

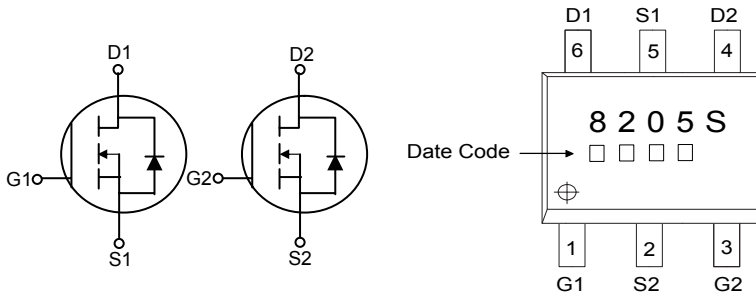
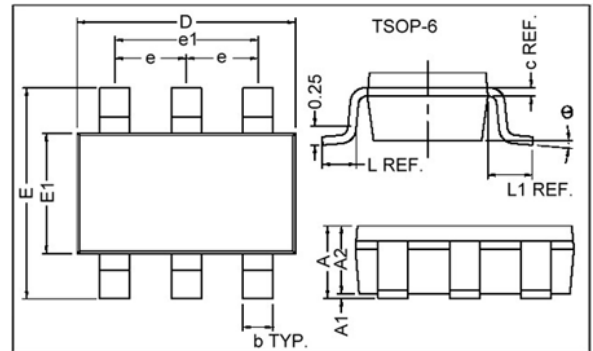
RoHS Compliant Product

Description

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

Features

- * Low Drive Current
- * Low On-Resistance
- * Capable of 2.5V Gate Drive



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.10	MAX.	L	0.45	REF.
A1	0	0.10	L1	0.60	REF.
A2	0.70	1.00		0°	10°
c	0.12	REF.	b	0.30	0.50
D	2.70	3.10	e	0.95	REF.
E	2.60	3.00	e1	1.90	REF.
E1	1.40	1.80			

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current ³ , $V_{GS}@4.5V$	$I_D@T_A=25^\circ C$	6	A
Continuous Drain Current ³ , $V_{GS}@4.5V$	$I_D@T_A=70^\circ C$	4.8	A
Pulsed Drain Current ¹	I_{DM}	20	A
Total Power Dissipation	$P_D@T_A=25^\circ C$	1.14	W
Linear Derating Factor		0.01	$W/^\circ C$
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55~+150	$^\circ C$

Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient ³ (Max)	R_{thj-a}	110	$^\circ C/W$

Electrical Characteristics(T_J=25 $^{\circ}$ C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV _{DSS}	20	-	-	V	V _{GS} =0V, I _D = 250uA
Breakdown Voltage Temp. Coefficient	$\Delta BV_{DS}/\Delta T_j$	-	0.03	-	V/ $^{\circ}$ C	Reference to 25 $^{\circ}$ C, I _D = 1mA
Gate Threshold Voltage	V _{GS(th)}	0.5	-	1.5	V	V _{DS} =V _{GS} , I _D =250uA
Gate-Source Leakage Current	I _{GSS}	-	-	± 100	μ A	V _{GS} = ± 8 V
Drain-Source Leakage Current (T _J =25 $^{\circ}$ C)	I _{DSS}	-	-	1	μ A	V _{DS} =20V, V _{GS} =0
Drain-Source Leakage Current (T _J =70 $^{\circ}$ C)		-	-	25	μ A	V _{DS} = 16V, V _{GS} =0
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	28	m Ω	V _{GS} =4.5 V, I _D =6A
		-	-	38		V _{GS} =2.5V, I _D =5.2A
Total Gate Charge ²	Q _g	-	23	-	nC	I _D =6 A 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 _{DD} = 10V I _D = 1 A V _{GS} =5 V R _G =6 Ω R _D =10 Ω
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} =0V V _{DS} =20V f=1.0MHz
Output Capacitance	C _{oss}	-	320	-		
Reverse Transfer Capacitance	C _{rss}	-	150	-		
Forward Transconductance	G _{fs}	-	20	-	S	V _{DS} =10V, I _D =6 A

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Forward On Voltage ²	V _{SD}	-	-	1.2	V	I _S =1.7 A, V _{GS} =0V.

Notes: 1.Pulse width limited by Max. junction temperature.

2.Pulse width $\leq 300\mu$ s, dutycycle $\leq 2\%$.

3.Surface mounted on 1 in²copper pad of FR4 board; 180 $^{\circ}$ C/W when mounted on min. copper pad.

Characteristics Curve

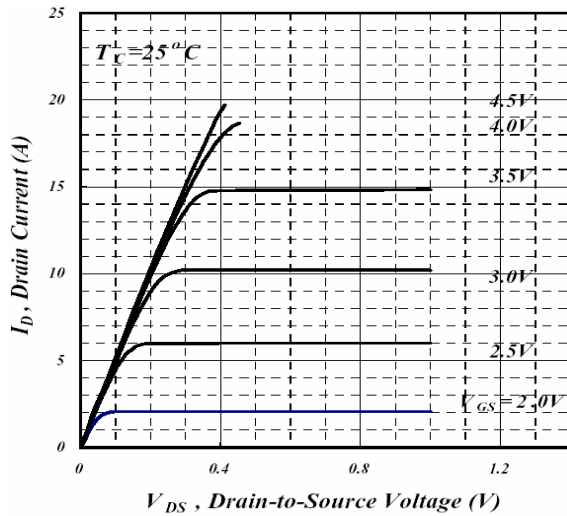


Fig 1. Typical Output Characteristics

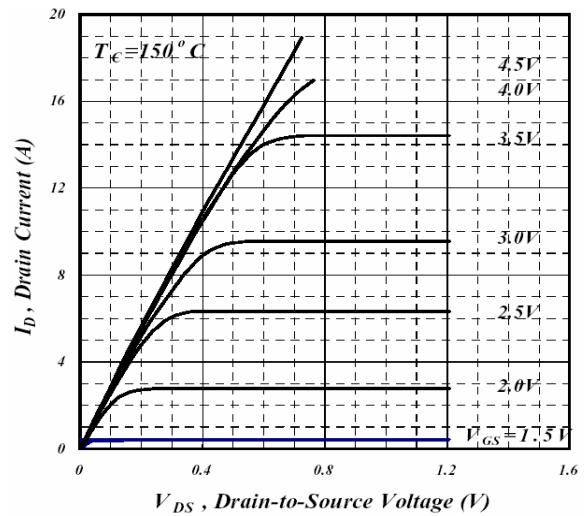


Fig 2. Typical Output Characteristics

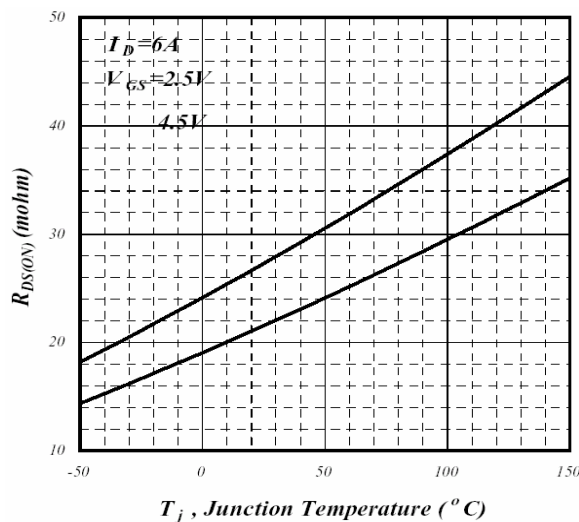


Fig 3. $R_{DS(ON)}$ v.s. Junction Temperature

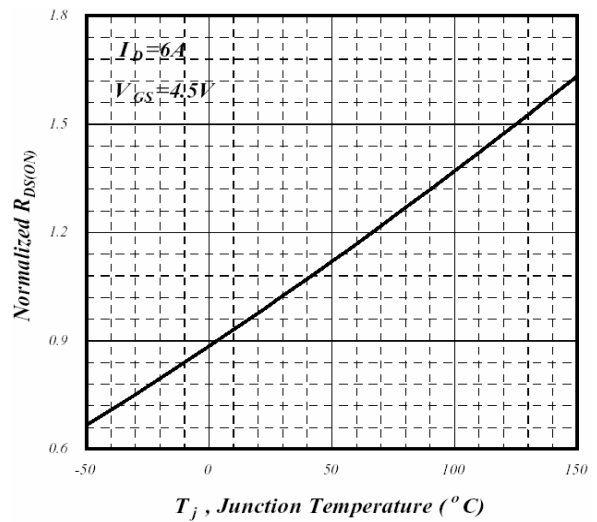


Fig 4. Normalized On-Resistance v.s. Junction Temperature

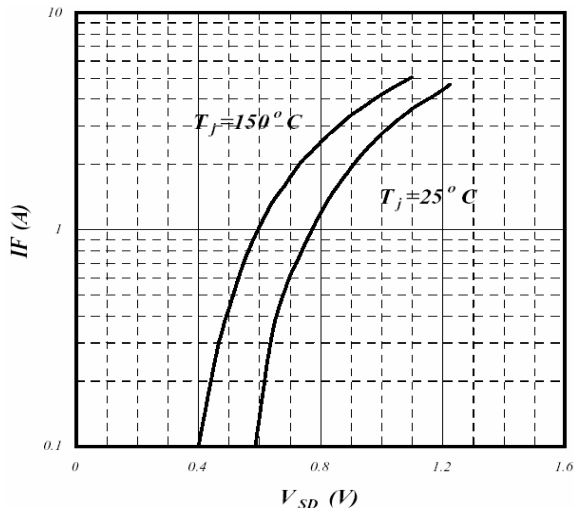


Fig 5. Forward Characteristics of Reverse Diode

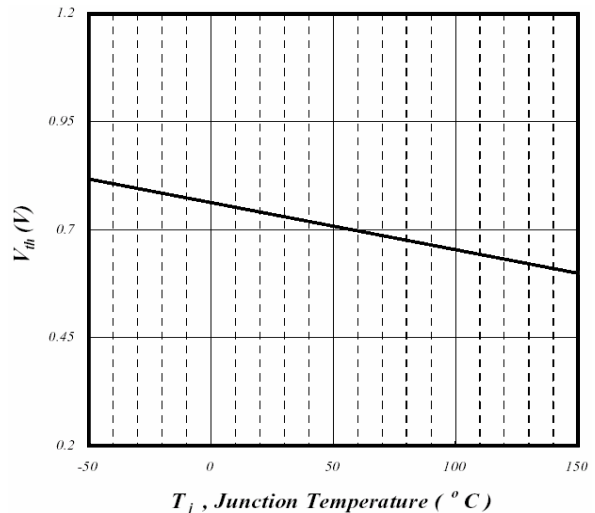
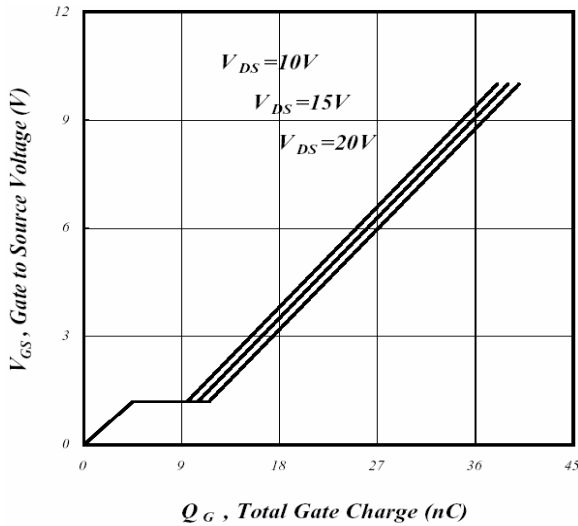


Fig 6. Gate Threshold Voltage v.s. Junction Temperature



Q_G , Total Gate Charge (nC)
Fig 7. Gate Charge Characteristics

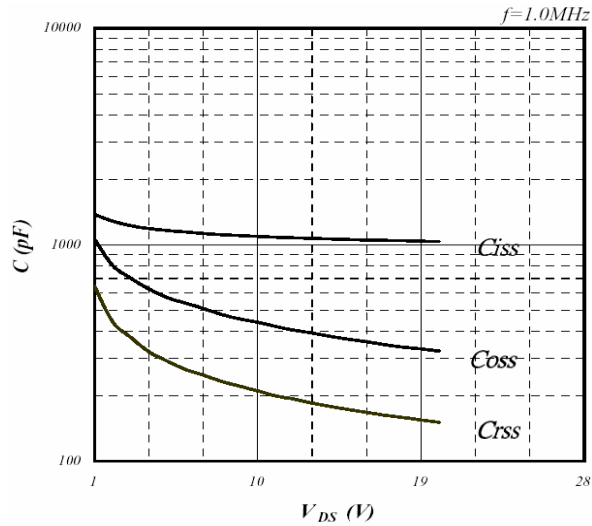


Fig 8. Typical Capacitance Characteristics

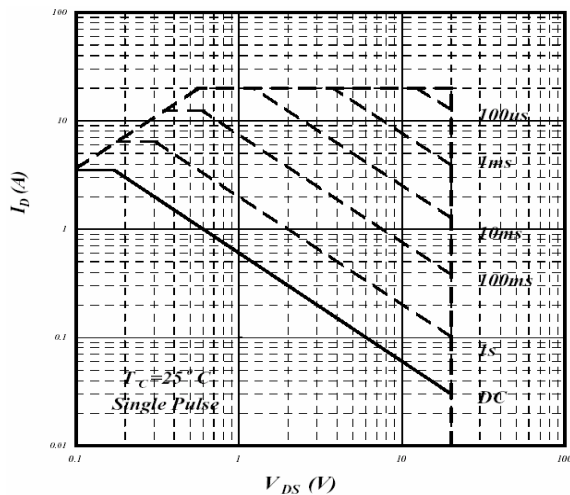


Fig 9. Maximum Safe Operating Area

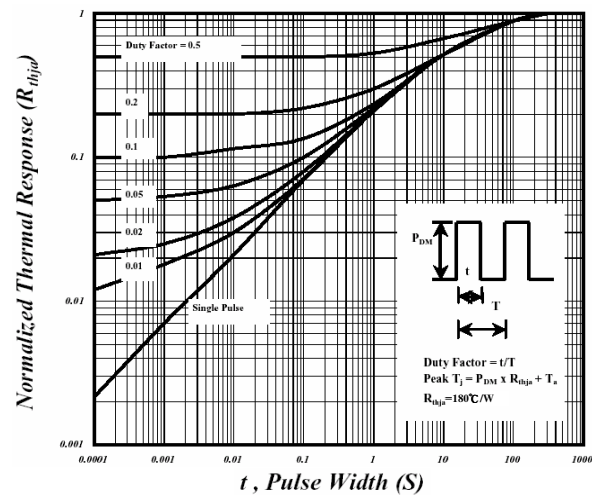


Fig 10. Effective Transient Thermal Impedance

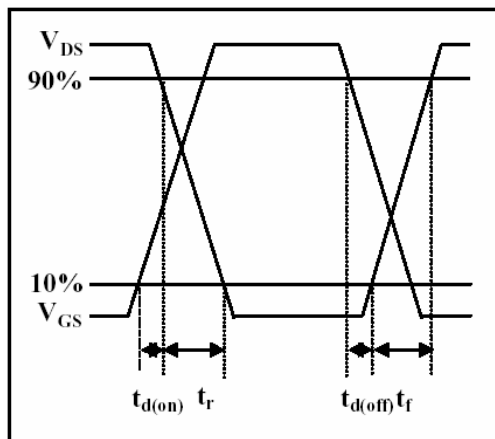


Fig 11. Switching Time Waveform

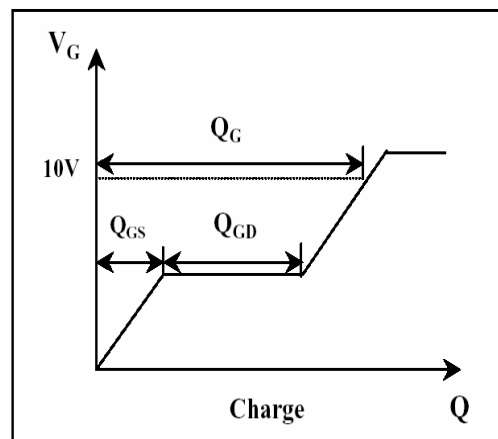


Fig 12. Gate Charge Waveform