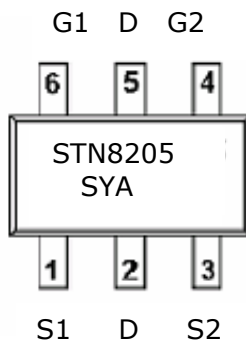


**DESCRIPTION**

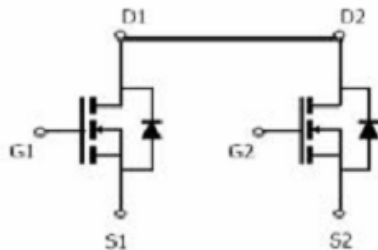
STN8205D is the dual N-Channel enhancement mode power field effect transistor which is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, such as notebook computer power management and other battery powered circuits, where high-side switching is required.

**PIN CONFIGURATION**
**TSOP-6**


**S:** Subcontractor

**Y:** Year

**A:** Week Code


**FEATURE**

- 20V/4.0A,  $R_{DS(ON)} = 30\text{m-ohm}@V_{GS} = 4.5\text{V}$
- 20V/3.4A,  $R_{DS(ON)} = 42\text{m-ohm}@V_{GS} = 2.5\text{V}$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional low on-resistance and maximum DC current capability
- TSOP-6 package design

**ORDERING INFORMATION**

Part Number	Package	Part Marking
STN8205DST6RG	TSOP-6	SYA

※ Week Code Code : A ~ Z(1~26) ; a ~ z(27~52)

※ ST8205DST6RG ST6 : TSOP-6; R: Tape Reel ; G: Pb - Free

STANSON TECHNOLOGY

120 Bentley Square, Mountain View, Ca 94040 USA

<http://www.stansontech.com>

**STN8205D**

Dual N Channel Enhancement Mode MOSFET

**5.0A****ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C Unless otherwise noted )

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	20	V
Gate-Source Voltage	V <sub>GSS</sub>	+/-20	V
Continuous Drain Current (T <sub>J</sub> =150°C)	I <sub>D</sub>	5.0	A
		3.4	
Pulsed Drain Current	I <sub>DM</sub>	20	A
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	2	A
Power Dissipation	P <sub>D</sub>	1.15	W
		0.75	
Operation Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	100	°C/W



**STN8205D**



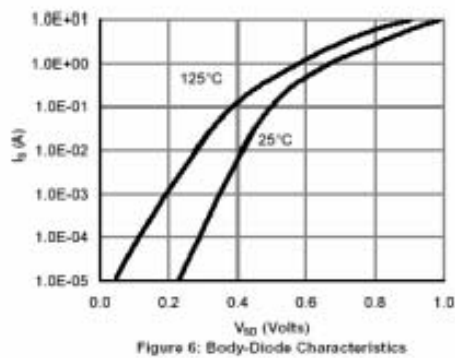
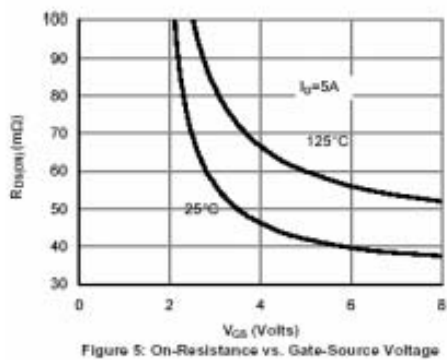
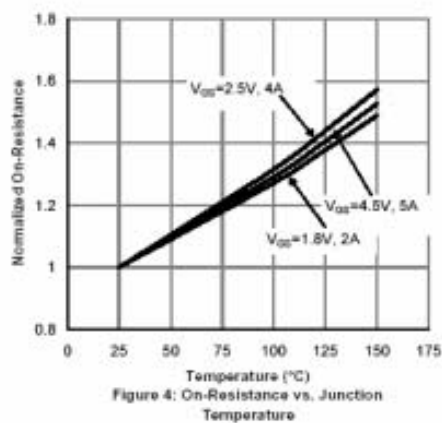
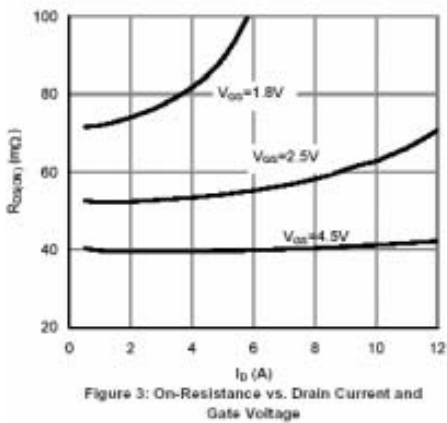
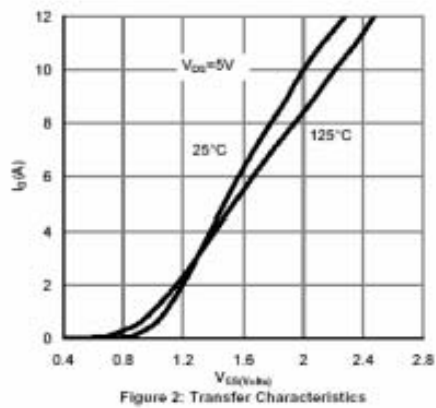
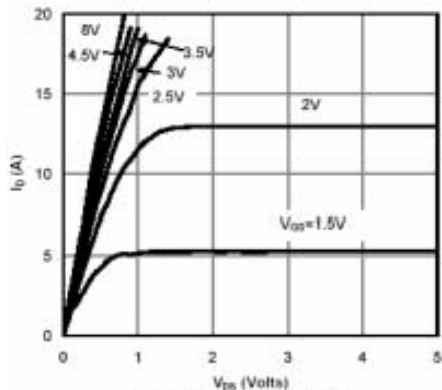
Dual N Channel Enhancement Mode MOSFET

**5.0A**

**ELECTRICAL CHARACTERISTICS ( Ta = 25°C Unless otherwise noted )**

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6		1.2	V
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=+/-20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$			1	uA
		$V_{DS}=20V, V_{GS}=0V$ $T_J=85^\circ C$			5	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq 5V, V_{GS}=4.5V$	5			A
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=4.0A$		0.025	0.030	$\Omega$
		$V_{GS}=2.5V, I_D=3.4A$		0.037	0.042	
Forward Transconductance	$g_{fs}$	$V_{DS}=5V, I_D=3.6A$		13		S
Diode Forward Voltage	$V_{SD}$	$I_S=1.6A, V_{GS}=0V$		0.8	1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, V_{DS}=2.8A$		10.5		nC
Gate-Source Charge	$Q_{gs}$			2.0		
Gate-Drain Charge	$Q_{gd}$			2.5		
Input Capacitance	$C_{iss}$	$V_{DS}=8V, V_{GS}=0V$ $f=1MHz$		805		pF
Output Capacitance	$C_{oss}$			155		
Reverse Transfer Capacitance	$C_{rss}$			122		
Turn-On Time	$T_{d(on)}$	$V_{DD}=10V, R_L=10\Omega, I_D=4.0A,$ $V_{GEN}=4.5V, R_G=6\Omega$		18		nS
	$t_r$			5		
Turn-Off Time	$T_{d(off)}$			45		
	$t_f$			22		

**TYPICAL CHARACTERISTICS**



**TYPICAL CHARACTERISTICS**

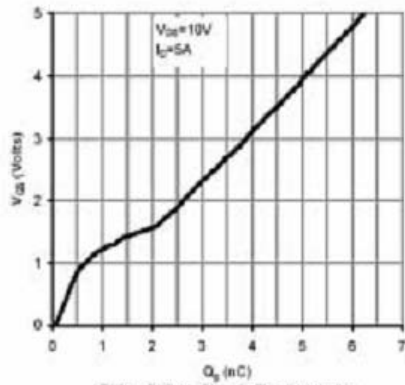


Figure 7: Gate-Charge Characteristics

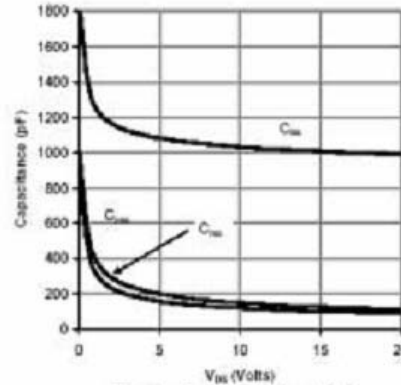


Figure 8: Capacitance Characteristics

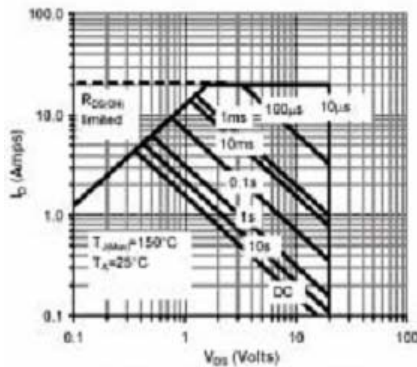


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

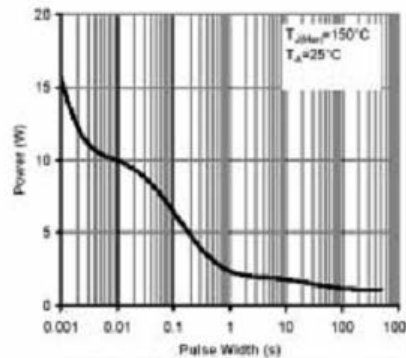


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

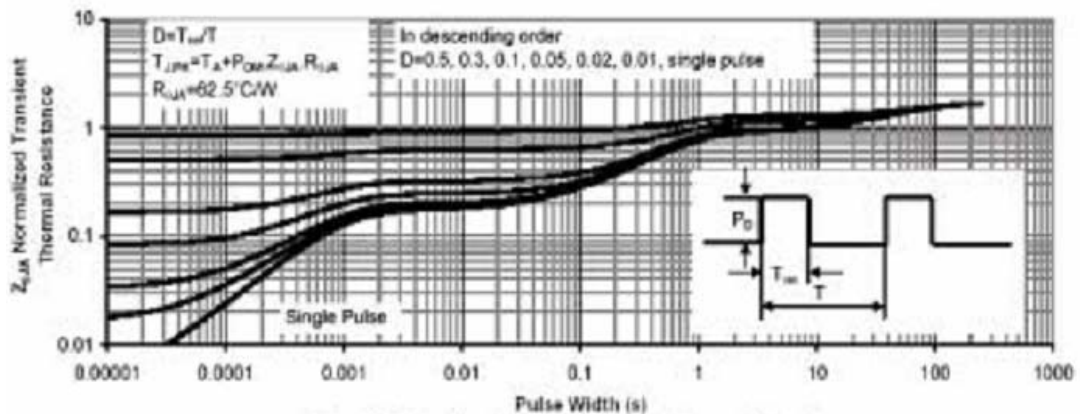
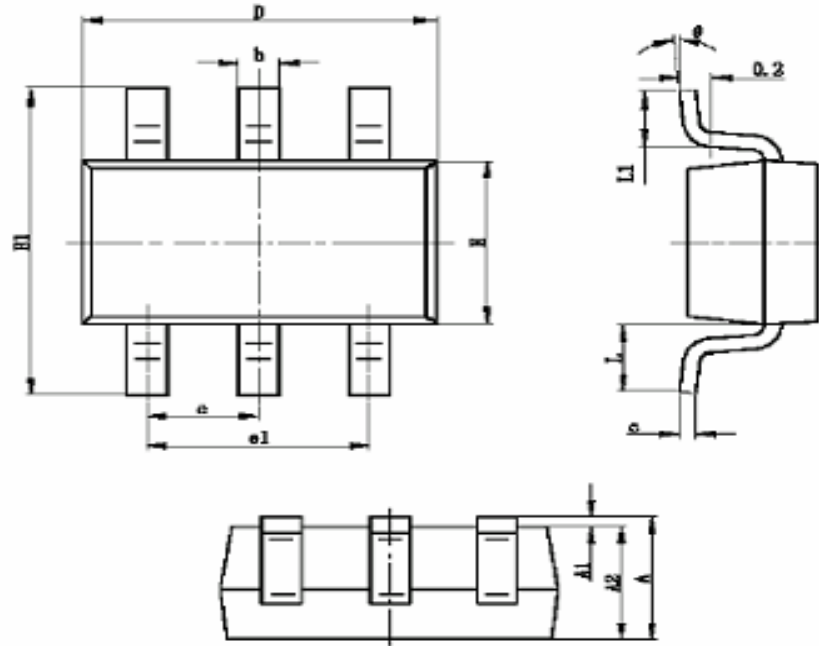


Figure 11: Normalized Maximum Transient Thermal Impedance

**TSOP-6 PACKAGE OUTLINE**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°