BQ8205A REV1.1 20V N-Channel Enhancement-Mode MOSFET

General Description

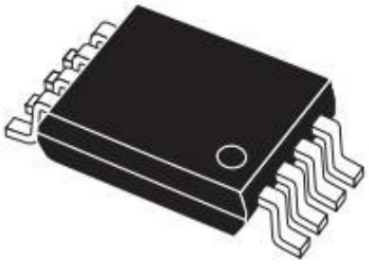
BQ8205A uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

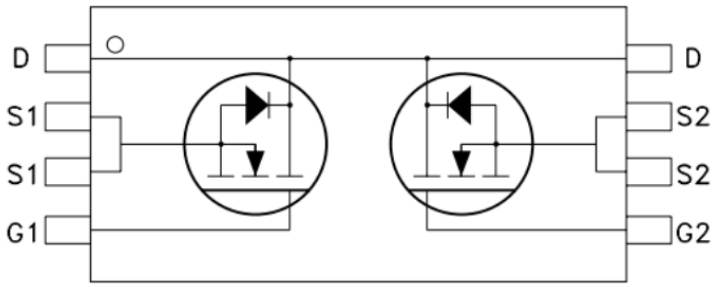
Product Summary

- V_{DS}=20V
  $R_{DS(ON)}$=23.5 mΩ(max.) @ V_{GS}=4.5V, I_D=1A
  $R_{DS(ON)}$=29.0 mΩ(max.) @ V_{GS}=2.5V, I_D=1A

- High Dense Design
- Ultra Low On-Resistance
- Reliable and Rugged

TSSOP-8





N-Channel MOSFET

Absolute Maximum Ratings TA=25°C unless otherwise noted			
Parameter	**Symbol**	**Limit**	**Unit**
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous @ T_J=25℃	I_D	6	A
Pulsed[b]	I_{DM}	20	A
Drain-Sourse Diode Forward Current[a]	I_S	2.5	A
Maximum Power Dissipation[a]	P_D	1.5	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

Notes
Pulse width limited by maximum junction temperature.
Surface Mounted on FR4 Board, t≤5 sec.

Electrical Characteristics (TA=25℃unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V,I_D = 250uA	21	23.5	26.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS} = 4.5V,I_D = 1A		18.0	23.5	mΩ
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS} = 2.5V,I_D = 1A		21.5	29.0	
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{GS},I_D = 250μA	0.6	0.75	0.9	V
Zero Gate Voltage drain Current	I_{DSS}	V_{DS} = 20V,V_{GS} = 0V		0.02	1	μA
Gate Body Leakage	I_{GSS}	V_{GS} = ±12V,V_{DS} = 0V		±30	±100	nA
Forward Transconductance	G_{FS}	V_{DS} = 5V,I_D = 6A		10		S
Dynamic[3]						
Total Gate Charge	Q_G	V_{DS} = 10V, I_D = 4A, V_{GS} = 4.5V		10		nC
Gate-Source Charge	Q_{GS}			1.5		
Gate-Drain Charge	Q_{GD}			2.3		
Tum-On Delay Time	$T_{d(on)}$	V_{DD} = 10V, I_D = 6A, I_D = 1A, V_{GS} = 4.5V		10		ns
Tum-On Rise Time	T_r			11		
Tum-Off Delay Time	$T_{d(off)}$			35		
Tum-Off Fall Time	T_f			30		
Input Capacitance	C_{iss}	V_{DS} = 8V, V_{GS} = 0V, f =1.0MHz		600		pF
Output Capacitance	C_{oss}			330		
Reverse Transfer Capacitance	C_{rss}			140		
Source-Drain Diode						
Max.Diode Forward Current	Is				1.7	A
Diode Forward Voltage	V_{SD}	I_S = 1.7A,V_{GS} = 0V			1.2	V

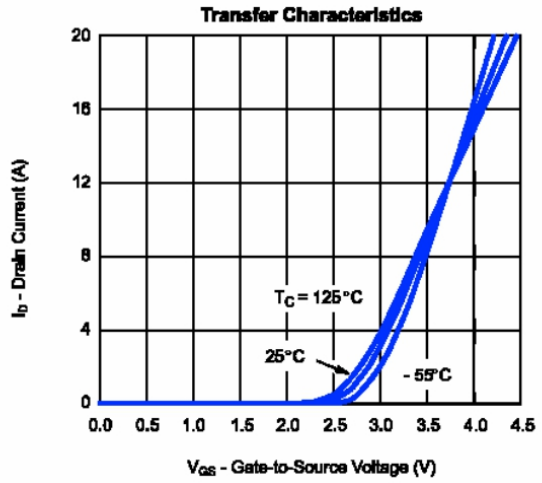
Notes:

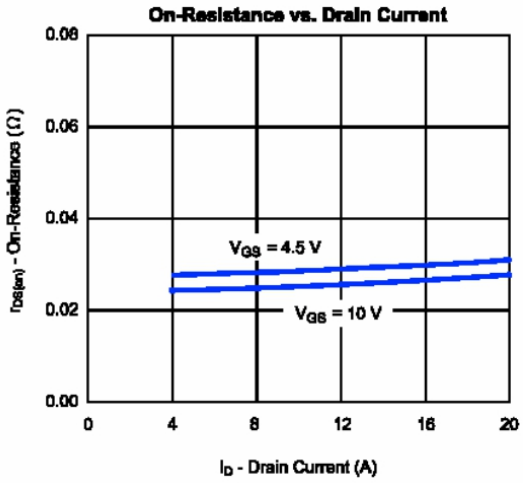
a. Surface Mounted on FR4 Board ,T<10 sec ;

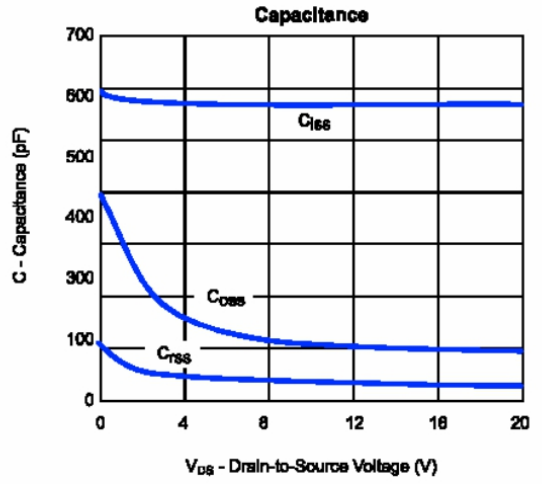
b. Pulse Test: Pulse Width ≤ 300 μ s, Duty Cycle ≤ 2%.

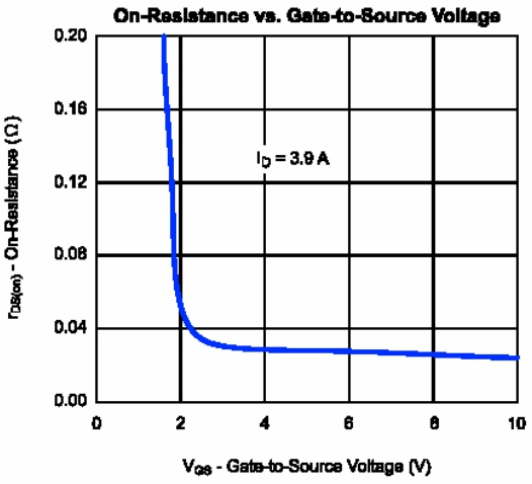
c. Guaranteed by Design, not subject to production testing.

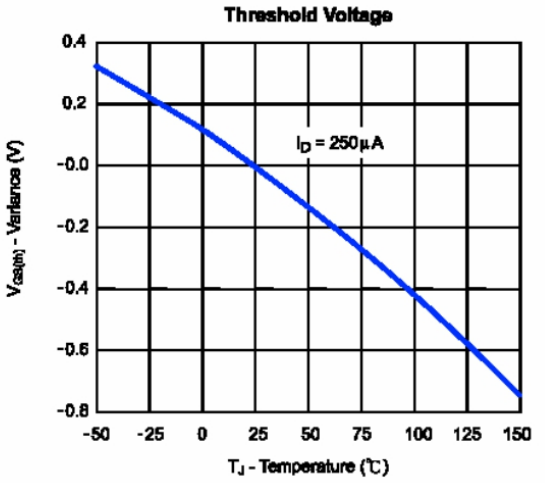
Typical Characteristics (T_J =25℃ Noted)

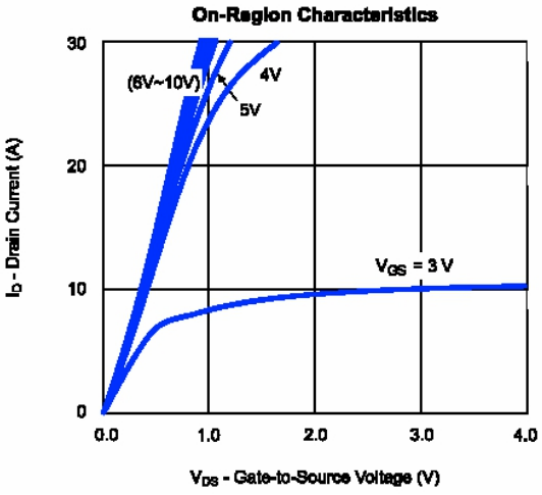


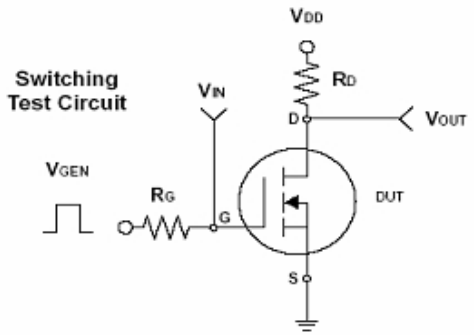


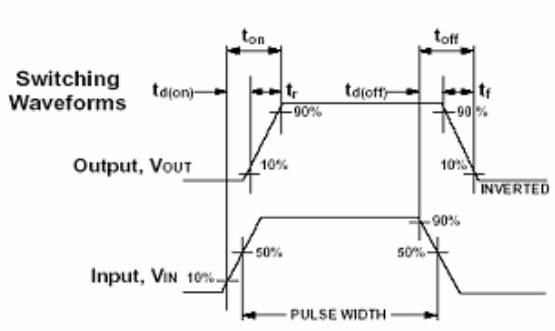




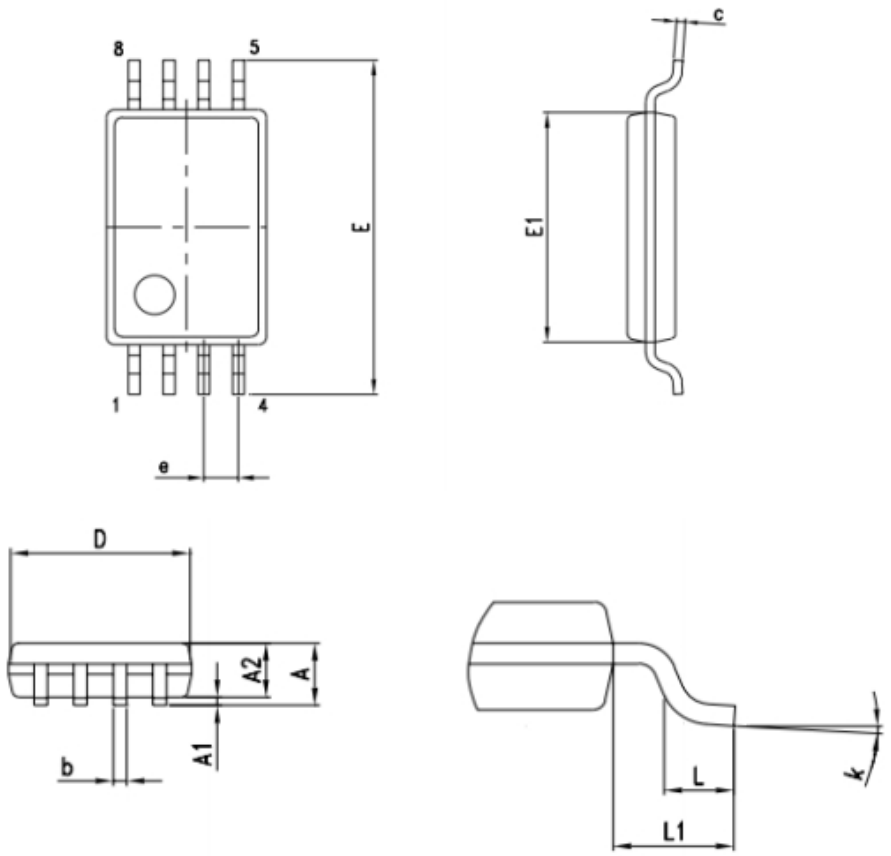








Package Outline Dimensions TSSOP-8



DIM.	mm.			inch.		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.05		1.20	0.041		0.047
A1	0.05		0.15	0.002		0.006
A2	0.80		1.05	0.032		0.041
b	0.19		0.30	0.008		0.012
c	0.090		0.20	0.003		0.007
D	2.90		3.10	0.114		0.122
E	6.20		6.60	0.240		0.260
E1	4.30		4.50	0.170		0.177
e		0.65			0.025	
L	0.45		0.75	0.018		0.030
L1		1.00			0.039	
k	0°		8°	0.192		0.208