

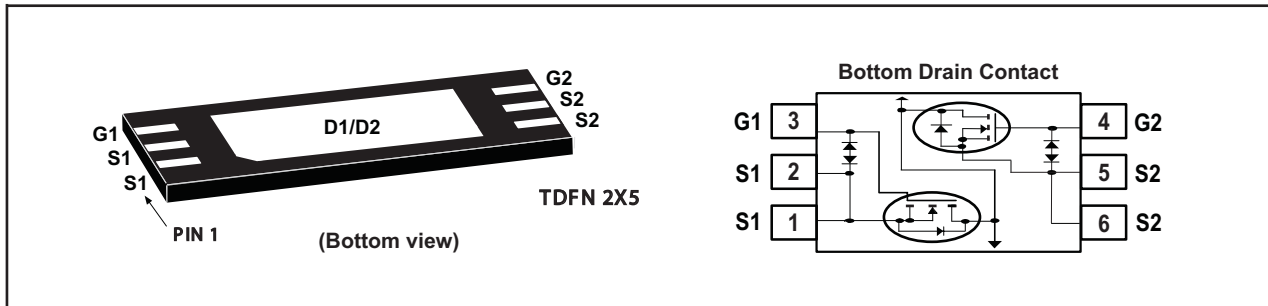


## Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V <sub>DSS</sub>	I <sub>D</sub>	R <sub>DS(ON)</sub> (mΩ) Max
20V	6.5A	22.0 @ V <sub>GS</sub> =4.5V
		23.0 @ V <sub>GS</sub> =4.0V
		24.0 @ V <sub>GS</sub> =3.7V
		27.5 @ V <sub>GS</sub> =3.1V
		33.5 @ V <sub>GS</sub> =2.5V

### FEATURES

- Super high dense cell design for low R<sub>DS(ON)</sub>.
- Rugged and reliable.
- Surface Mount Package.
- ESD Protected.



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Limit	Units
V <sub>DS</sub>	Drain-Source Voltage	20	V
V <sub>GS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub>	Drain Current-Continuous <sup>a</sup>	T <sub>A</sub> =25°C	6.5
		T <sub>A</sub> =70°C	5.2
I <sub>DM</sub>	-Pulsed <sup>b</sup>	40	A
P <sub>D</sub>	Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> =25°C	1.67
		T <sub>A</sub> =70°C	1.07
T <sub>J</sub> , T <sub>STG</sub>	Operating Junction and Storage Temperature Range	-55 to 150	°C

### THERMAL CHARACTERISTICS

R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient <sup>a</sup>	75	°C/W
------------------	--	----	------

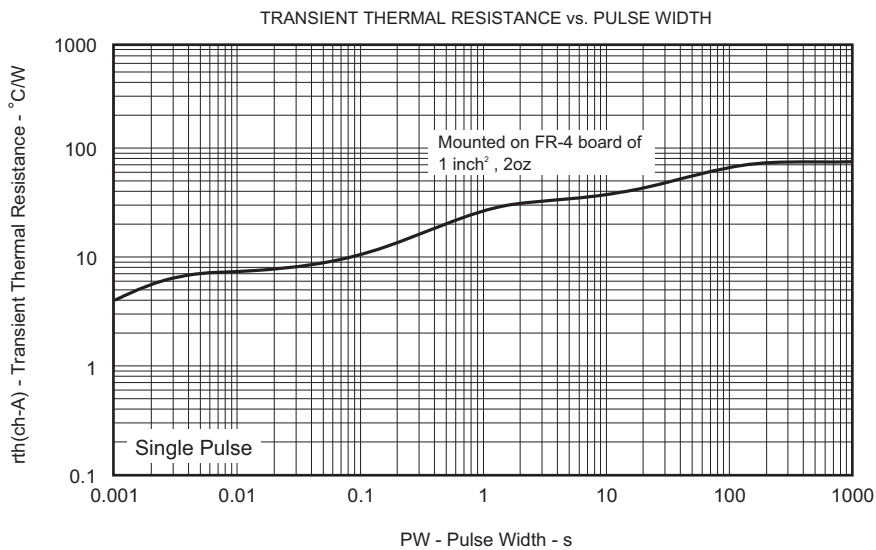
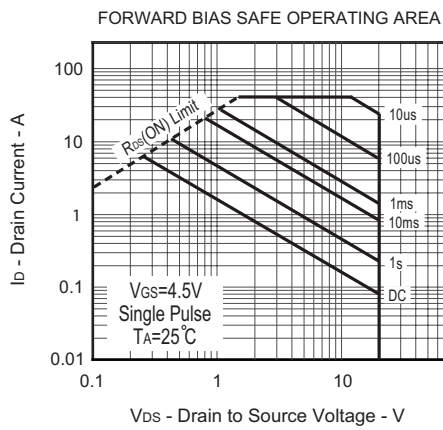
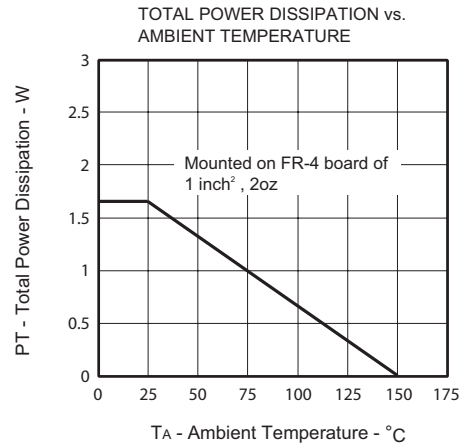
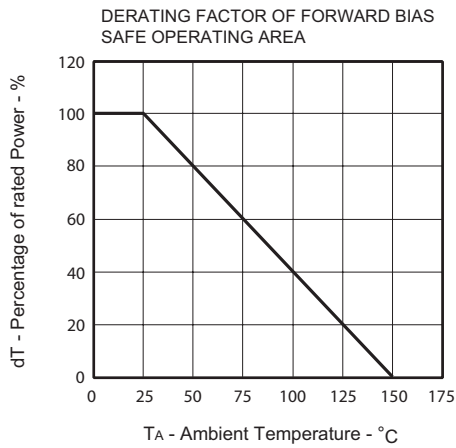
# STF8209A

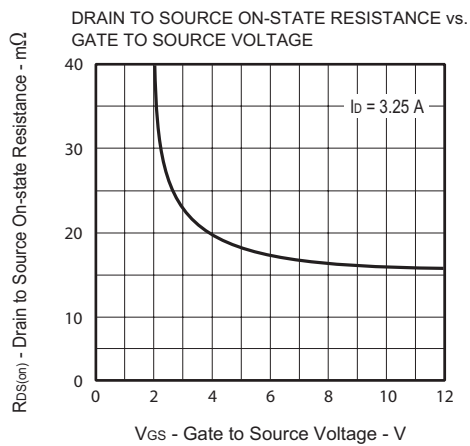
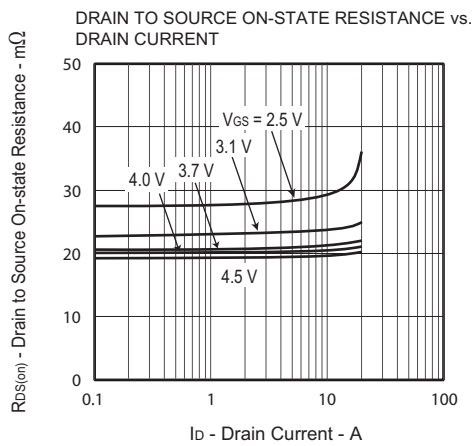
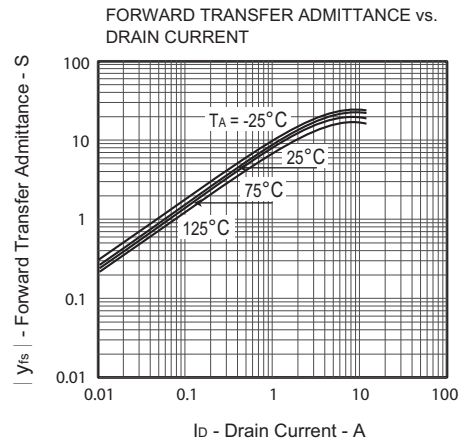
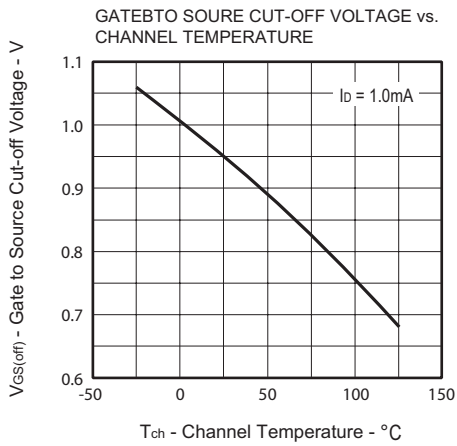
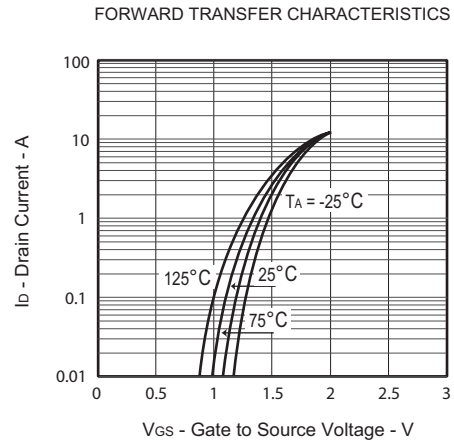
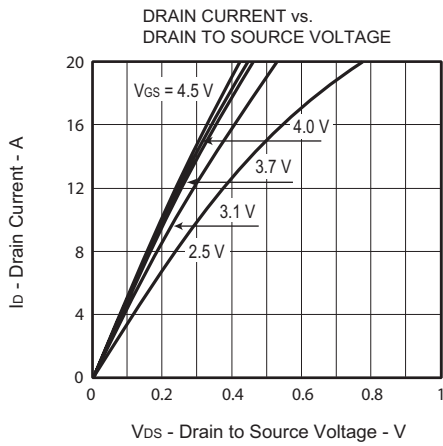
Ver 1.0

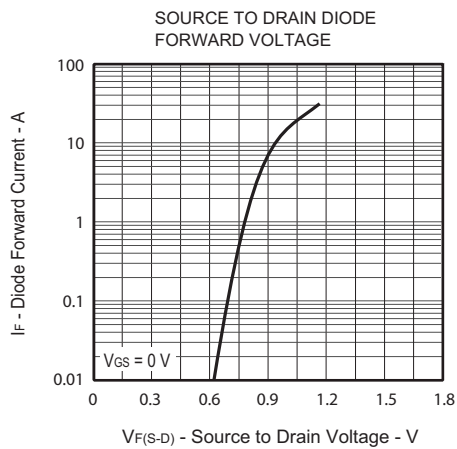
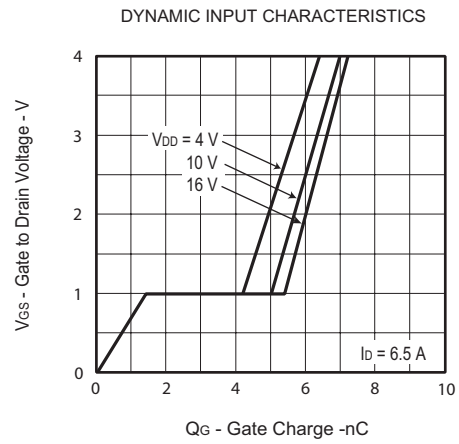
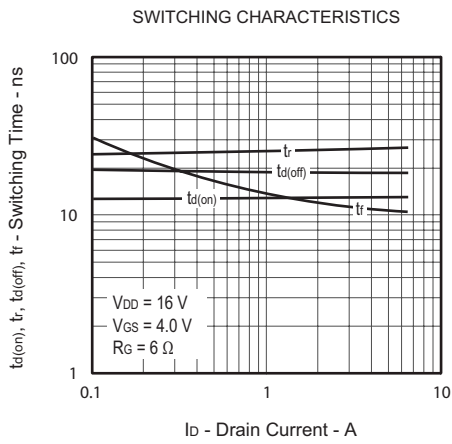
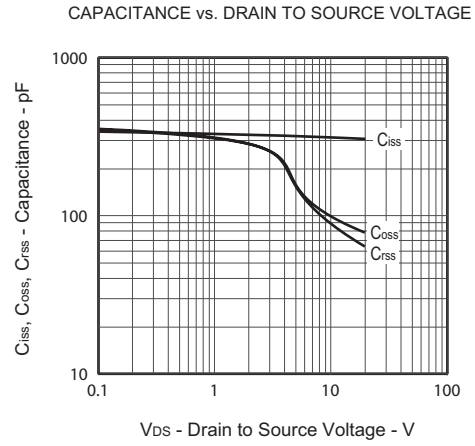
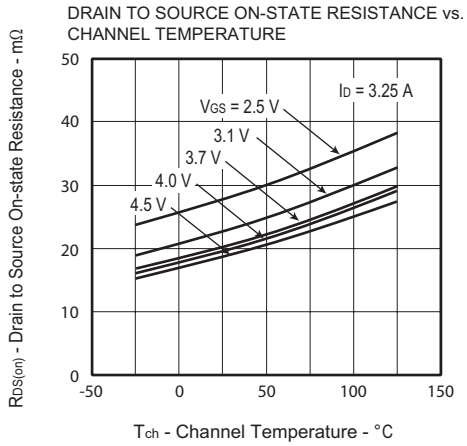
## ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =250uA	20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =18V , V <sub>GS</sub> =0V			1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±12V , V <sub>DS</sub> =0V			±10	uA
<b>ON CHARACTERISTICS</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1.0mA	0.5	0.95	1.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =4.5V , I <sub>D</sub> =3.25A	16	19	22	m ohm
		V <sub>GS</sub> =4.0V , I <sub>D</sub> =3.25A	17	20	23	m ohm
		V <sub>GS</sub> =3.7V , I <sub>D</sub> =3.25A	18	21	24	m ohm
		V <sub>GS</sub> =3.1V , I <sub>D</sub> =3.25A	19	23	27.5	m ohm
		V <sub>GS</sub> =2.5V , I <sub>D</sub> =3.25A	22	28	33.5	m ohm
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =5V , I <sub>D</sub> =3.25A		18		S
<b>DYNAMIC CHARACTERISTICS <sup>c</sup></b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V f=1.0MHz		320		pF
C <sub>OSS</sub>	Output Capacitance			106		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			92		pF
<b>SWITCHING CHARACTERISTICS <sup>c</sup></b>						
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> =16V I <sub>D</sub> =3.25A V <sub>GS</sub> =4.0V R <sub>GEN</sub> = 6 ohm		13.5		ns
t <sub>r</sub>	Rise Time			30		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			19		ns
t <sub>f</sub>	Fall Time			13.5		ns
Q <sub>g</sub>	Total Gate Charge				7.2	
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =16V, I <sub>D</sub> =6.5A, V <sub>GS</sub> =4.0V		1.4		nC
Q <sub>gd</sub>	Gate-Drain Charge			4		nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =6.5A		0.89	1.2	V
<b>Notes</b>						
a.Surface Mounted on FR4 Board, t ≤ 10sec.						
b.Pulse Test:Pulse Width ≤ 10us, Duty Cycle ≤ 1%.						
c.Guaranteed by design, not subject to production testing.						

Jul,06,2011







## PACKAGE OUTLINE DIMENSIONS

