FS8205A

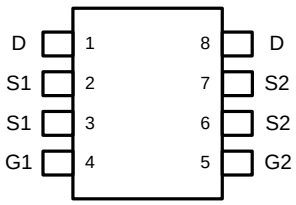
Dual N-Channel Enhancement Mode MOSFET

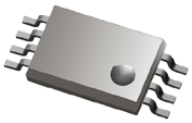
Features

- 20V/6A,
  $R_{DS(ON)}$<25mΩ @ V_{GS}=4.5V
  $R_{DS(ON)}$ <34mΩ @ V_{GS}=2.5V
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

Pin Description

Top View

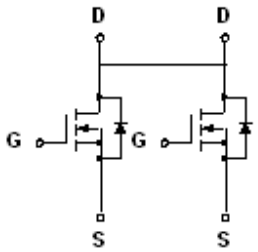




TSSOP-8

Applications

- Portable Equipment and Battery Powered Systems.



N Channel MOSFET

Absolute Maximum Ratings (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±8	
I_D*	Continuous Drain Current	V_{GS}=4.5V	6	A
I_{DM}*	300μs Pulsed Drain Current		20	
I_S*	Diode Continuous Forward Current		1	A
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	
P_D*	Maximum Power Dissipation	T_A=25°C	1.25	W
		T_A=100°C	0.5	
$R_{\theta JA}$*	Thermal Resistance-Junction to Ambient		100	°C/W

Notes：

*Surface Mounted on 1in^2 pad area, t ≤ 10sec.

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	8205A			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V, V_{GS}=0V			1	μA
		T_J=85°C			30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	0.5	0.7	1.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±8V, V_{DS}=0V			±100	nA
$R_{DS(ON)}$ [a]	Drain-Source On-state Resistance	V_{GS}=4.5V, I_{DS}=6A		20	25	mΩ
		V_{GS}=2.5V, I_{DS}=5.2A		27	34	
Diode Characteristics						
V_{SD} [a]	Diode Forward Voltage	I_{SD}=1A, V_{GS}=0V		0.8	1.3	V
t_{rr}	Reverse Recovery Time	I_{DS}=6A, dI_{SD}/dt=100A/μs		14		ns
Q_{rr}	Reverse Recovery Charge			5		nC

Electrical Characteristics (Cont.) (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	8205A			Unit
			Min.	Typ.	Max.	
Dynamic Characteristics [b]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		5.5		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, Frequency=1.0MHz		595		pF
C_{oss}	Output Capacitance			140		
C_{rss}	Reverse Transfer Capacitance			125		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=10V, R_L=10Ω, I_{DS}=1A, V_{GEN}=4.5V, R_G=6Ω		3.5	7	ns
T_r	Turn-on Rise Time			13.5	25	
$t_{d(OFF)}$	Turn-off Delay Time			32	58	
T_f	Turn-off Fall Time			6.6	13	
Gate Charge Characteristics [b]						
Q_g	Total Gate Charge	I_{DS}=6A, dI_{SD}/dt=100A/μs		21	29	nC
Q_{gs}	Gate-Source Charge			1.3		
Q_{gd}	Gate-Drain Charge			3.3		

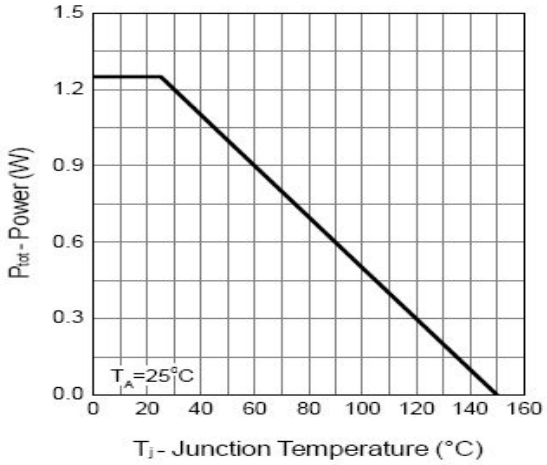
Notes：

a : Pulse test ; pulse width≤300μs, duty cycle≤2%.

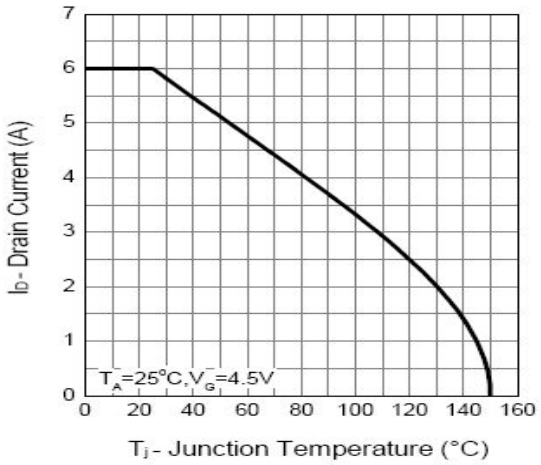
b : Guaranteed by design, not subject to production testing.

Typical Characteristics

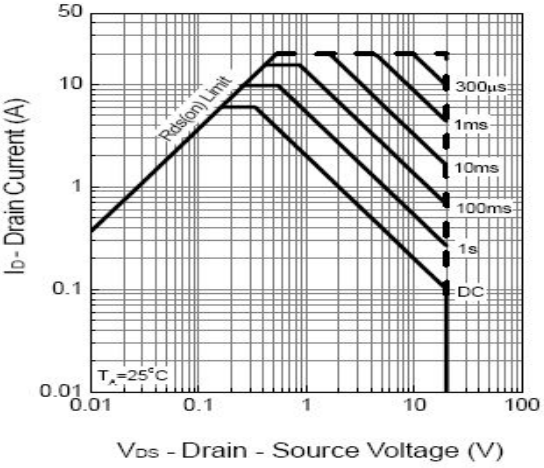
Power Dissipation



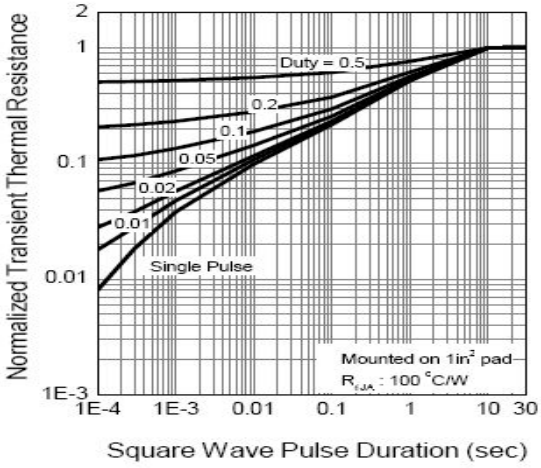
Drain Current



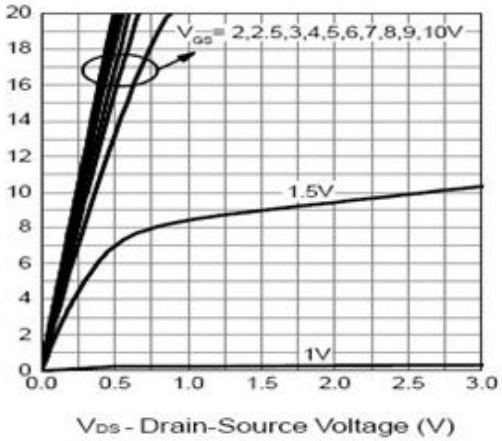
Safe Operation Area



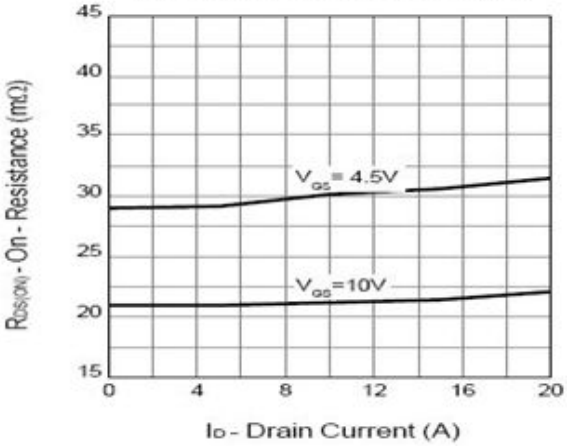
Thermal Transient Impedance



Output Characteristics

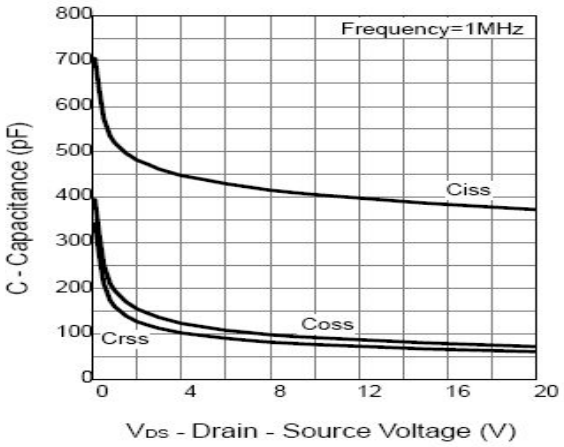


Drain-Source On Resistance

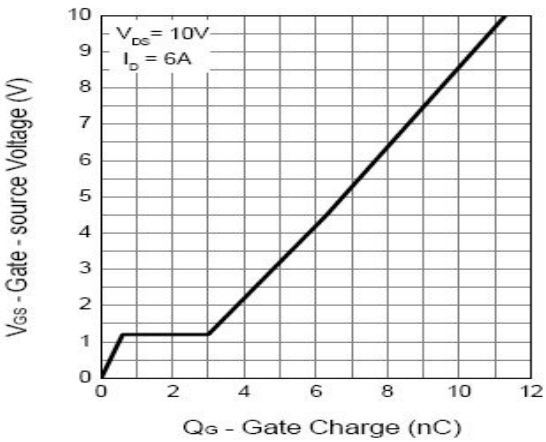


Typical Characteristics

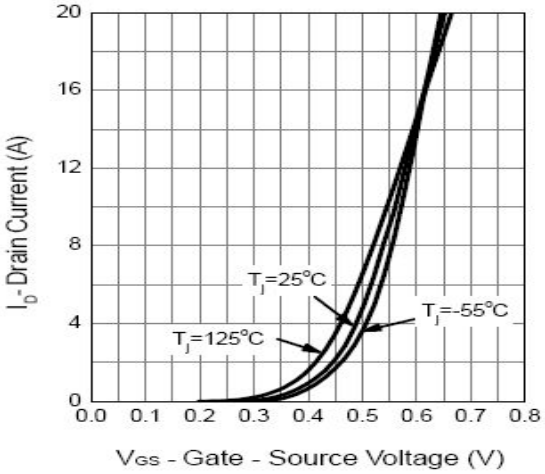
Capacitance



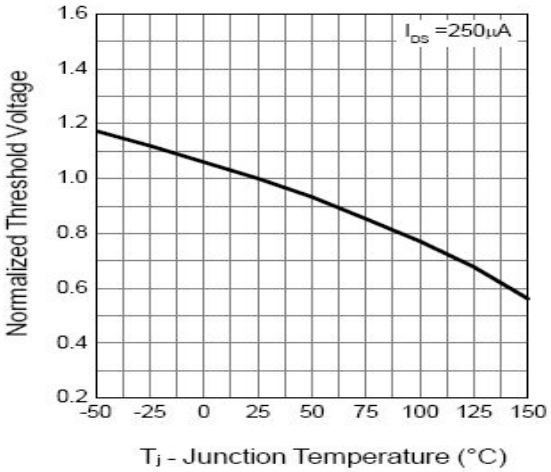
Gate Charge



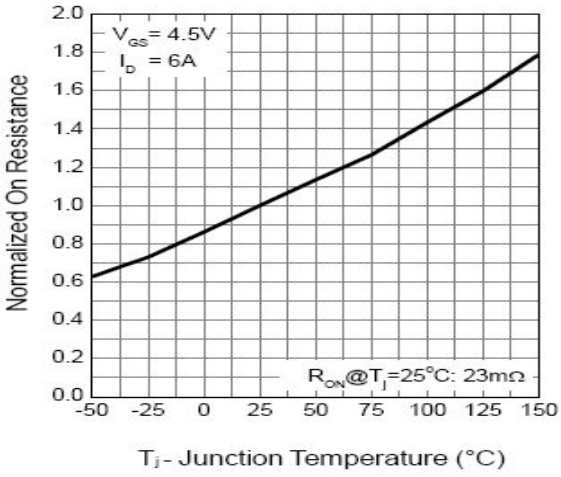
Transfer Characteristics



Gate Threshold Voltage



Drain-Source On Resistance



Source-Drain Diode Forward