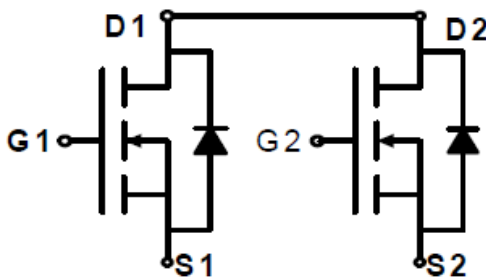




# JX8205AA

## N-Channel Enhancement Mode MOSFET

V <sub>DS</sub> Typ.	R <sub>DS(on)</sub> Typ.	I <sub>D</sub> Max.
20V	21.0mΩ @ 4.5V	4A
	25.5mΩ @ 2.5V	



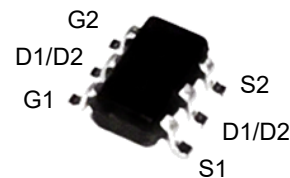
Schematic Diagram

### 1.Features

- ◆ High Power and current handing capability
- ◆ Lead free product is acquired
- ◆ Surface Mount Package

### 2.Applications

- ◆ Battery Protection
- ◆ Battery Powered Systems
- ◆ Power Management in Notebook Computer
- ◆ Portable Equipment



Pin Description

SOT23-6

### 3.Package Marking and Ordering Information

Part no.	Marking	Package	PCS/Reel	PCS/CTN.
JX8205AA	8205A	SOT23-6	3,000	120,000

### 4.Absolute Max Ratings at Ta=25°C (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V <sub>DSS</sub>	20	V
Gate to Source Voltage	V <sub>GSS</sub>	±10	V
Drain Current-Continuous	I <sub>D</sub>	4	A
Drain Current (Pulse)	I <sub>DM</sub>	20	A
Maximum Power Dissipation	P <sub>D</sub>	1.9	W
Operating Junction and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 to +150	°C
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)	T <sub>L</sub>	260	°C

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



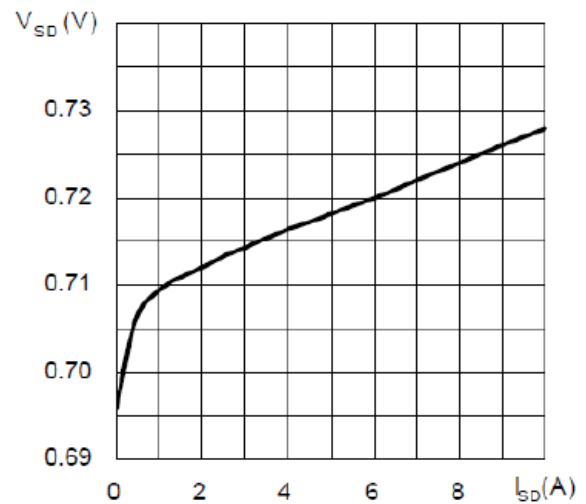
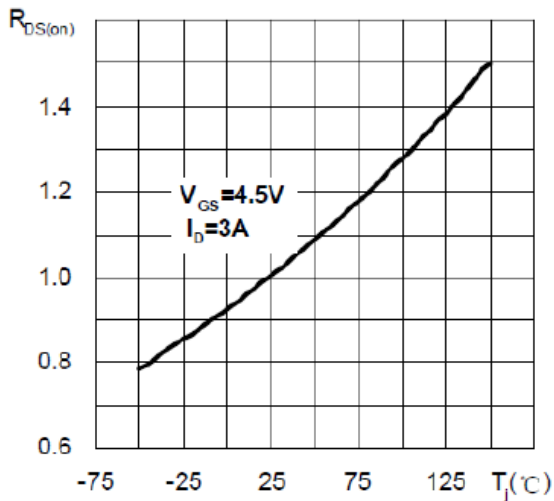
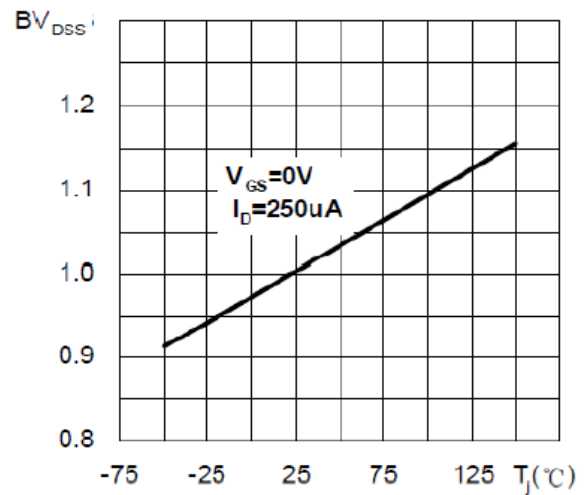
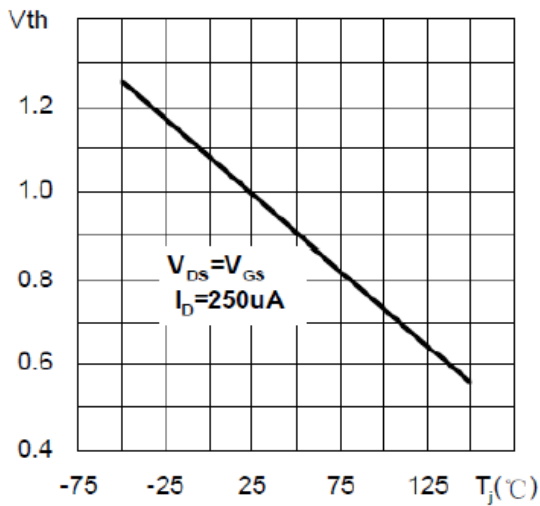
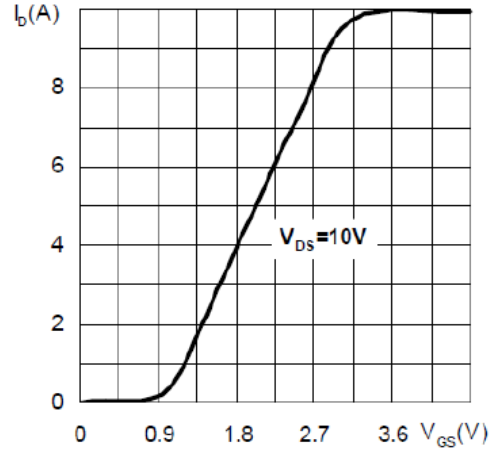
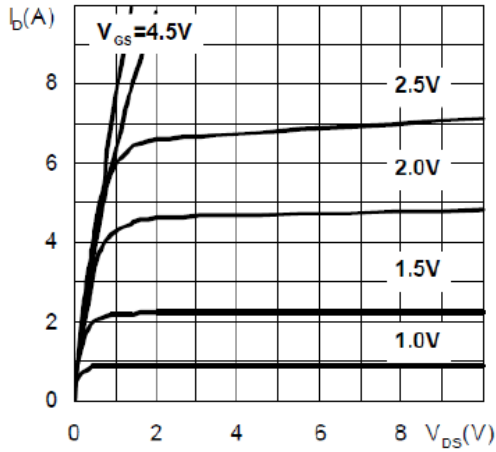
### 5. Electrical Characteristics at Ta=25°C (Note 2)

Parameter		Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0V$	20	22		V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 19V, V_{GS} = 0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.4	0.6	1.0	V
Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = 4A, V_{GS} = 4.5V$	-	21.0	27	m $\Omega$
		$I_D = 3A, V_{GS} = 2.5V$	-	25.5	33	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{GS}=0V,$ $V_{DS}=10V,$ Frequency=1.0MHz		370		pF
Output Capacitance	$C_{oss}$			89		pF
Reverse Transfer Capacitance	$C_{rss}$			10		pF
Turn-ON Delay Time	$t_{d(on)}$			200		ns
Turn-ON Rise Time	$t_r$	$V_{DD} = 10V, I_D = 3A,$ $V_{GS} = 4.5V, R_{GEN} = 10\Omega$		236		ns
Turn-OFF Delay Time	$t_{d(off)}$			36		ns
Turn-ON Fall Time	$t_f$			165		ns
Total Gate Charge	$Q_g$	$V_{DS} = 10V,$ $V_{GS} = 4.5V,$ $I_D = 1A$		7.5		nC
Gate-Source Charge	$Q_{gs}$			3.0		nC
Gate-Drain Charge	$Q_{gd}$			1.5		nC
Diode Forward Voltage	$V_{SD}$	$I_S = 4A, V_{GS} = 0V$	0.4	0.8	1.2	V

Note 2: Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



### 6. Typical electrical and thermal characteristics



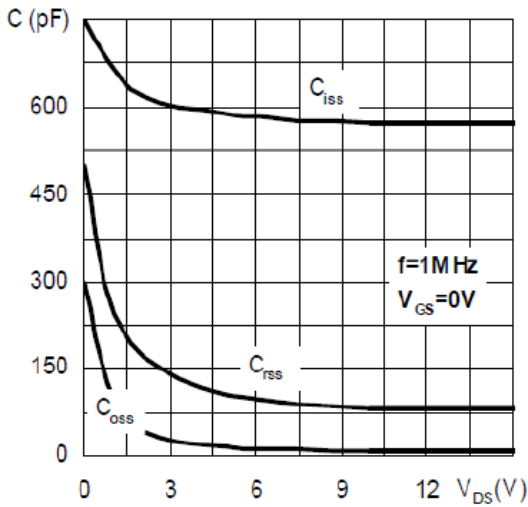


Figure 7 Capacitance

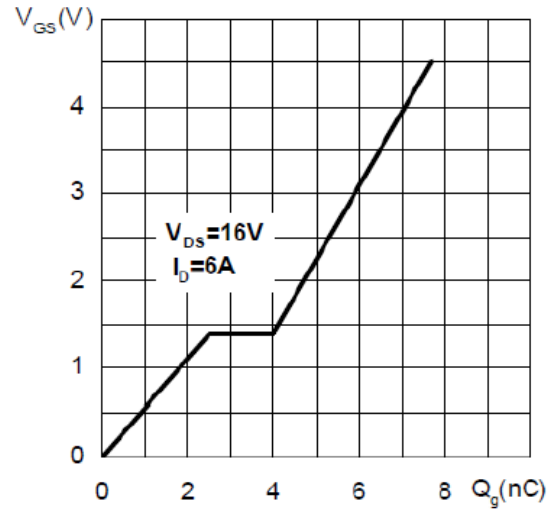


Figure 8 Gate Charge

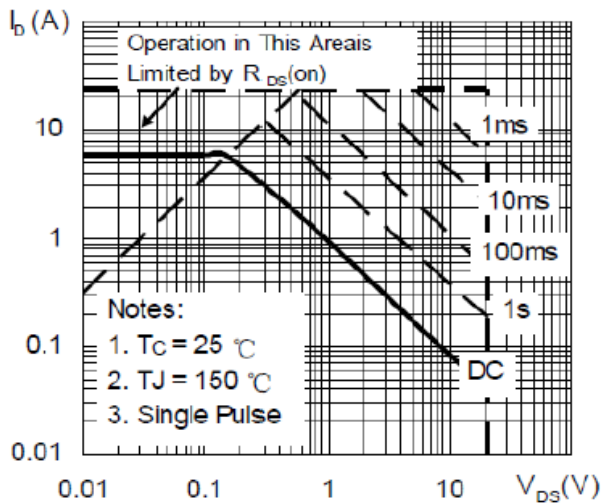


Figure 9 Safe Operating Area

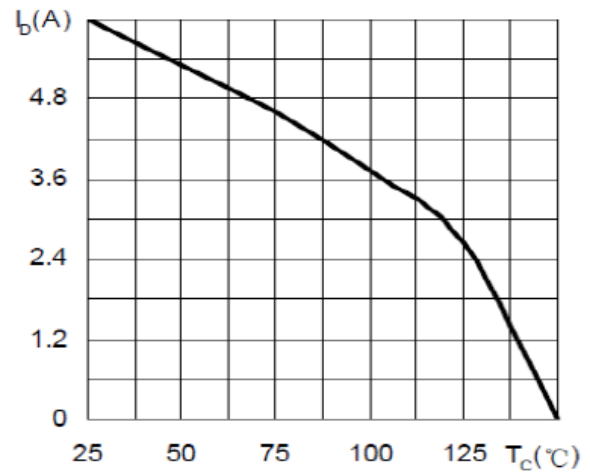


Figure 10 Maximum Drain Current vs. Case Temperature

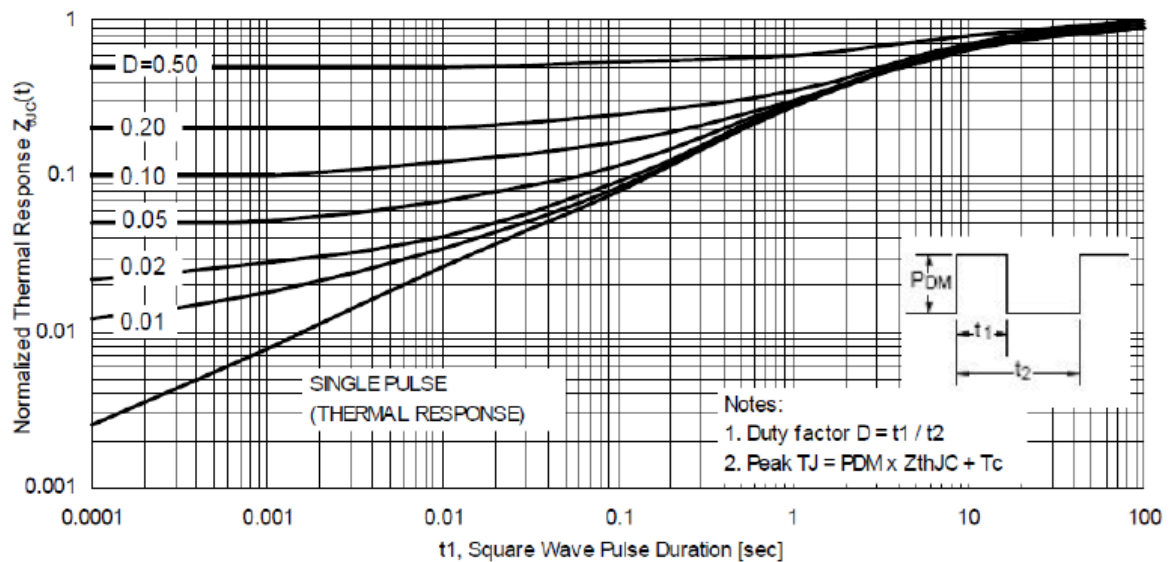
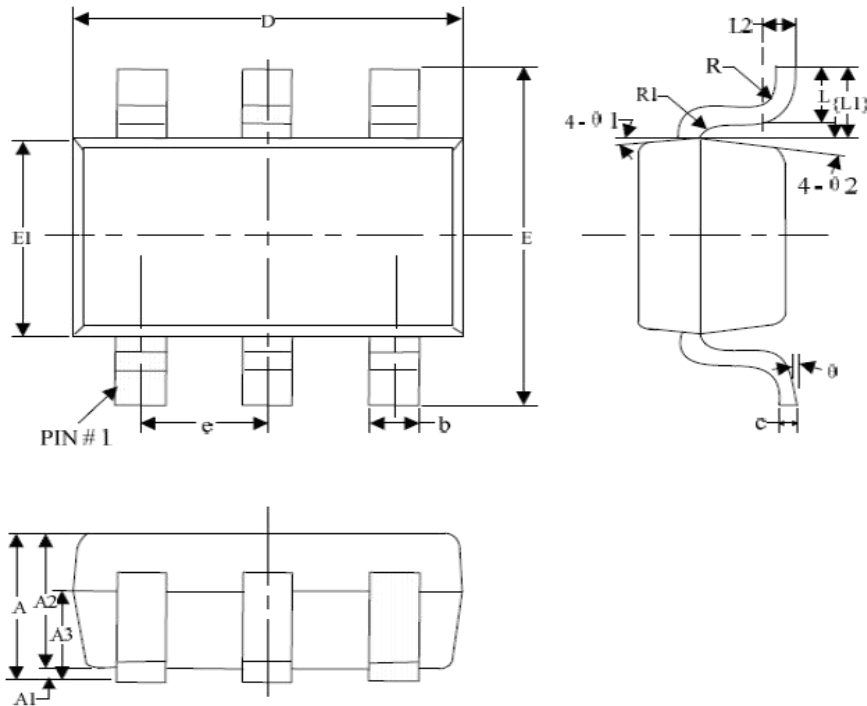


Figure 11 Maximum Transient Thermal Impedence



**7.Package Dimensions**

**SOT23-6**



**Dimensions (unit: mm)**

SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX
A	-	-	1.30	e	0.85	0.95	1.05
A1	0	-	0.15	L	0.35	0.45	0.60
A2	0.90	1.10	1.30	L1	0.59REF		
A3	0.60	0.65	0.70	L2	0.25BSC		
b	0.39	-	0.49	R	0.05	-	-
c	0.12	-	0.19	R1	0.05	-	0.02
D	2.85	2.95	3.15	θ	0°	-	8°
E	2.60	2.80	3.00	θ1	3°	5°	7°
E1	1.55	1.65	1.75	θ2	6°	8°	10°