Elektronische Bauelemente

STT8205S

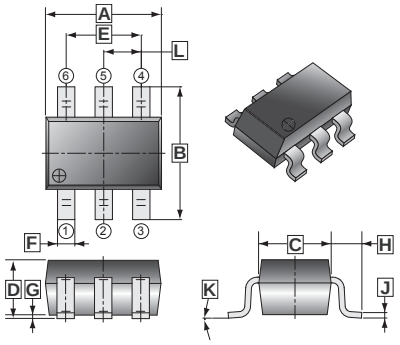
6A, 20V, $R_{DS(ON)}$ 28mΩ
N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The STT8205S provide the designer with best combination of fast switching, low on-resistance and cost-effectiveness. The TSOP-6 package is universally used for all commercial-industrial surface mount applications.

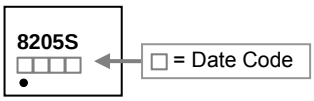
TSOP-6



FEATURES

- Low on-resistance
- Capable of 2.5V gate drive
- Low drive current

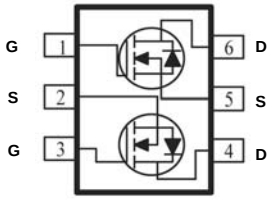
MARKING CODE



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60 REF.	
C	1.40	1.80	J	0.12 REF.	
D	1.10 MAX.		K	0°	10°
E	1.90 REF.		L	0.95 REF.	
F	0.30	0.50			

PACKAGE INFORMATION

Package	MPQ	LeaderSize
TSOP-6	3K	7' inch



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current [3]	V_{GS}=4.5V, T_A = 25°C	I_D	6	A
	V_{GS}=4.5V, T_A = 70°C		4.8	
Pulsed Drain Current [1]		I_{DM}	20	A
Power Dissipation		P_D	1.14	W
Maximum Junction to Ambient [3]		$R_{\theta JA}$	110	°C / W
Linear Derating Factor			0.01	W / °C
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	°C

ELECTRICAL CHARACTERISTICS (T_j = 25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test condition
Static							
Drain-Source Breakdown Voltage		BV_{DSS}	20	-	-	V	V_{GS}=0V, I_D=250μA
Breakdown Voltage Temp. Coefficient		$\triangle BV_{DS}/\triangle T_j$	-	0.03	-	V / °C	Reference to 25°C, I_D=1mA
Gate-Threshold Voltage		$V_{GS(th)}$	0.5	-	1.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer Conductance		G_{fs}	-	20	-	S	V_{DS}=10V, I_D=6A
Gate-Body Leakage		I_{GSS}	-	-	±100	nA	V_{GS}=±10V
Zero Gate Voltage Drain Current	T_j =25°C	I_{DSS}	-	-	1	μA	V_{DS}=16V,V_{GS}=0
	T_j =75°C		-	-	25	μA	V_{DS}=16V,V_{GS}=0
Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	28	mΩ	V_{GS}=4.5V, I_D=6A
			-	-	38		V_{GS}=2.5V, I_D=5.2A
Total Gate Charge [2]		Q_g	-	23	-	nC	I_D=6A V_{DS}=20V V_{GS}=5V
Gate-Source Charge		Q_{gs}	-	4.5	-		
Gate-Drain (“Miller”) Charge		Q_{gd}	-	7	-		
Turn-On Delay Time [2]		$T_{d(on)}$	-	30	-	nS	V_{DS}=10V I_D=1A V_{GS}=5V R_G=6Ω R_D=10Ω
Rise Time		T_r	-	70	-		
Turn-Off Delay Time		$T_{d(off)}$	-	40	-		
Fall Time		T_f	-	65	-		
Input Capacitance		C_{iss}	-	1035	-	pF	V_{GS}=0 V_{DS}=20V f=1.0MHz
Output Capacitance		C_{oss}	-	320	-		
Reverse Transfer Capacitance		C_{rss}	-	150	-		
Source-Drain Diode							
Forward On Voltage [2]		V_{DS}	-	-	1.2	V	I_S=1.7A, V_{GS}=0

Notes:
1 Pulse width limited by Max. junction temperature.
2 Pulse width≦300us, duty cycle≦2%.
3 Surface mounted on 1 in^2 copper pad of FR4 board; t≦5 sec. 180°C/W when mounted on min. copper pad.

CHARACTERISTICS CURVE

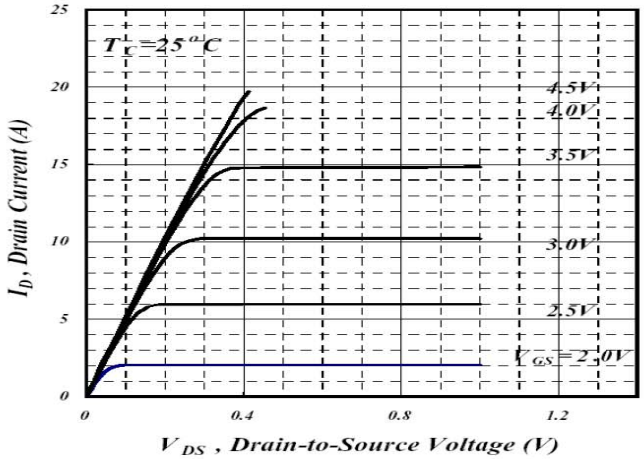


Fig 1. Typical Output Characteristics

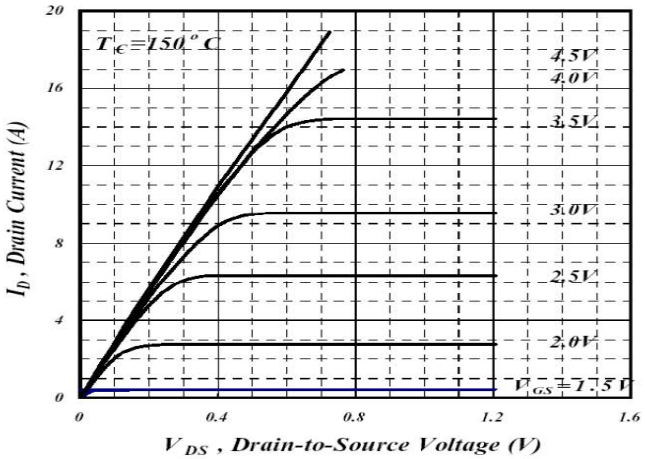


Fig 2. Typical Output Characteristics

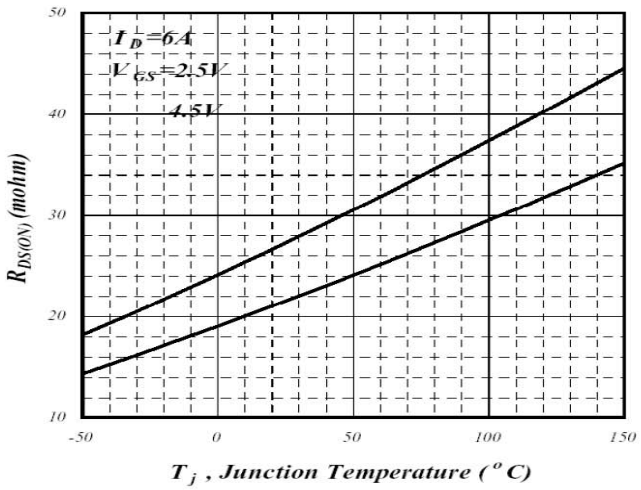


Fig 3. R_{DSON} vs. Junction Temperature

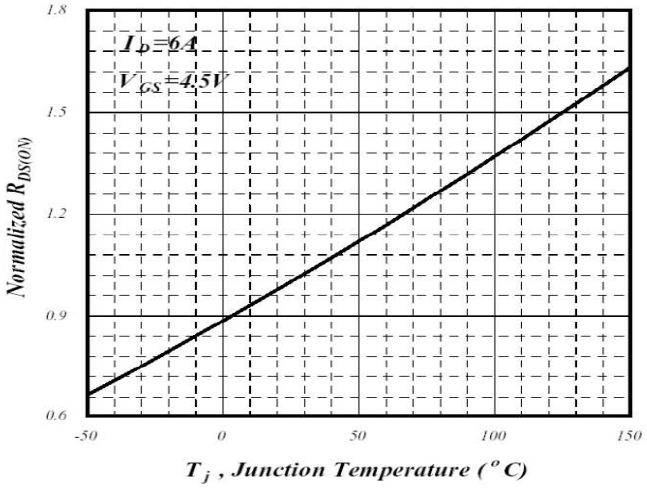


Fig 4. Normalized On-Resistance vs. Junction Temperature

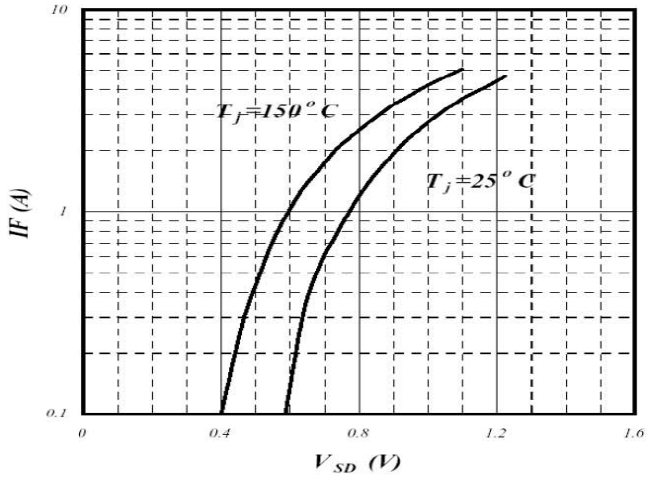


Fig 5. Forward Characteristics of Reverse Diode

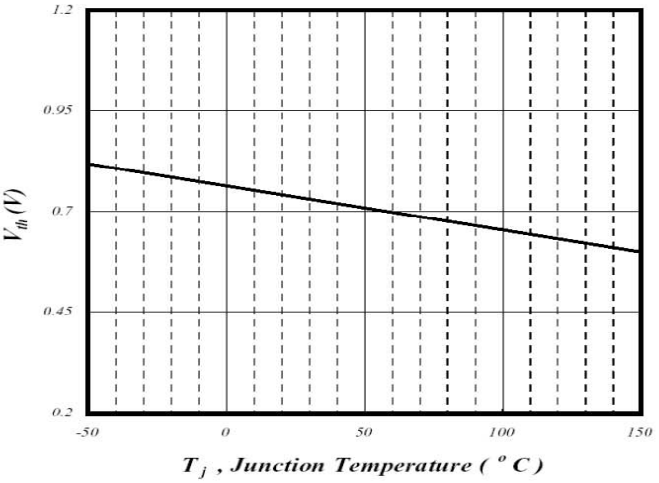


Fig 6. Gate Threshold Voltage vs. Junction Temperature

CHARACTERISTICS CURVE

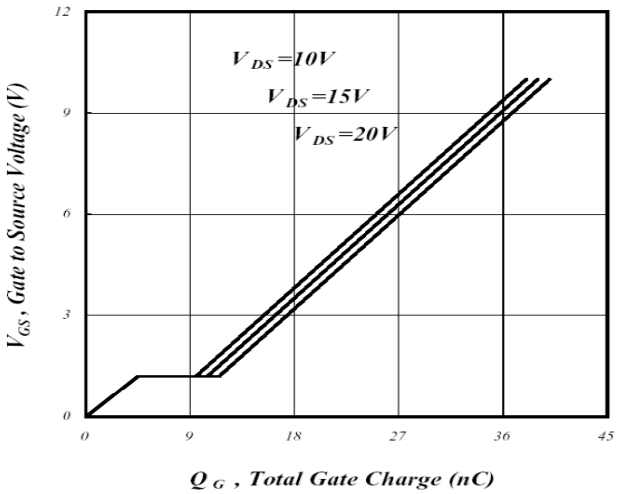


Fig 7. Gate Charge Characteristics

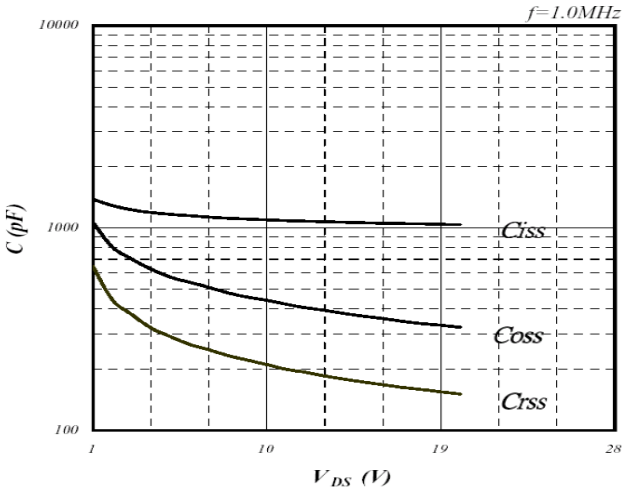


Fig 8. Typical Capacitance Characteristics

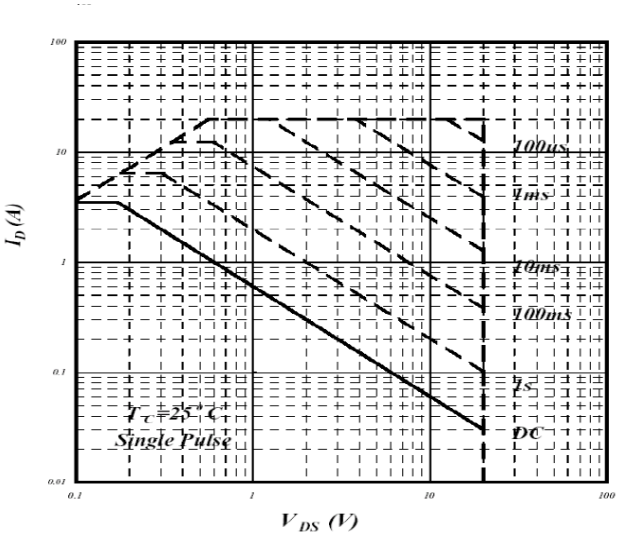


Fig 9. Maximum Safe Operating Area

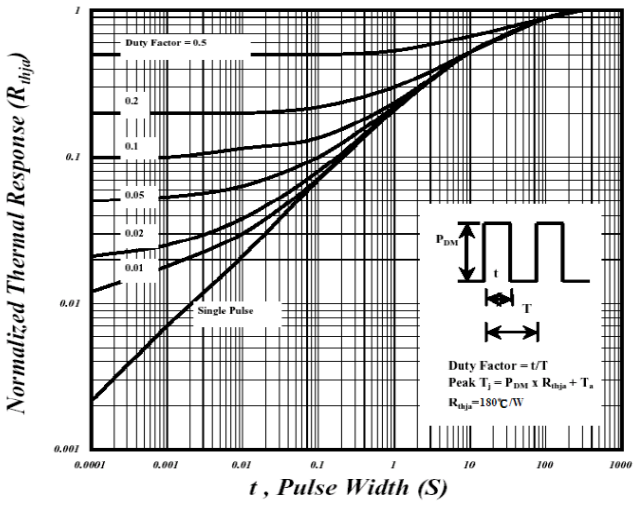


Fig 10. Effective Transient Thermal Impedance

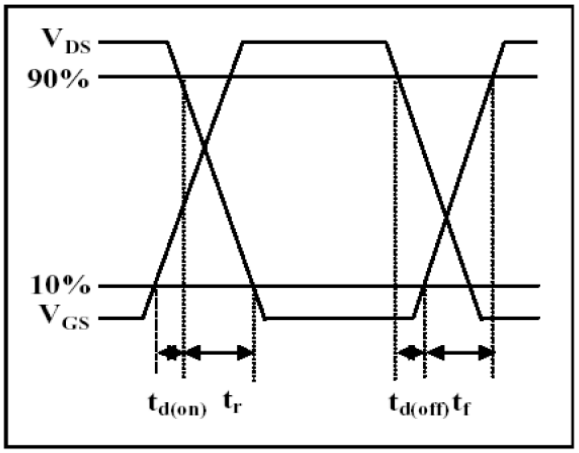


Fig 11. Switching Time Waveform

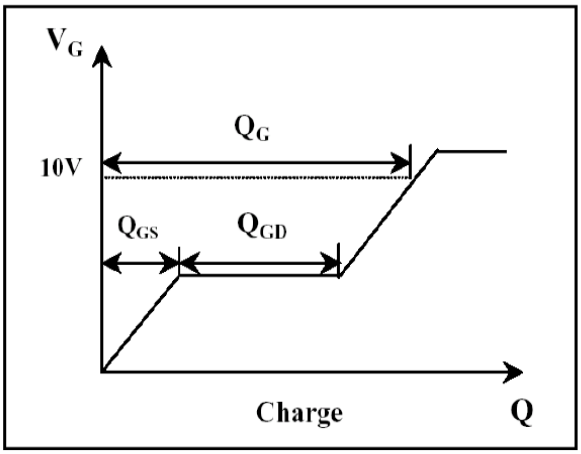


Fig 12. Gate Charge Waveform