



# UT8205A

Power MOSFET

## N-CHANNEL ENHANCEMENT MODE

### DESCRIPTION

The **UT8205A** uses advanced technology to provide fast switching, low on-resistance and cost-effectiveness. This device is suitable for all commercial-industrial surface mount applications.

### FEATURES

\* SOT-26/TSSOP-8/DFN2030-6

$R_{DS(ON)} \leq 28\text{ m}\Omega @ V_{GS}=4.5\text{V}, I_D=6.0\text{A}$

$R_{DS(ON)} \leq 38\text{ m}\Omega @ V_{GS}=2.5\text{V}, I_D=5.2\text{A}$

\* SOP-8

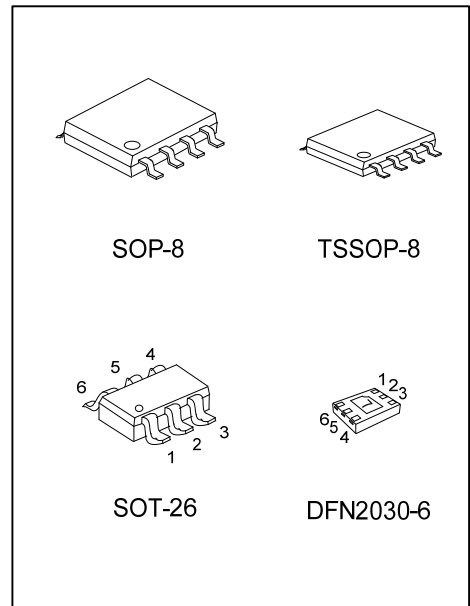
$R_{DS(ON)} \leq 32\text{ m}\Omega @ V_{GS}=4.5\text{V}, I_D=6.0\text{A}$

$R_{DS(ON)} \leq 45\text{ m}\Omega @ V_{GS}=2.5\text{V}, I_D=5.2\text{A}$

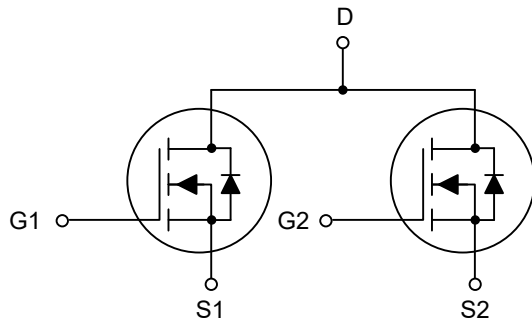
\* Fast switching capability

\* Avalanche energy Specified

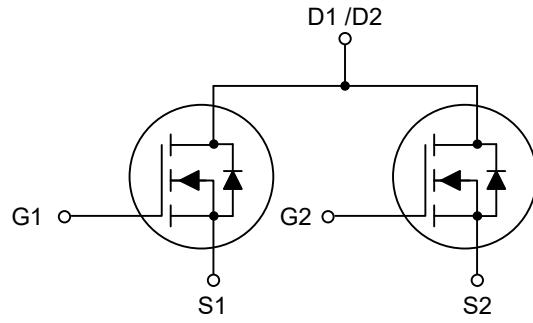
\* Improved dv/dt capability, high ruggedness



### SYMBOL



SOT-26 / SOP-8 / TSSOP-8



DFN2030-6

## ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT8205AL-AL6-R	UT8205AG-AG6-R	SOT-26	S1	D	S2	G2	D	G1	-	-	Tape Reel
UT8205AL-S08-R	UT8205AG-S08-R	SOP-8	D	S1	S1	G1	G2	S2	S2	D	Tape Reel
UT8205AL-P08-R	UT8205AG-P08-R	TSSOP-8	D	S1	S1	G1	G2	S2	S2	D	Tape Reel
UT8205AL-KAK-R	UT8205AG-KAK-R	DFN2030-6	S1	S1	G1	G2	S2	S2	D1/ D2	-	Tape Reel

Note: Pin Assignment: S: Source G: Gate D: Drain

<p>UT8205AG-AG6-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AG6: SOT-26, S08: SOP-8, P08: TSSOP-8 KAK: DFN2030-6 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	--

## MARKING

PACKAGE	MARKING
SOP-8	<p>Date Code L: Lead Free G: Halogen Free Lot Code</p>
TSSOP-8	<p>Date Code L: Lead Free G: Halogen Free Lot Code</p>
SOT-26	<p>L: Lead Free G: Halogen Free</p>
DFN2030-6	<p>Date Code</p>

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	$V_{DSS}$	20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 8$	V
Drain Current (Note 3)	Continuous	$I_D$	6
	Pulsed	$I_{DM}$	20
Power Dissipation ( $T_A=25^\circ\text{C}$ ) (Note 2)	SOT-26	$P_D$	1.14
	SOP-8		1.6
	TSSOP-8		1.5
	DFN2030-6		1.47
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

- Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.  
 2. Repetitive Rating: Pulse width limited by maximum junction temperature.  
 3. Pulse Test : Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$ .

### ■ THERMAL DATA (Note)

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	SOT-26	110
		SOP-8	78
		TSSOP-8	83
		DFN2030-6	85

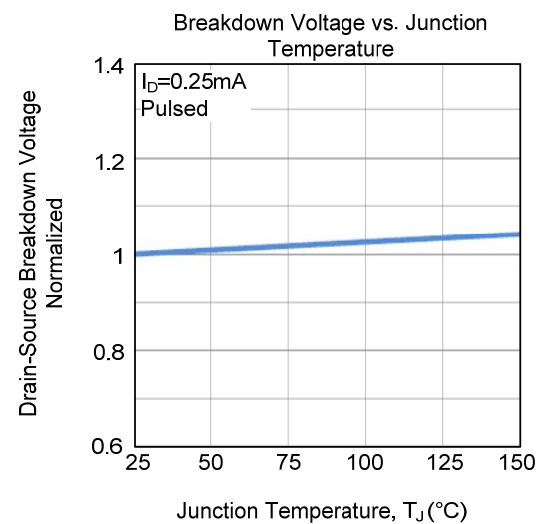
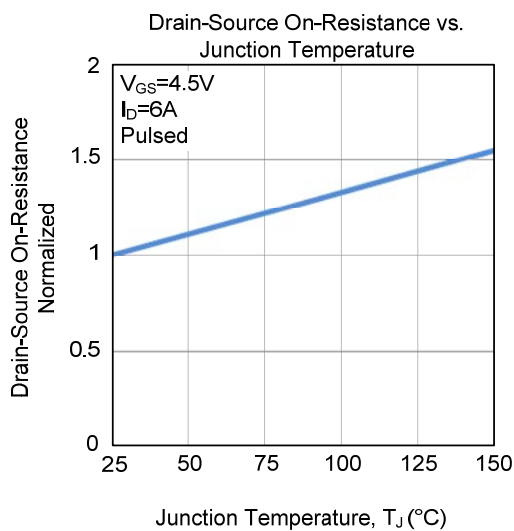
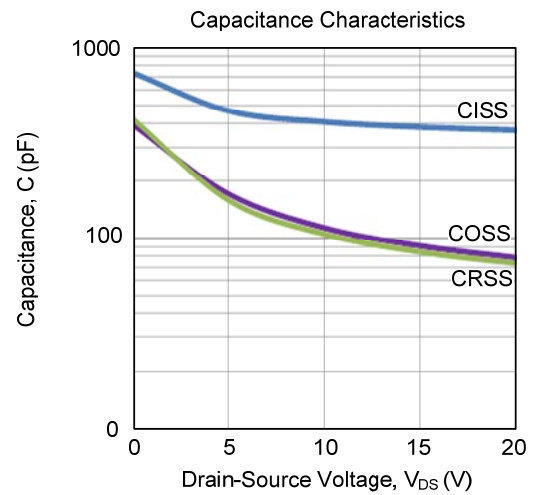
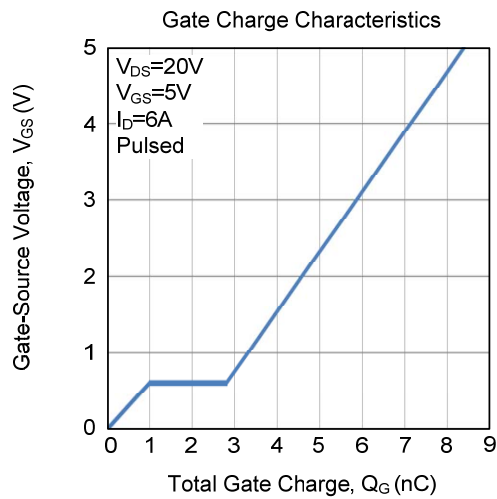
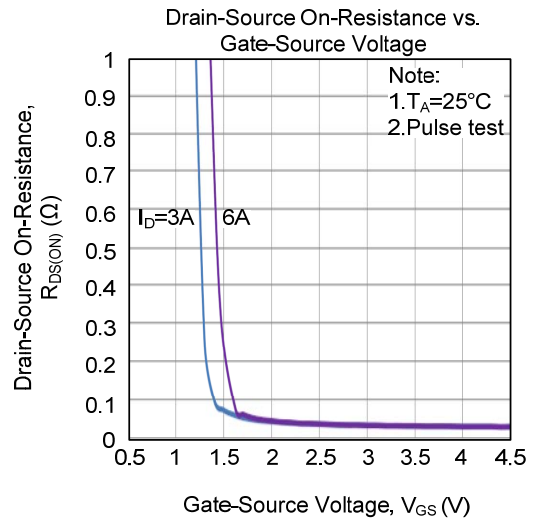
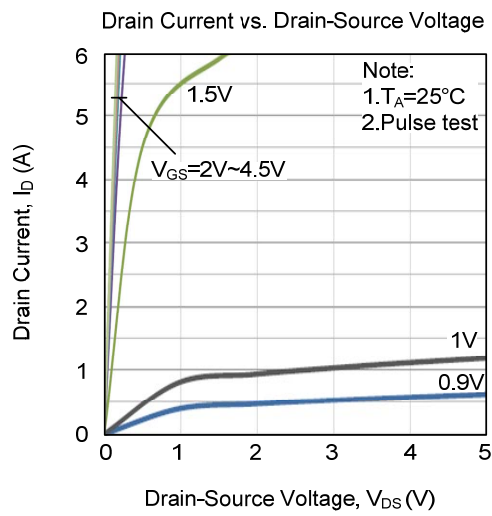
Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub> =25°C, unless otherwise specified)

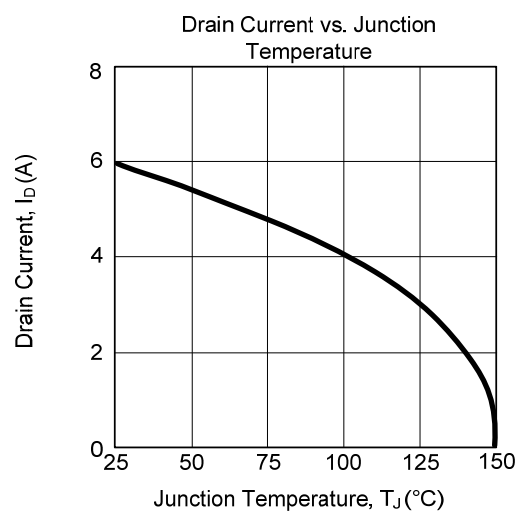
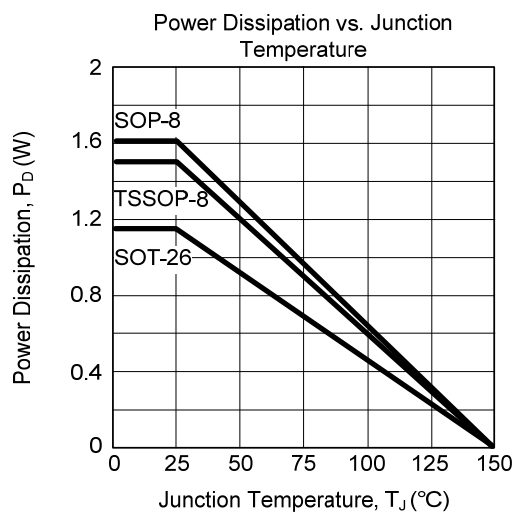
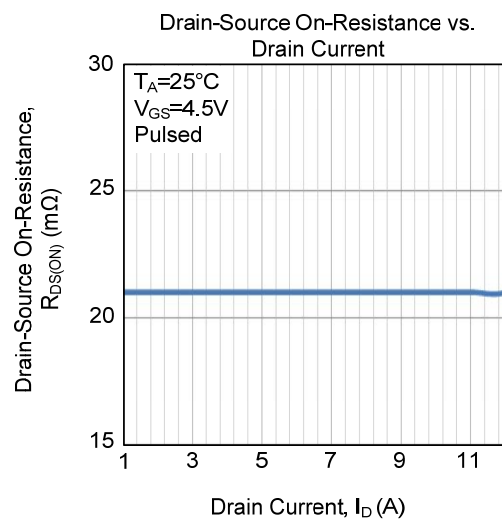
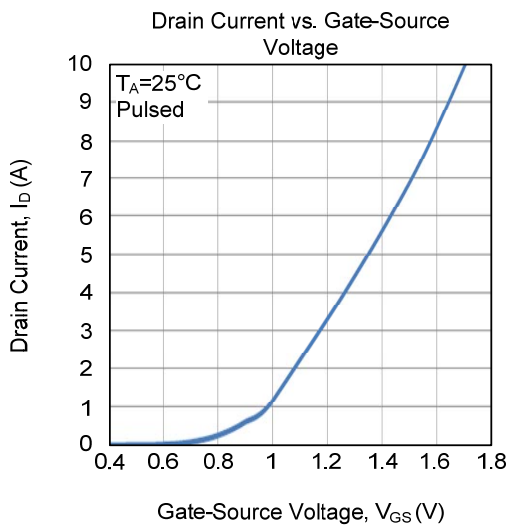
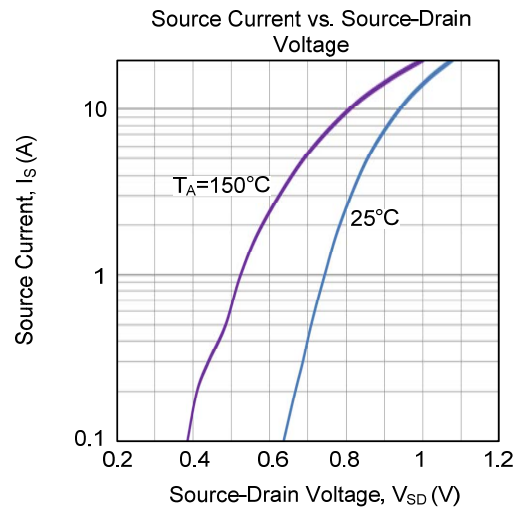
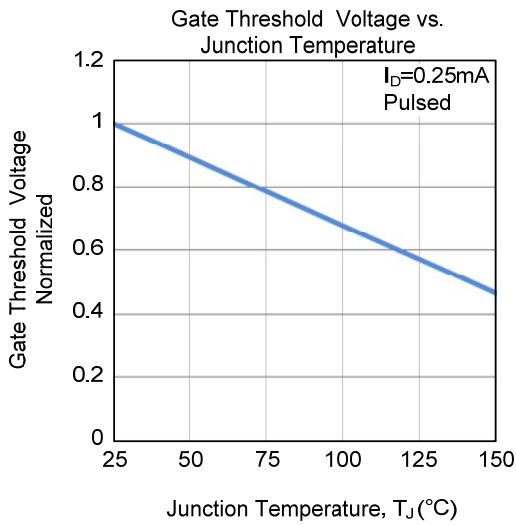
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Breakdown Voltage		BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20			V
Breakdown Voltage Temperature Coefficient		$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I <sub>D</sub> =1mA, Reference to 25°C		0.03		V/°C
Drain-Source Leakage Current		I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V,			1	μA
Gate-Source Leakage Current		I <sub>GSS</sub>	V <sub>GS</sub> =±8V			±100	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.5		1.5	V
Drain-Source On-State Resistance (Note)	SOT-26 TSSOP-8 DFN2030-6	R <sub>DS(ON)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =6.0A			28	mΩ
			V <sub>GS</sub> =2.5V, I <sub>D</sub> =5.2A			38	mΩ
	SOP-8		V <sub>GS</sub> =4.5V, I <sub>D</sub> =6.0A			32	mΩ
			V <sub>GS</sub> =2.5V, I <sub>D</sub> =5.2A			45	mΩ
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance		C <sub>ISS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, f=1.0MHz		370		pF
Output Capacitance		C <sub>OSS</sub>			78		pF
Reverse Transfer Capacitance		C <sub>RSS</sub>			73		pF
<b>SWITCHING PARAMETERS</b>							
Total Gate Charge(Note)		Q <sub>G</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =5V, I <sub>D</sub> =6.0A		8.4		nC
Gate Source Charge		Q <sub>GS</sub>			1		nC
Gate Drain Charge		Q <sub>GD</sub>			1.8		nC
Turn-ON Delay Time (Note)		t <sub>D(ON)</sub>	V <sub>GS</sub> =5V, V <sub>DS</sub> =10V, R <sub>D</sub> =10Ω, R <sub>G</sub> =6Ω, I <sub>D</sub> =6A		3.6		ns
Turn-ON Rise Time		t <sub>R</sub>			2.7		ns
Turn-OFF Delay Time		t <sub>D(OFF)</sub>			19		ns
Turn-OFF Fall-Time		t <sub>F</sub>			7.6		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>							
Drain-Source Diode Forward Voltage (Note)		V <sub>SD</sub>	I <sub>S</sub> =1.7A, V <sub>GS</sub> =0V			1.2	V
Diode Continuous Forward Current		I <sub>S</sub>	V <sub>D</sub> =V <sub>G</sub> , V <sub>S</sub> =1.3V			1.54	A

Note: Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

## TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS (Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.