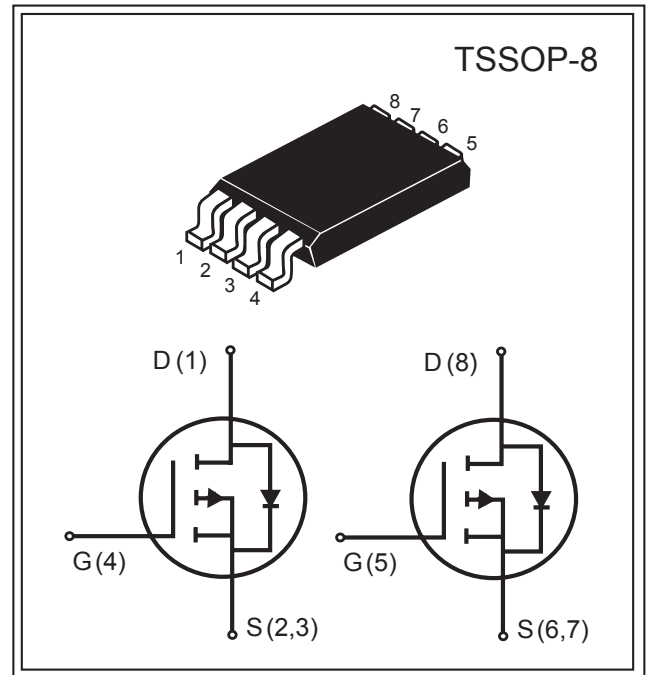




Product Summary		
V <sub>DS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> (mΩ) Max
- 30V	- 6.5A	27 @V <sub>GS</sub> = - 10V
		42 @V <sub>GS</sub> = - 5V
		50 @V <sub>GS</sub> = - 4.5V

### FEATURES

- ◆ Super high density cell design for low R<sub>DS(ON)</sub>.
- ◆ Rugged and reliable.
- ◆ TSSOP-8 package.
- ◆ Pb free.



ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	- 30	V
Gate-Source Voltage	V <sub>GS</sub>	± 25	V
Drain Current-Continuous @ T <sub>J</sub> = 125°C	I <sub>D</sub>	- 6.5	A
-Pulsed <sup>b</sup>	I <sub>DM</sub>	- 30	A
Drain-Source Diode Forward Current <sup>a</sup>	I <sub>S</sub>	- 1.5	A
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	1.5	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to 150	°C
THERMAL CHARACTERISTICS			
Thermal Resistance, Junction-to-Ambient <sup>a</sup>	R <sub>θJA</sub>	85	°C/W

South Sea Semiconductor reserves the right to make changes to improve reliability or manufacturability without advance notice.



P-Channel Electrical Characteristics (TA = 25°C unless otherwise noted)						
Parameter	Symbol	Condition	Min	Typ <sup>c</sup>	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> = - 250 μA	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = - 24V, V <sub>GS</sub> =0V			- 1	μA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±25V, V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> = - 250 μA	- 1	- 1.8	- 3	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> = - 10V, I <sub>D</sub> = - 6.0A		22	27	mΩ
		V <sub>GS</sub> = - 5V, I <sub>D</sub> = - 4.5A		32	42	
		V <sub>GS</sub> = - 4.5V, I <sub>D</sub> = - 4A		38	50	
On-State Drain Current	I <sub>D(ON)</sub>	V <sub>DS</sub> = - 5V, V <sub>GS</sub> = - 10V	- 25			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = - 5V, I <sub>D</sub> = - 5.0A		15		S
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = - 15V		1000	1200	pF
Output Capacitance	C <sub>OSS</sub>	V <sub>GS</sub> =0V		200		
Reverse Transfer Capacitance	C <sub>RSS</sub>	f=1.0MHz		110	150	
Turn-On Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> = - 15V,		17.6		ns
Rise Time	t <sub>r</sub>	I <sub>D</sub> = - 1A,		17.4		
Turn-Off Delay Time	t <sub>D(OFF)</sub>	V <sub>GEN</sub> = - 10V,		169		
Fall Time	t <sub>f</sub>	R <sub>GEN</sub> =6Ω,		95.4		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = - 15V, I <sub>D</sub> = - 6A, V <sub>GS</sub> = - 10V		20	25	nC
		V <sub>DS</sub> = - 15V, I <sub>D</sub> = - 6A, V <sub>GS</sub> = - 4.5V		11		
Gate-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> = - 15V, I <sub>D</sub> = - 6A,		3.5		
Gate-Drain Charge	Q <sub>gd</sub>	V <sub>GS</sub> = - 10V		6		
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = - 1A		- 0.75	- 1.2	V

Notes :

- a. Surface Mounted on FR4 Board, t ≤ 10 sec.
- b. Pulse Test : Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
- c. Guaranteed by design, not subject to production testing.

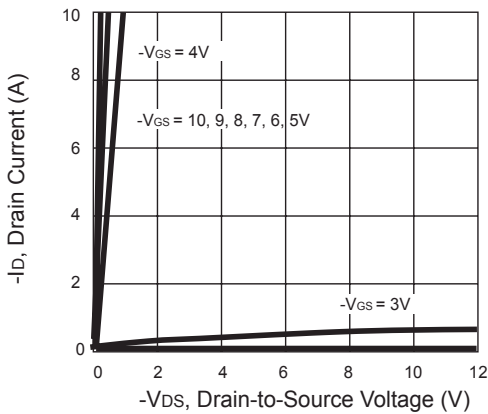


Figure 1. Output Characteristics

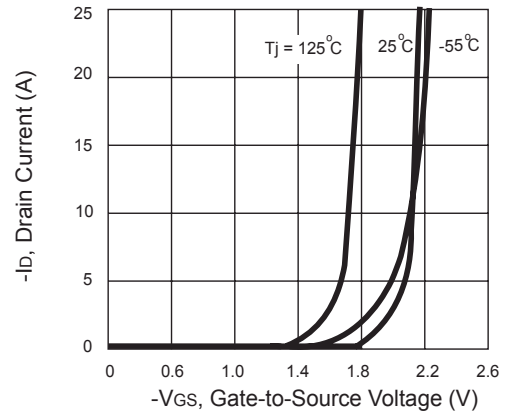


Figure 2. Transfer Characteristics

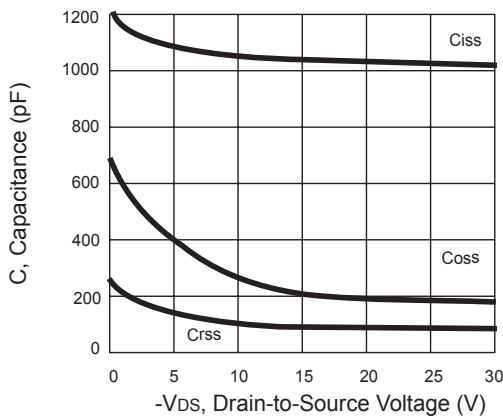


Figure 3. Capacitance

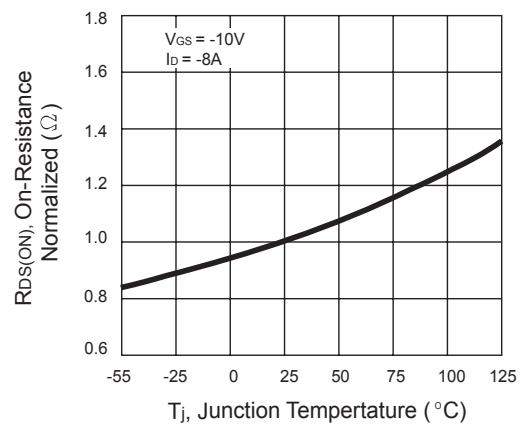


Figure 4. On-Resistance Variation with Temperature

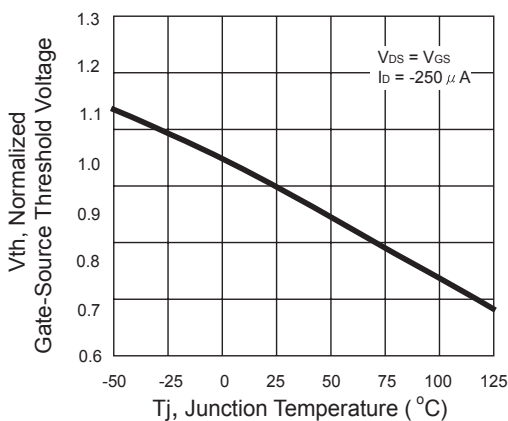


Figure 5. Gate Threshold Variation with Temperature

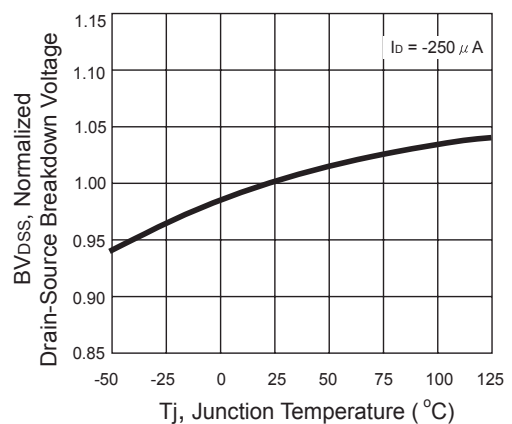
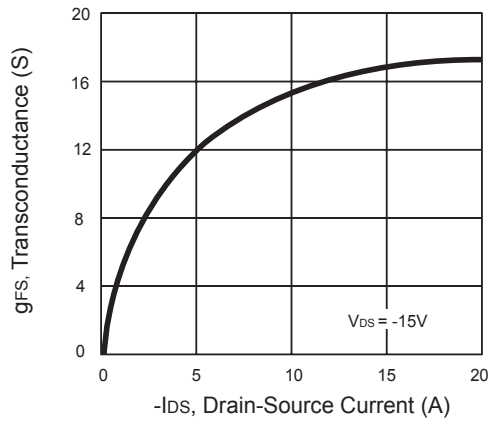
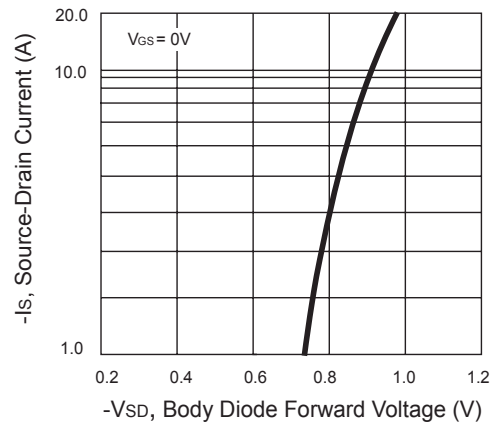


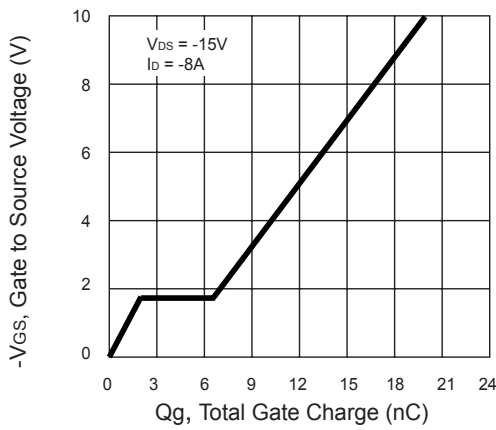
Figure 6. Breakdown Voltage Variation with Temperature



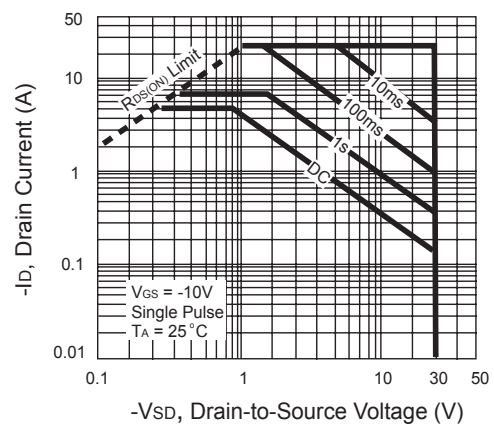
**Figure 7. Transconductance Variation with Drain Current**



**Figure 8. Body Diode Forward Voltage Variation with Source Current**



**Figure 9. Gate Charge**



**Figure 10. Maximum Safe Operating Area**

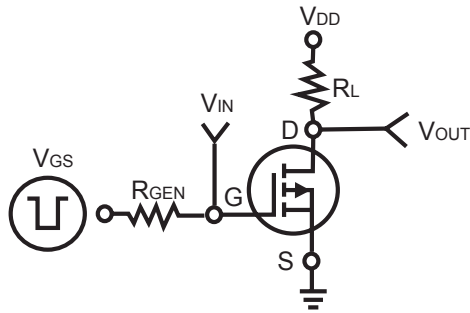


Figure 11. Switching Test Circuit

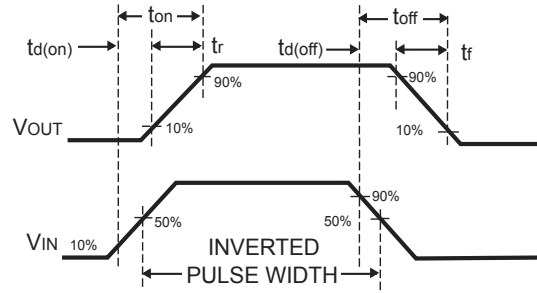


Figure 12. Switching Waveforms

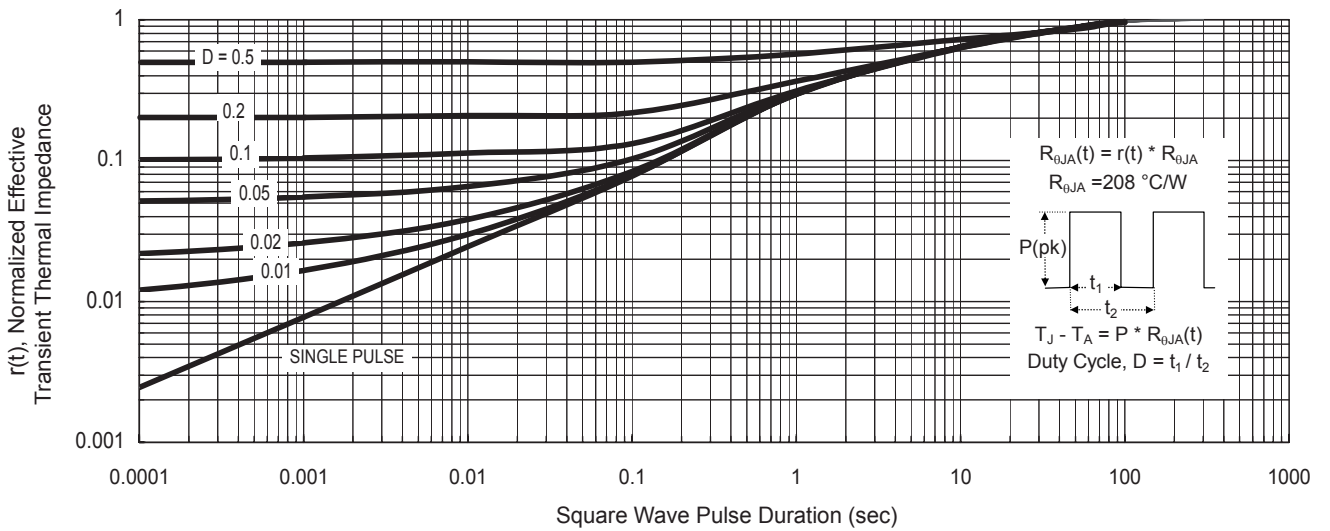


Figure 13. Normalized Thermal Transient Impedance Curve