



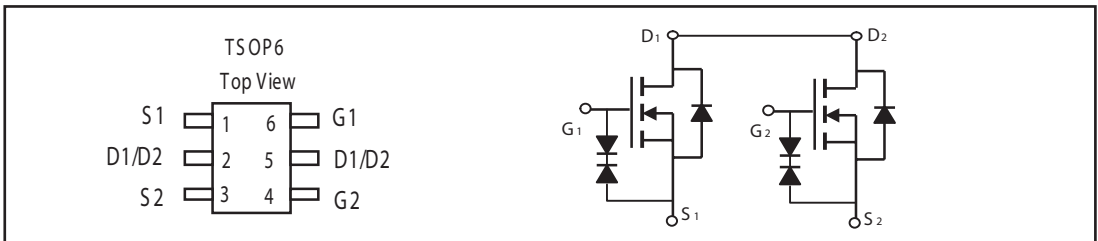
STS 8208

Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
20V	5A	27 @ V _{GS} = 4.0V 40 @ V _{GS} = 2.5V

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- Surface Mount Package.
- ESD Protected.



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	±20	V
Gate-Source Voltage	V _{GS}	±12	V
Drain Current-Continuous @ T _J =25°C -Pulsed ^b	I _D	5	A
	I _{DM}	20	A
Drain-Source Diode Forward Current ^a	I _S	1.25	A
Maximum Power Dissipation ^a	P _D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R θ _{JA}	100	°C/W
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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250µA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	µA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±10	µA
ON CHARACTERISTICS ^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250µA	0.5	0.8	1.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 4.0V, I _D = 5A		22	27	m ohm
		V _{GS} = 2.5V, I _D = 3A		30	40	m ohm
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 5A		19		S
DYNAMIC CHARACTERISTICS ^c						
Input Capacitance	C _{ISS}	V _{DS} = 8V, V _{GS} = 0V f = 1.0MHz		700		pF
Output Capacitance	C _{OSS}			185		pF
Reverse Transfer Capacitance	C _{RSS}			135		pF
SWITCHING CHARACTERISTICS ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 10V, I _D = 1A, V _{GEN} = 4.0V, R _{GEN} = 10 ohm		30		ns
Rise Time	t _r			61		ns
Turn-Off Delay Time	t _{D(OFF)}			100		ns
Fall Time	t _f			36		ns
Total Gate Charge	Q _g	V _{DS} = 10V, I _D = 5A, V _{GS} = 4.0V		10		nC
Gate-Source Charge	Q _{gs}			1.7		nC
Gate-Drain Charge	Q _{gd}			4.6		nC

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ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{V}, I_s = 1.25\text{A}$		0.8	1.2	V

Notes

- a. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.
- b. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
- c. Guaranteed by design, not subject to production testing.

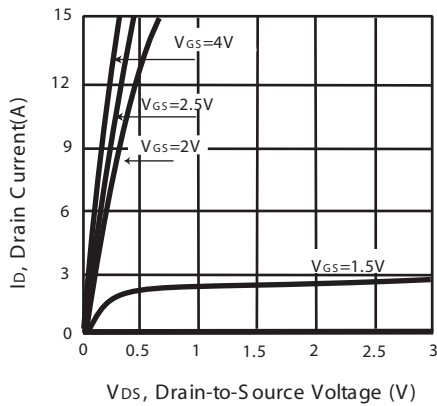


Figure 1. Output Characteristics

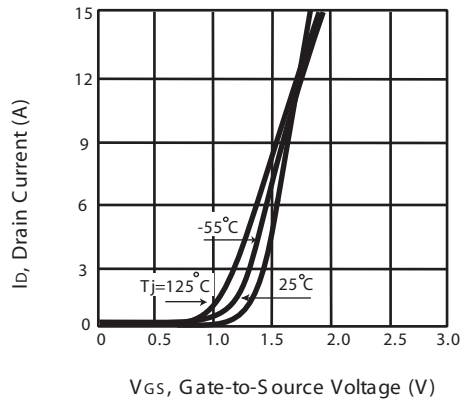


Figure 2. Transfer Characteristics

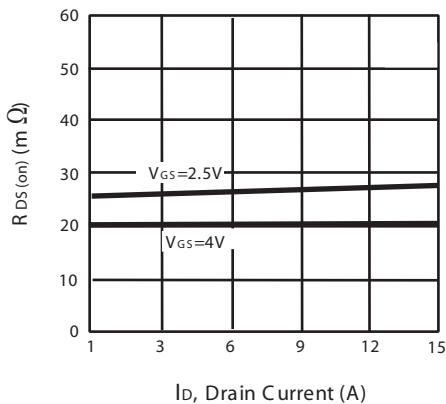


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

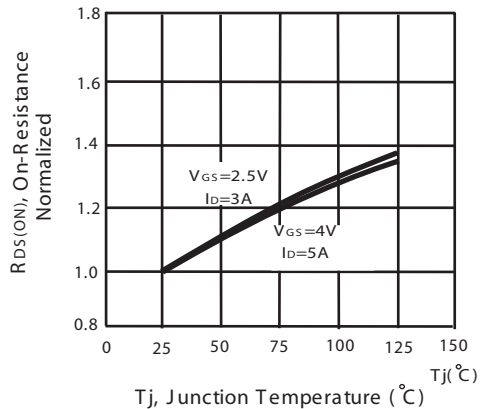


Figure 4. On-Resistance Variation with Drain Current and Temperature

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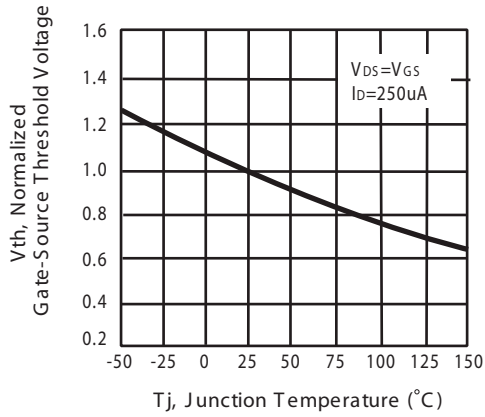


Figure 5. Gate Threshold Variation with Temperature

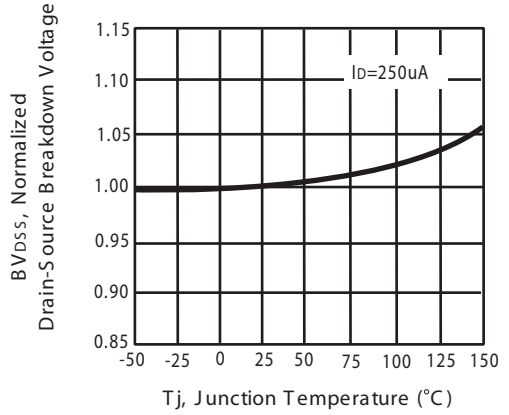


Figure 6. Breakdown Voltage Variation with Temperature

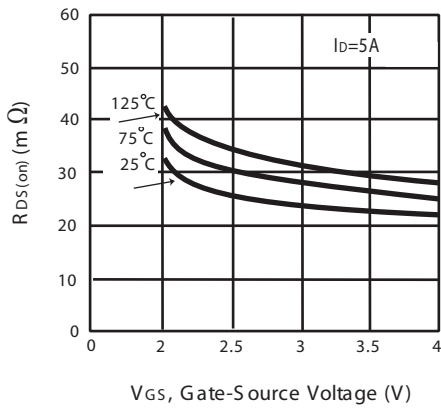


Figure 7. On-Resistance vs. Gate-Source Voltage

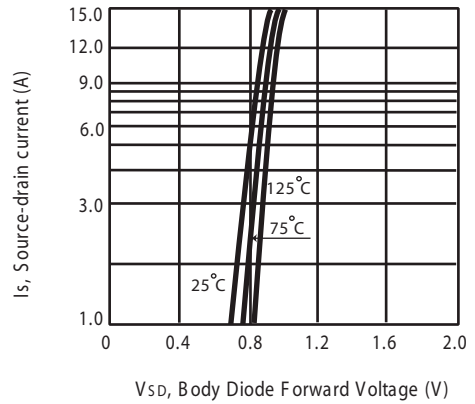


Figure 8. Body Diode Forward Voltage Variation with Source Current

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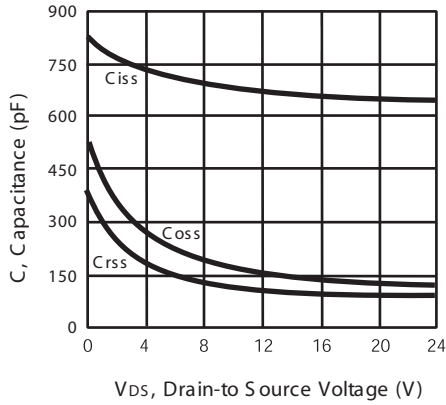


Figure 9. Capacitance

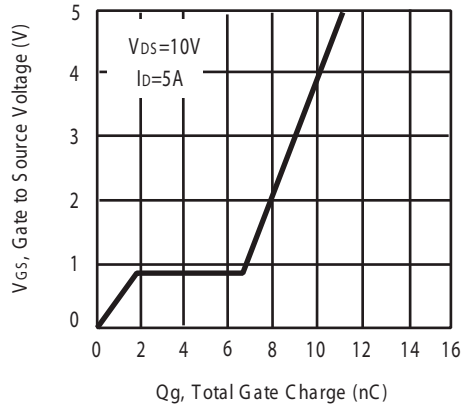


Figure 10. Gate Charge

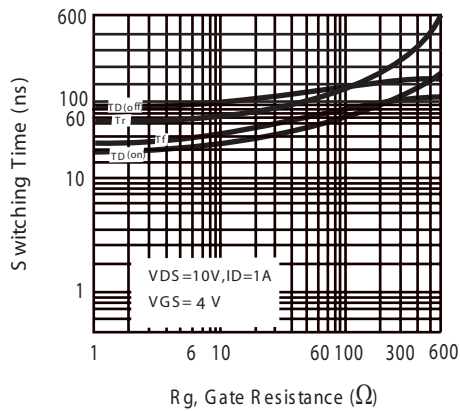


Figure 11. switching characteristics

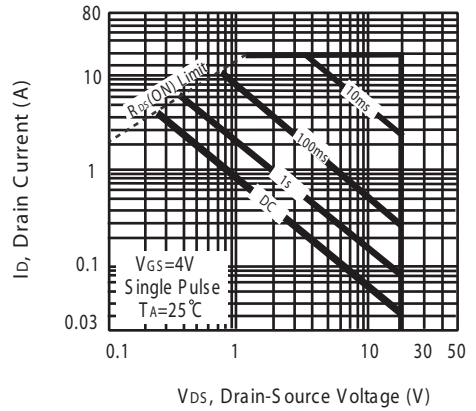


Figure 12. Maximum Safe Operating Area

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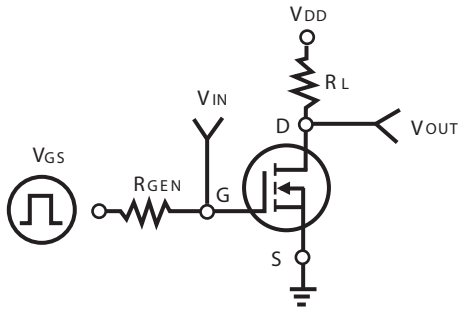


Figure 11. Switching Test Circuit

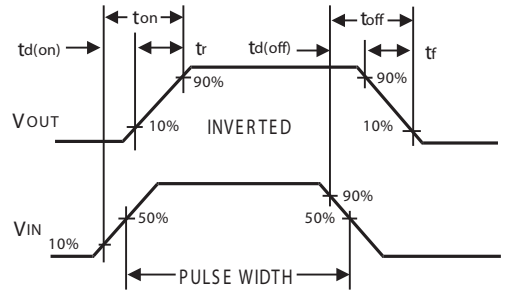
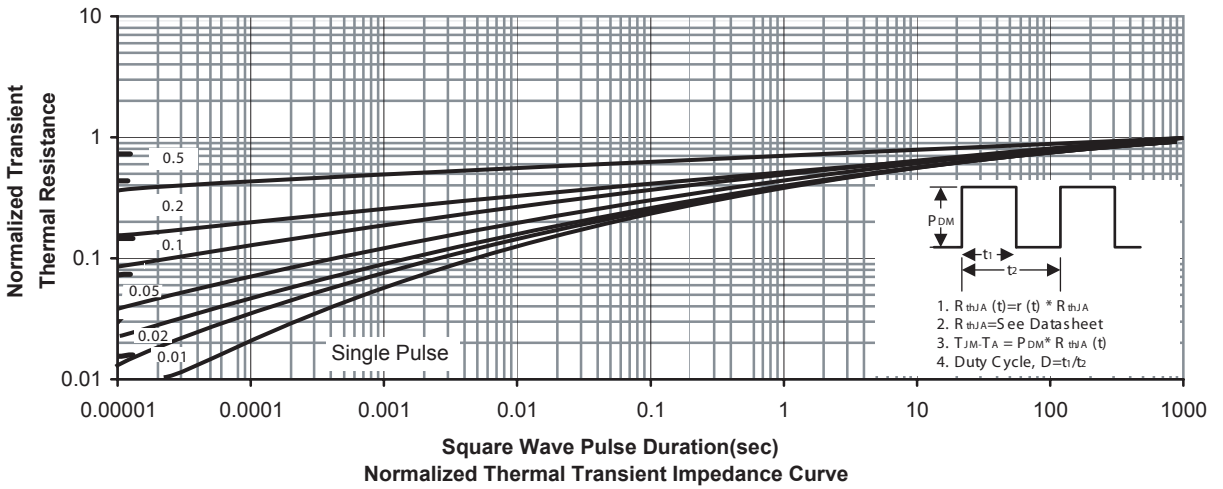


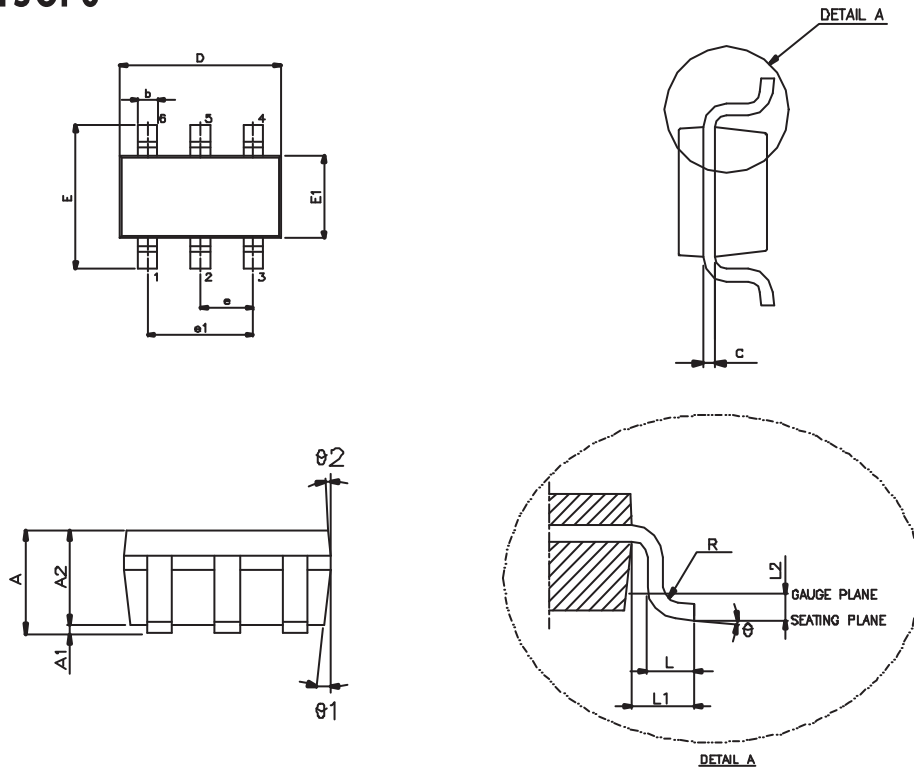
Figure 12. Switching Waveforms



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PACKAGE OUTLINE DIMENSIONS

TSOP6

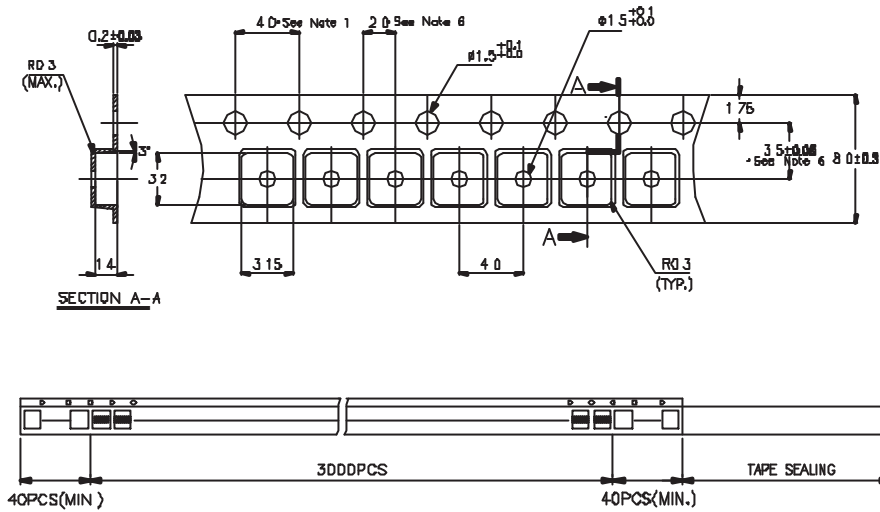


SYMBOL	MIN.	NOM.	MAX.
A	0.75	—	0.90
A1	0.00	—	0.10
A2	0.70	0.75	0.80
b	0.35	—	0.51
c	0.10	—	0.25
D	2.90 BSC.		
E	2.80 BSC.		
E1	1.60 BSC.		
e	0.95 BSC.		
e1	1.90 BSC.		
L	0.37	—	—
L1	0.60 REF.		
L2	0.25 BSC.		
R	0.10	—	—
θ	0°	—	8°
$\theta 1$	—	7°	—
$\theta 2$	—	5°	—

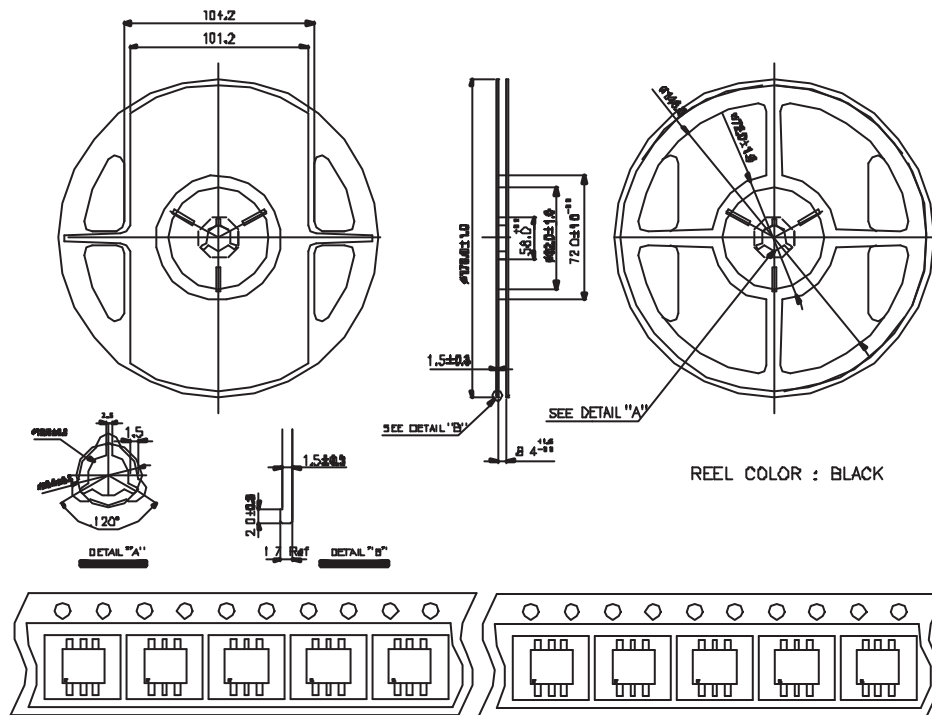
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TSOP6 Tape and Reel Data

TSOP6 Carrier Tape



TSOP6 Reel



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