AS8205BM-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	18mΩ@4.5V	7A
	22mΩ@2.5V	
	39mΩ@1.8V	

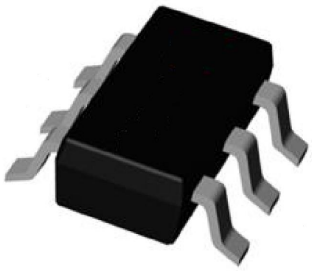
Feature

- Trench Power LV MOSFET technology
- High Power and current handing capability
- Suffix “-Q1” for AEC-Q101

Application

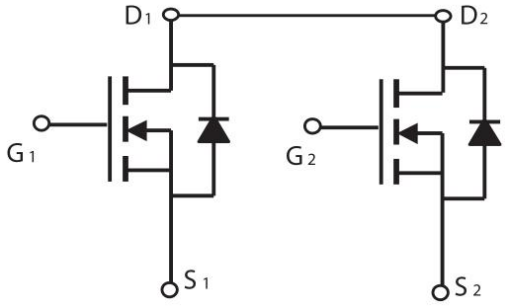
- PWM application
- Load switch

Package

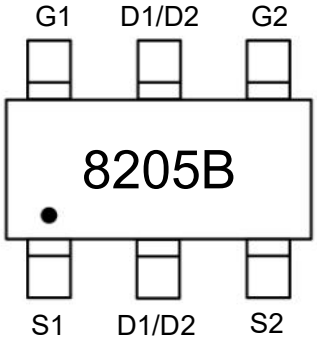


SOT-23-6L

Circuit diagram



Marking



Absolute maximum ratings (Ta=25℃ 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	7	A
Pulsed Drain Current	I_{DM}	30	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83	℃/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	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} =±10V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.45		1.0	V
Drain-source on-resistance[1]	$R_{DS(on)}$	V_{GS} =4.5V, I_D =5A		13	18	mΩ
		V_{GS} =2.5V, I_D =3A		17	22	
		V_{GS} =1.8V, I_D =1.5A		21	39	
Dynamic characteristics[2]						
Input Capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz		888		pF
Output Capacitance	C_{oss}			133		
Reverse Transfer Capacitance	C_{rss}			117		
Total Gate Charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D =6.8A		12		nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			4		
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V,V_{GS} =4.5V, I_D =6.8A,,R_{GEN}=3Ω		7		nS
Turn-on rise time	t_r			46		
Turn-off delay time	$t_{d(off)}$			30		
Turn-off fall time	t_f			52		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	V_{GS} =0V, I_S=7A			1.2	V

Notes:

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

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

Typical Characteristics

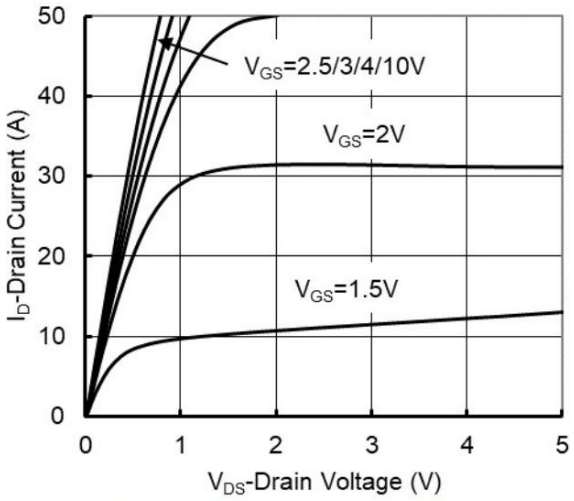


Figure1. Output Characteristics

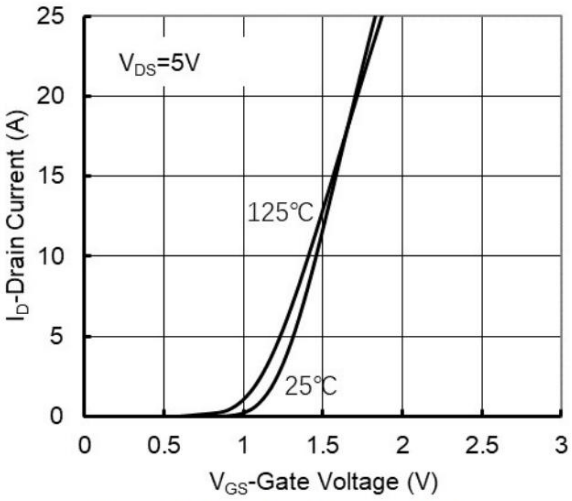


Figure2. Transfer Characteristics

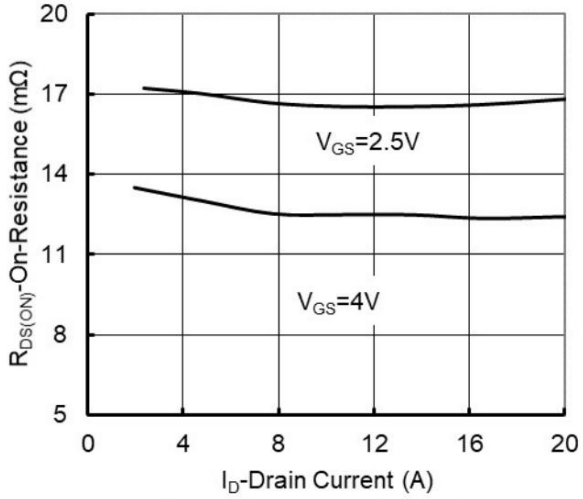


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

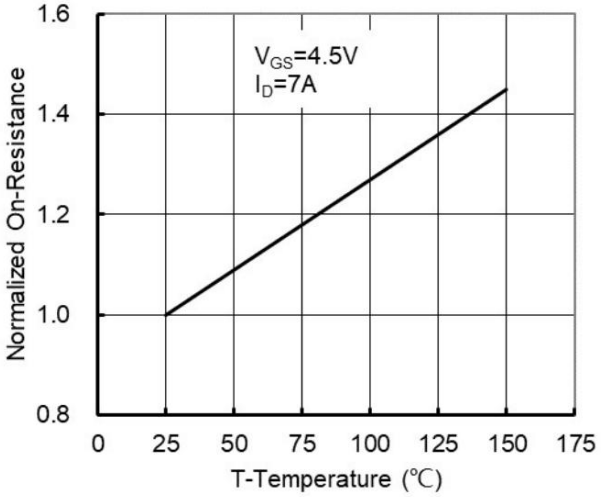


Figure 4: On-Resistance vs. Junction Temperature

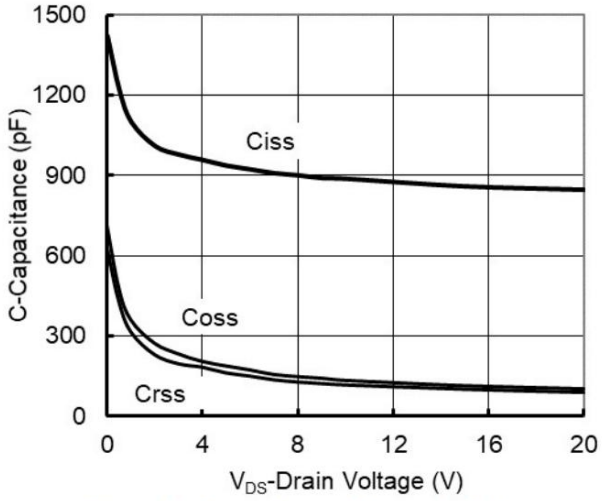


Figure5. Capacitance Characteristics

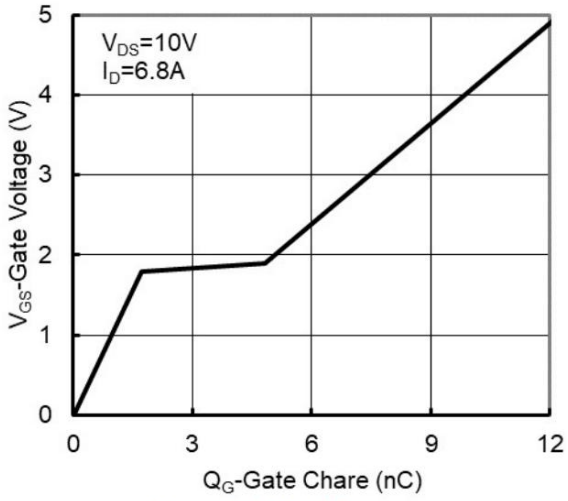


Figure6. Gate Charge

Typical Characteristics

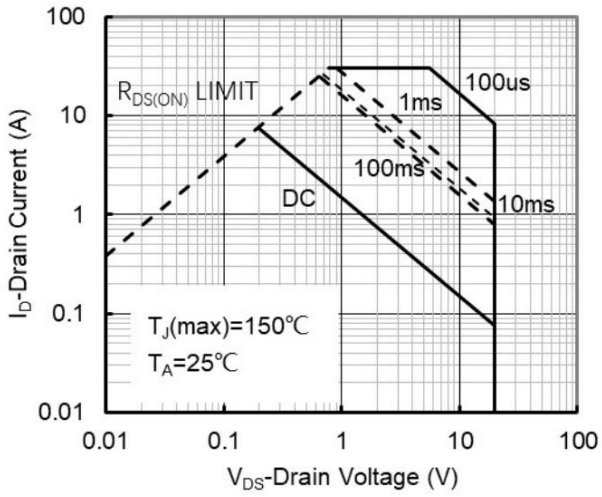


Figure7. Safe Operation Area

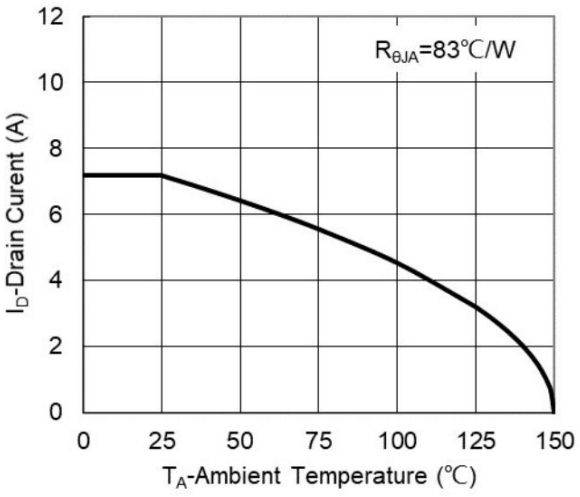


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

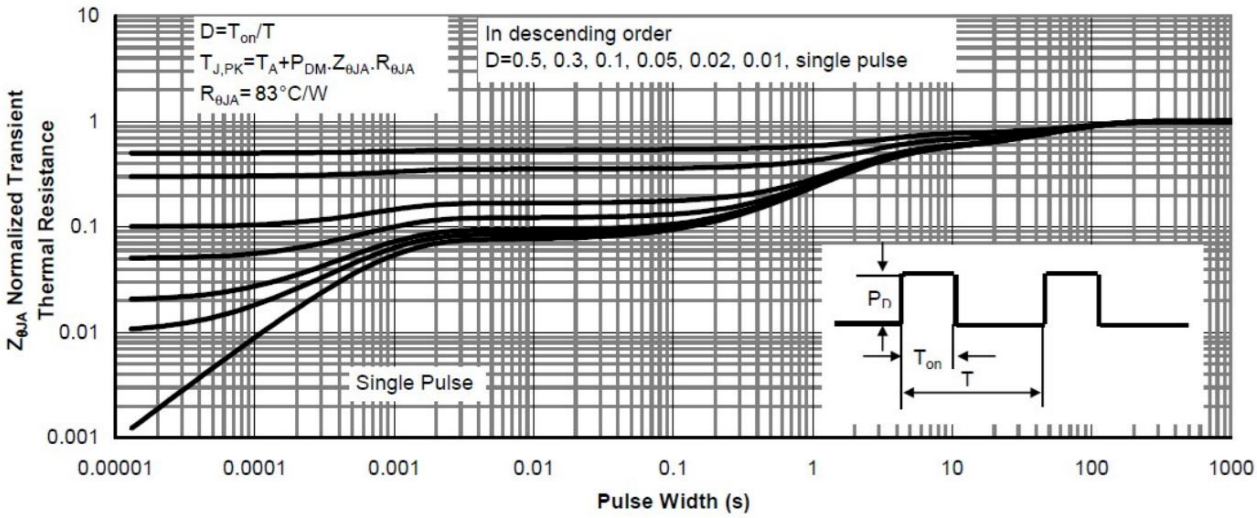
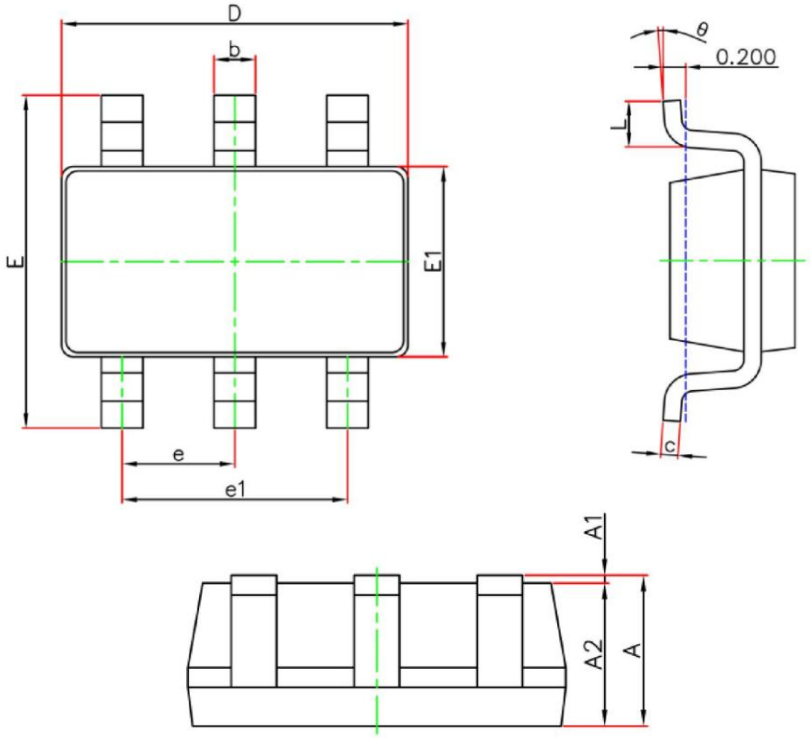


Figure9. Normalized Maximum Transient Thermal Impedance

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°