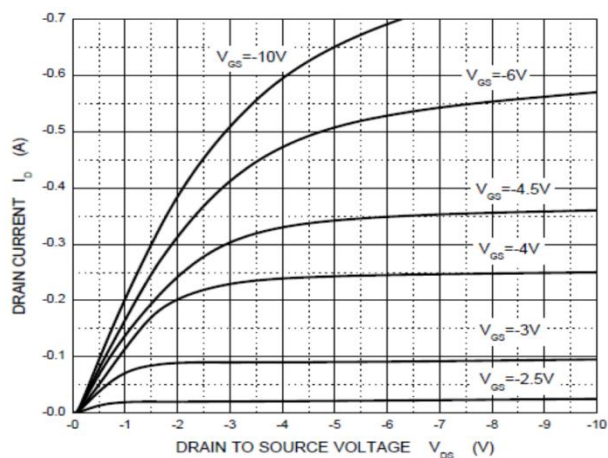


Figure1. Output Characteristics

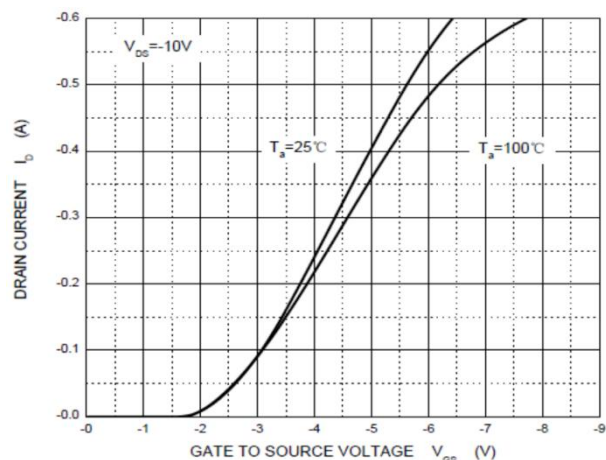


Figure2. Transfer Characteristics

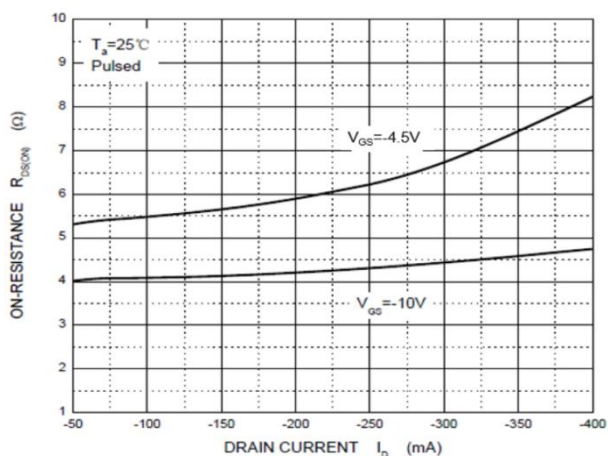


Figure3. Drain-Source on Resistance

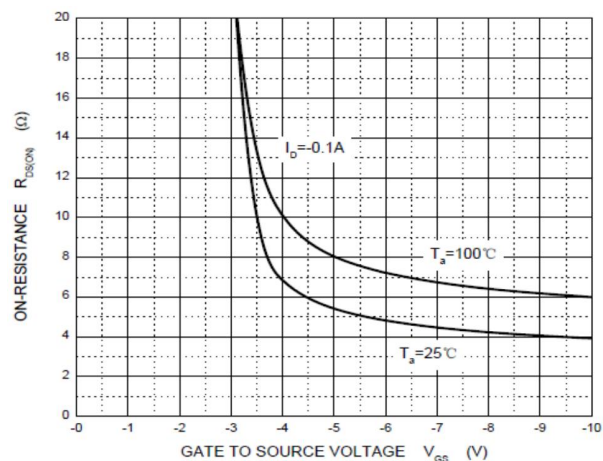


Figure4. Drain-Source on Resistance

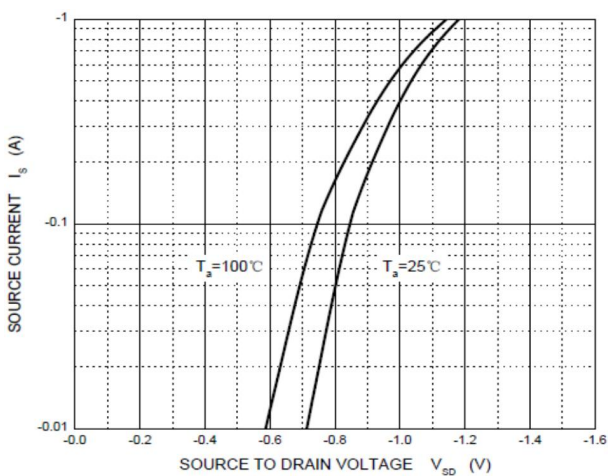


Figure5. Diode Forward Voltage vs. current

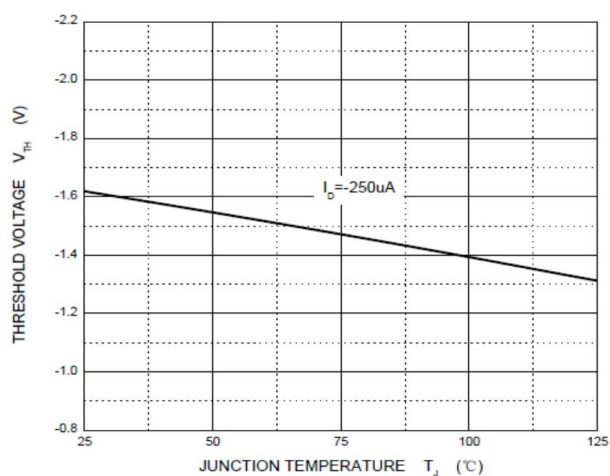


Figure6. Gate Threshold vs. Junction Temperature

Typical Characteristics

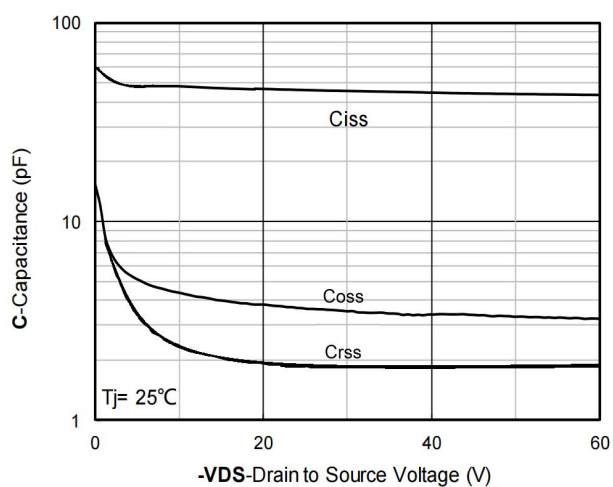


Figure7. Capacitance Characteristics

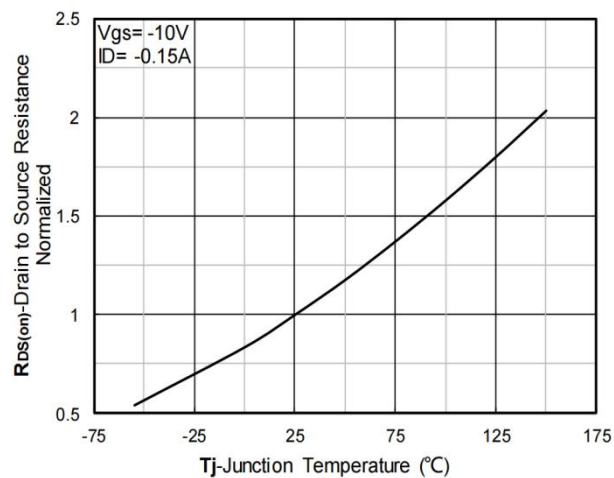
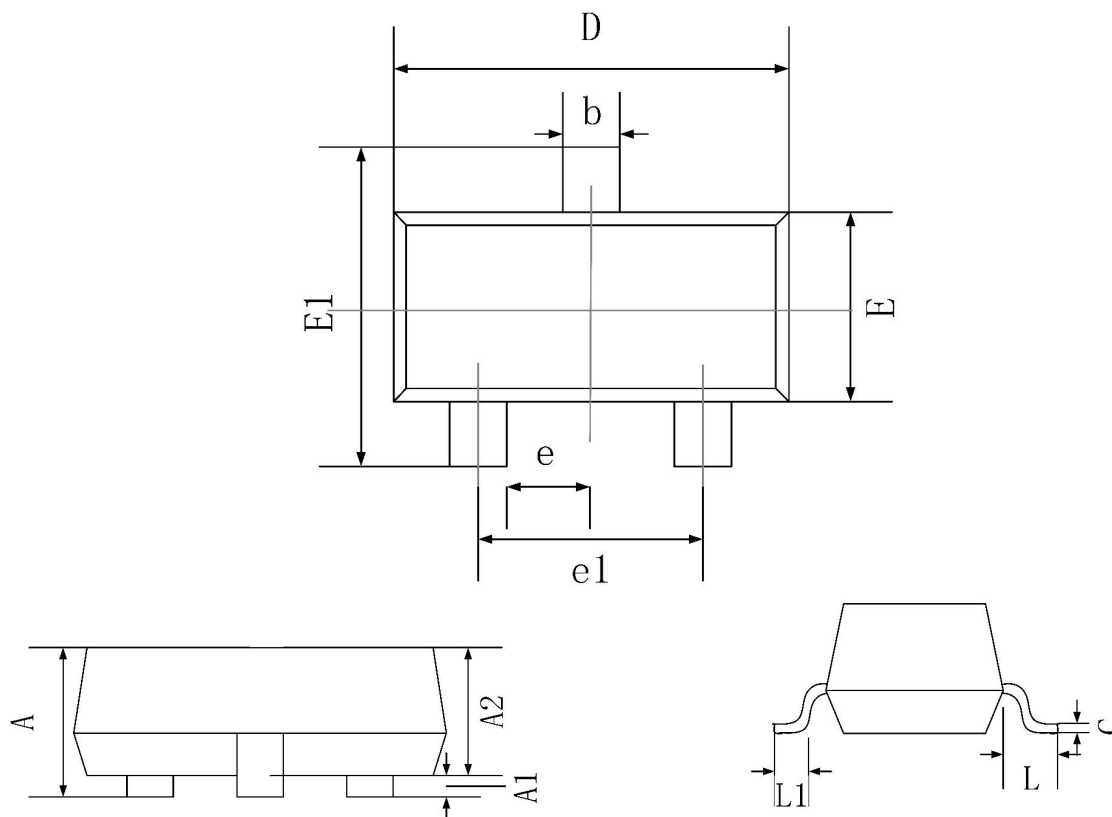


Figure8. Normalized On-Resistance

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.200	0.003	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.			
e1	1.800	2.000	0.071	0.079
L	0.550 REF.			
L1	0.300	0.500	0.012	0.020