BSS84W-Q1

P-Channel Enhancement Mode MOSFET

Product Summary

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

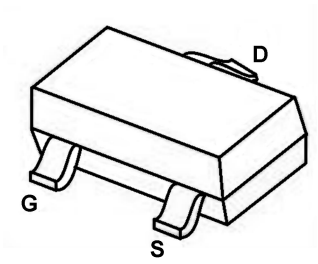
Feature

- Trench Power LV MOSFET technology
- Low RDS(ON)
- Low Gate Charge
- Suffix "-Q1" for AEC-Q101

Application

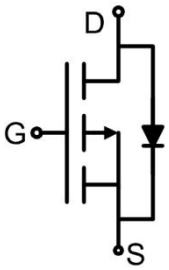
- Video monitor
- Power management

Package

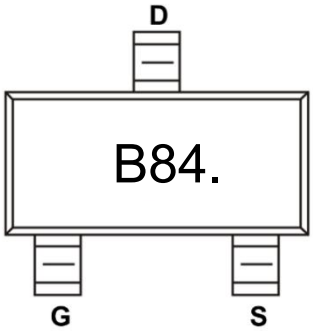


SOT-323

Circuit diagram



Marking



BSS84W-Q1

P-Channel Enhancement Mode MOSFET

Absolute maximum ratings (T_A=25℃ 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
Pulsed Drain Current[1)]	I_{DM}	-0.68	A
Power Dissipation	P_D	0.15	W
Thermal Resistance from Junction to Ambient[2)]	$R_{\theta JA}$	833	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=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	-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} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.9	-1.4	-2.0	V
Drain-source on-resistance	$R_{DS(on)}$	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[3)]						
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		
Total 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		
Reverse Recovery Charge	Q_{rr}	I_F=-0.15A, di/dt=100A/μs		13		
Reverse Recovery Time	t_{rr}			23		nS
Turn-on delay time	$t_{d(on)}$	V_{GS} =-4.5V,V_{DD} =-30V, I_D =-0.15A, R_{GEN}=2.5Ω		8.6		
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	I_S				-0.17	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=-0.17A			-1.2	V

Notes:

1) Pulse Test: Pulse Width≤10μs, Duty Cycle≤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.

Typical Characteristics

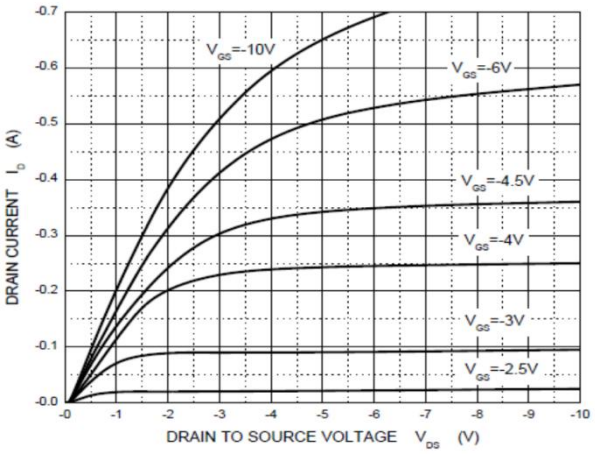


Figure1. Output Characteristics

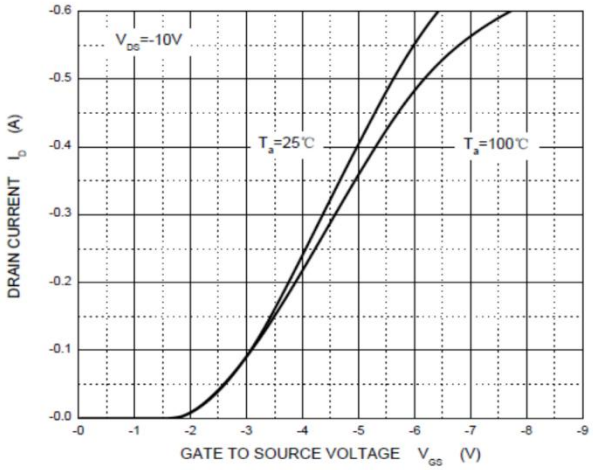


Figure2. Transfer Characteristics

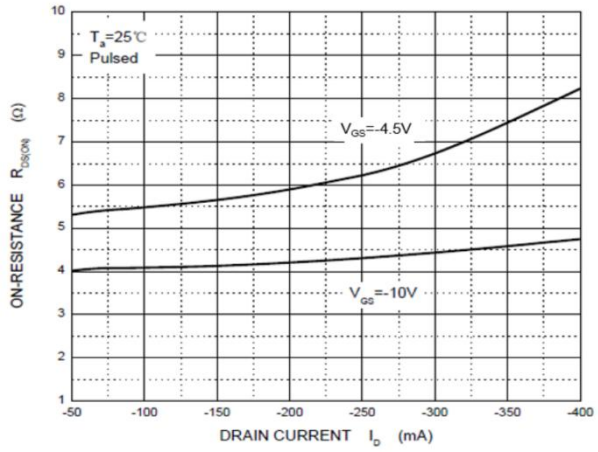


Figure3. Drain-Source on Resistance

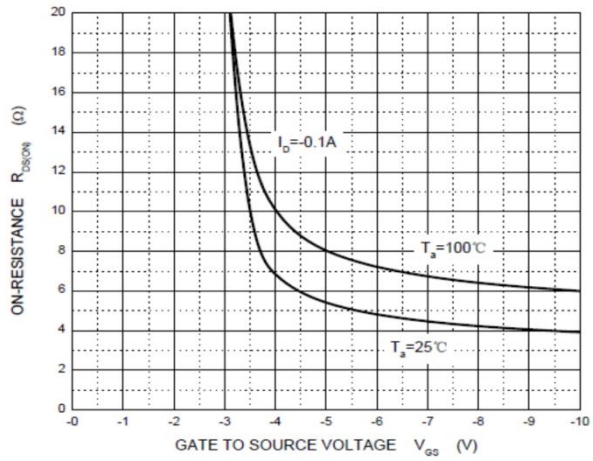


Figure4. Drain-Source on Resistance

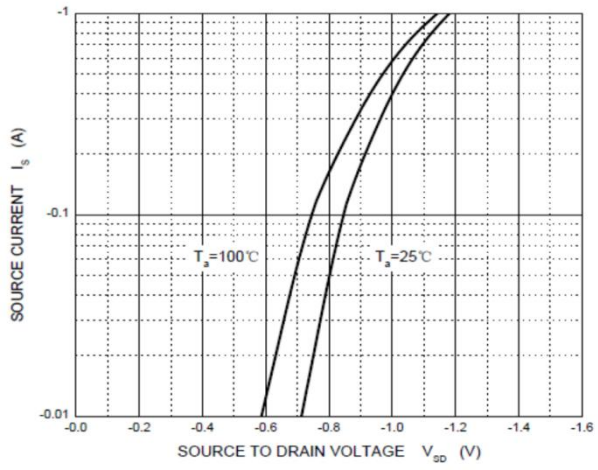


Figure5. Diode Forward Voltage vs. current

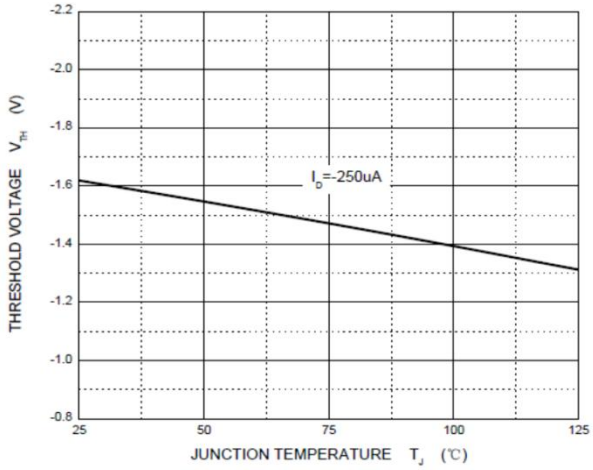


Figure6. Gate Threshold vs. Junction Temperature

Typical Characteristics

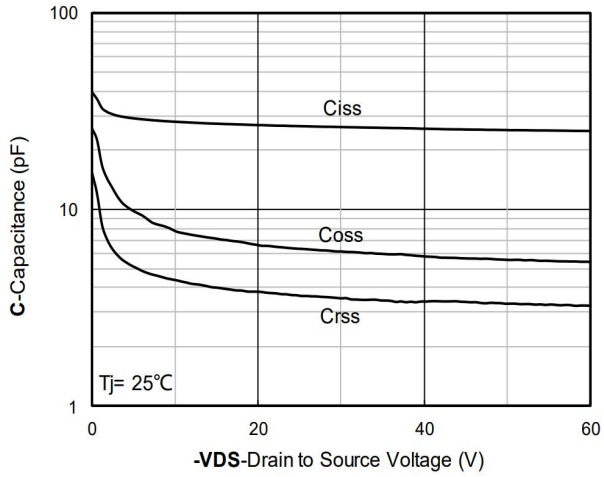


Figure7. Capacitance Characteristics

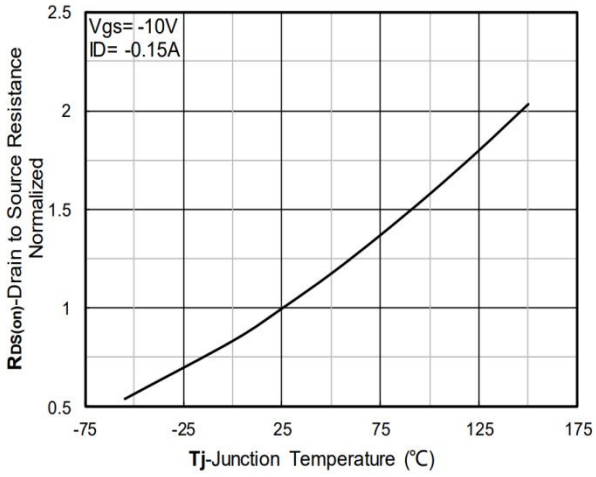
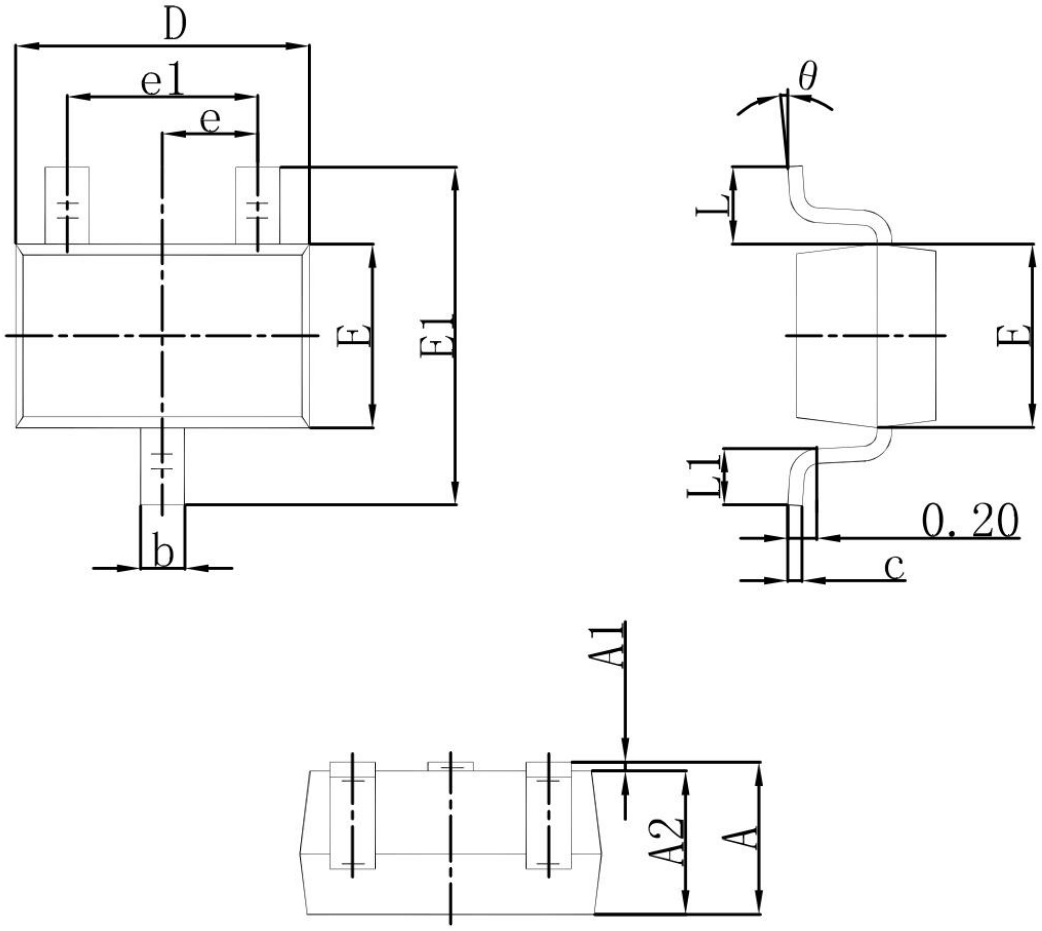


Figure8. Normalized On-Resistance

SOT-323 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.400	0.006	0.016
c	0.080	0.250	0.003	0.016
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°