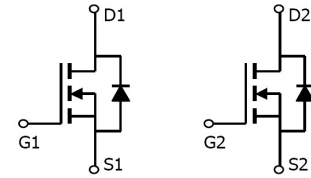


# AP8205A

## Dual N-Channel Enhancement Mosfet

### Feature

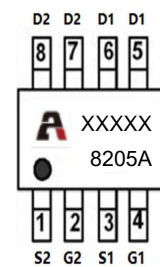
- 20V,6.0A  
 $R_{DS(ON)} < 26m\Omega @ V_{GS}=4.5V$  TYP=20 m $\Omega$   
 $R_{DS(ON)} < 33m\Omega @ V_{GS}=2.5V$  TYP=26 m $\Omega$
- Advanced Trench Technology
- Lead free product is acquired
- Low gate charge



### Schematic Diagram

### Application

- Interfacing Switching
- Load Switching
- Power management



### Marking and pin Assignment

### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
8205A	AP8205A	TSSOP-8		-	5000

### ABSOLUTE MAXIMUM RATINGS ( $T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current ( $T_a=25^\circ\text{C}$ )	$I_D$	6.0	A
Continuous Drain Current ( $T_a=70^\circ\text{C}$ )	$I_D$	4.0	A
Pulsed Drain Current	$I_{DM}$	24	A
Power Dissipation	$P_D$	2.5	W
Thermal Resistance from Junction to Ambient <sup>(4)</sup>	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

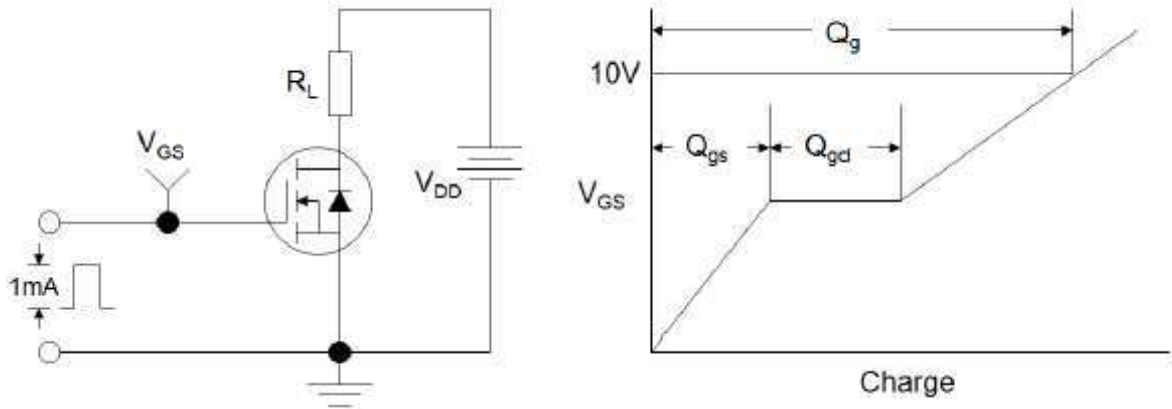
MOSFET ELECTRICAL CHARACTERISTICS( $T_J=25^{\circ}\text{C}$  unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$	-	-	$\pm 100$	nA
Gate threshold voltage <sup>(3)</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.2	V
Drain-source on-resistance <sup>(3)</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 4A$	-	20	26	m $\Omega$
		$V_{GS} = 2.5V, I_D = 3A$	-	26	33	
<b>Dynamic characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$	-	1035	-	pF
Output Capacitance	$C_{oss}$		-	320	-	
Reverse Transfer Capacitance	$C_{rss}$		-	150	-	
<b>Switching characteristics</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 1A,$ $V_{GS} = 5.0V, R_G = 6\Omega$	-	30	-	ns
Turn-on rise time	$t_r$		-	70	-	
Turn-off delay time	$t_{d(off)}$		-	40	-	
Turn-off fall time	$t_f$		-	65	-	
Total Gate Charge	$Q_g$	$V_{DS} = 10V, I_D = 3.5A,$ $V_{GS} = 4.5V$	-	15	-	nC
Gate-Source Charge	$Q_{gs}$		-	2.9	-	
Gate-Drain Charge	$Q_{gd}$		-	3.6	-	
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>(3)</sup>	$V_{DS}$	$V_{GS} = 0V, I_S = 1.7A$	-	-	1.2	V
Diode Forward current <sup>(4)</sup>	$I_S$		-	-	6.0	A

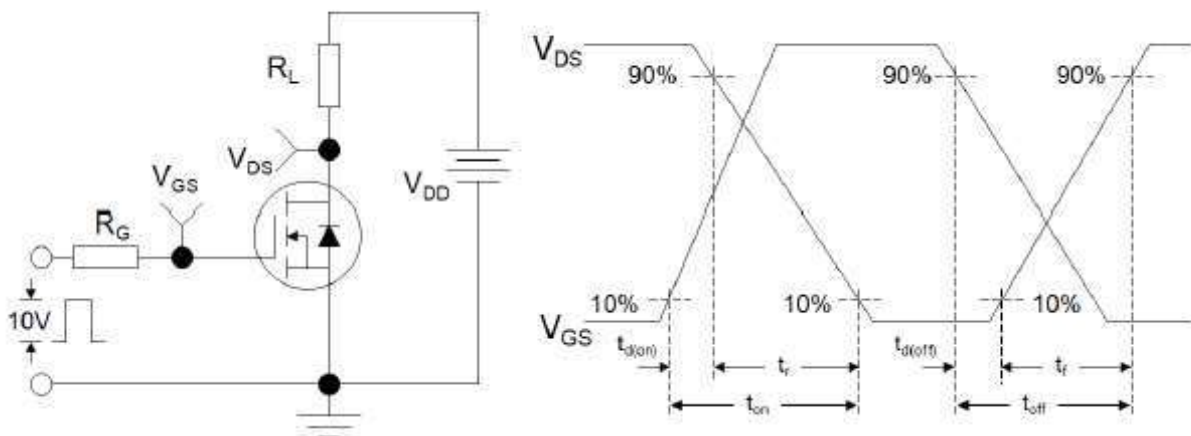
**Notes:**

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. Pulse Test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$
3. Surface Mounted on FR4 Board,  $t_s \leq 10$  sec

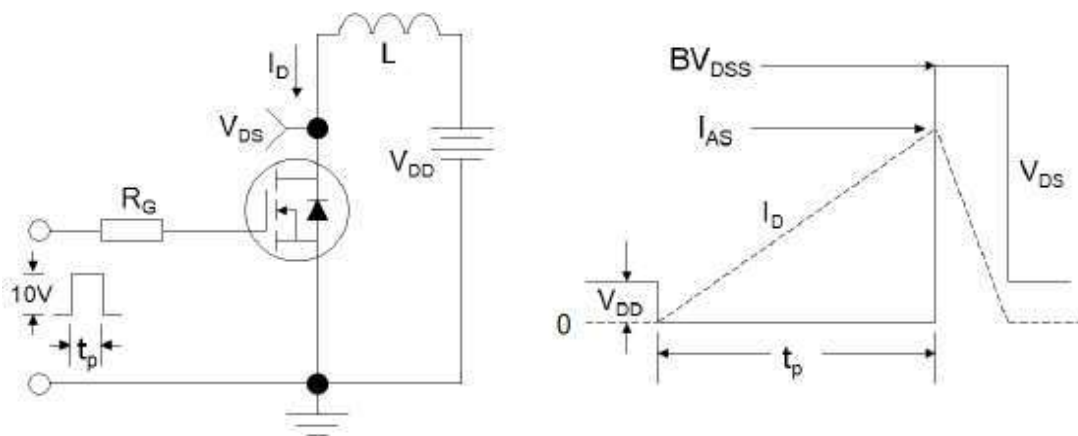
**Test Circuit**



**Figure 1: Gate Charge Test Circuit & Waveform**



**Figure 2: Resistive Switching Test Circuit & Waveforms**



**Figure 3: Unclamped Inductive Switching Test Circuit & Waveforms**

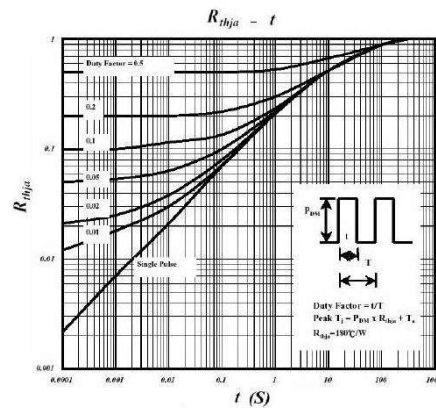
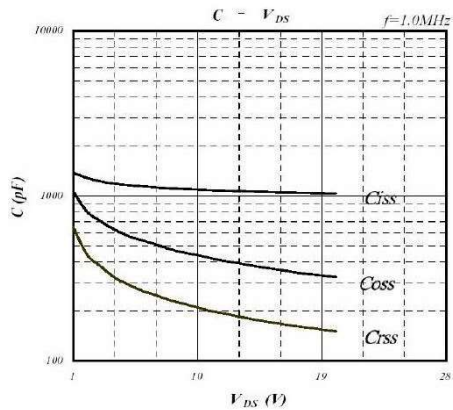
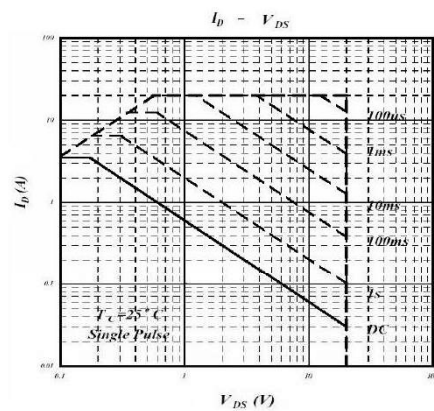
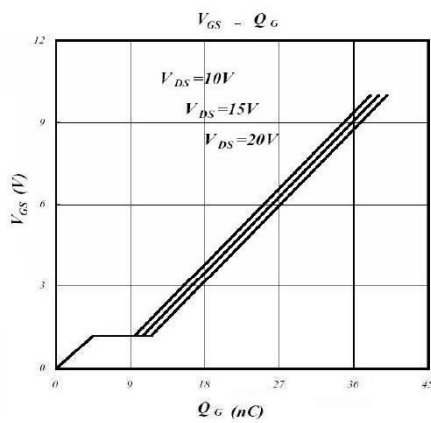
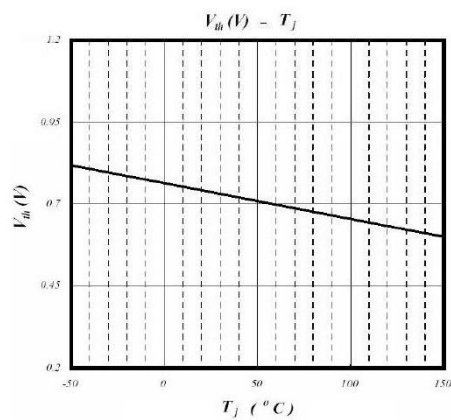
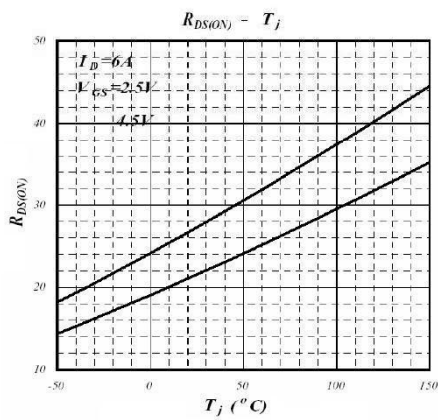
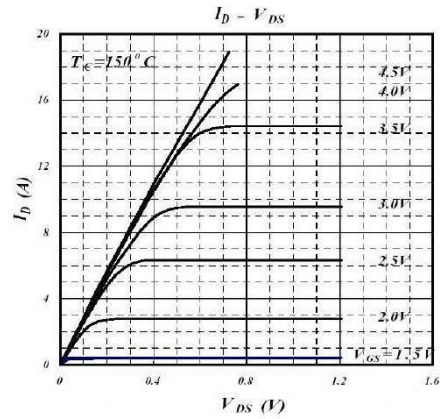
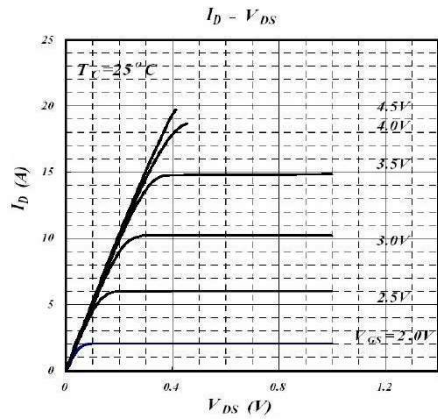
# AP8205A

## Dual N-Channel Enhancement Mosfet



## DATA SHEET

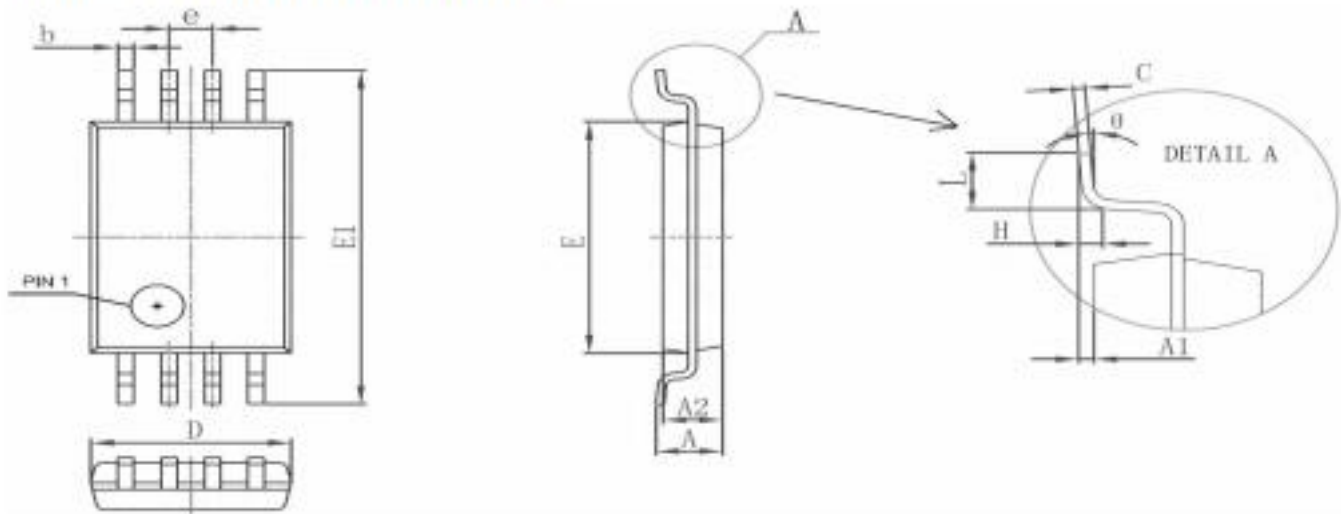
### Typical Performance Characteristics



# AP8205A

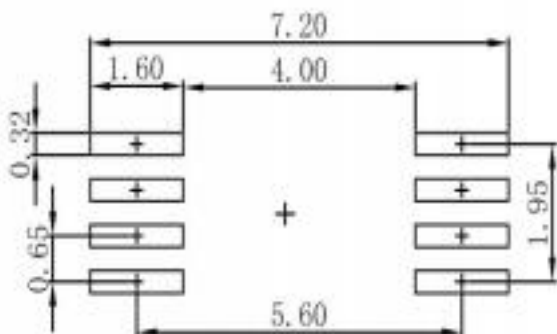
Dual N-Channel Enhancement Mosfet

### TSSOP-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.200		0.047
A2	0.800	1.000	0.031	0.039
A1	0.050	0.150	0.002	0.006
e	0.65(BSC)		0.026(BSC)	
L	0.500	0.700	0.020	0.028
H	0.25(TYP)		0.01(TYP)	
θ	1°	7°	1°	7°

### TSSOP-8 Suggested Pad Layout



#### Note:

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only