Elektronische Bauelemente

SSG4639STM

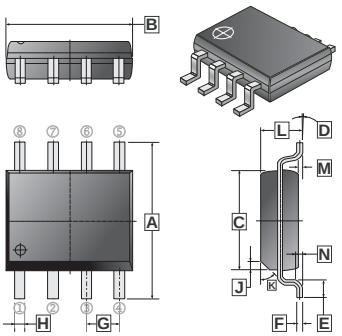
P-Ch Enhancement Mode Power MOSFET

-14 A, -30 V, $R_{DS(ON)}$ 8.5 mΩ

FEATURES

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

SOP-8



PRODUCT SUMMARY

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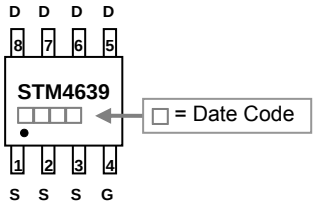
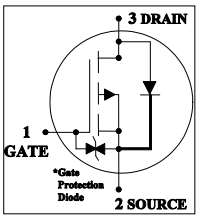
V_{DSS}(V)	R_{DS}(on) m(Ω)	I_D(A)
-30	8.5@V_{GS}= -10V	-14
	13@V_{GS}= -4.5V	

MARKING





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375 REF.	
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current [a]	I_D @ T_A = 25°C	-14	A
	I_D @ T_A = 70°C	-11.2	A
Pulsed Drain Current [b]	I_{DM}	-79	A
Single Pulse Avalanche Energy [d]	E_{AS}	180	mJ
Maximum Power Dissipation [a]	P_D @ T_A = 25°C	2.5	W
	P_D @ T_A = 70°C	1.6	W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	°C
THERMAL RESISTANCE RATINGS			
Thermal Resistance Junction-ambient [a]	$R_{\theta JA}$	50	°C / W

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	V_{GS}=0V, I_D=250μA
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}=0V
Gate-Body Leakage Current	I_{GSS}	-	-	±10	μA	V_{GS}=±20V, V_{DS}=0V
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	-0.8	-1.7	-2.0	V	V_{DS}= V_{GS}, I_D=-250μA
Drain-Source On-State Resistance	$R_{DS(ON)}$	-	7	8.5	mΩ	V_{GS}=-10V, I_D=-14A
		-	9.8	13		V_{GS}=-4.5V, I_D=-11.3A
Forward Transconductance	g_{fs}	-	32	-	S	V_{DS}=-10V, I_D=-14A
DYNAMIC CHARACTERISTICS [c]						
Input Capacitance	C_{ISS}	-	4049	-	pF	V_{DS}=-15V, V_{GS}=0V, f=1.0MHz
Output Capacitance	C_{OSS}	-	641	-		
Reverse Transfer Capacitance	C_{RSS}	-	351	-		
SWITCHING CHARACTERISTICS [c]						
Turn-On Delay Time	$T_{d(on)}$	-	24	-	nS	V_{DD}=-15V I_D=-1A V_{GS}=-10V R_{GEN}=3Ω
Rise Time	T_r	-	68	-		
Turn-Off Delay Time	$T_{d(off)}$	-	484	-		
Fall Time	T_f	-	188	-		
Total Gate Charge	Q_g	-	95	-	nC	V_{DS}=-15V, I_D=-14A, V_{GS}=-10V
		-	40	-		V_{DS}=-15V, I_D=-14A, V_{GS}=-4.5V
Gate-Source Charge	Q_{gs}	-	6	-		V_{DS}=-15V, I_D=-14A, V_{GS}=-10V
Gate-Drain Charge	Q_{gd}	-	23	-		
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Maximum Continuius Drain-Source Diode Forward Current	I_S	-	-	-2.0	A	
Diode Forward Voltage [b]	V_{SD}	-	-0.7	-1.2	V	V_{GS}=0V, I_S=-2.0A

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.

d. Starting T_J=25°C, L=3.0mH, V_{DD}=30V, V_{GS}=10V. (See Figure13)

CHARACTERISTIC CURVE

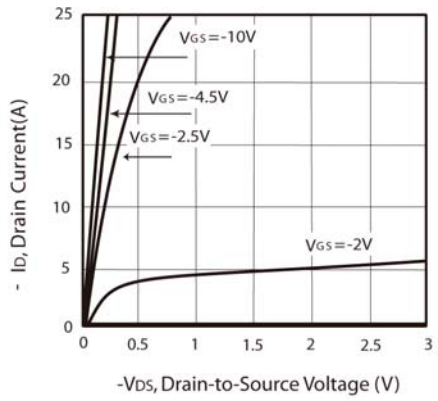


Figure 1. Output Characteristics

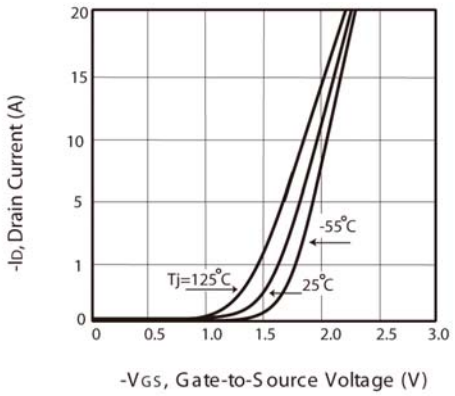


Figure 2. Transfer Characteristics

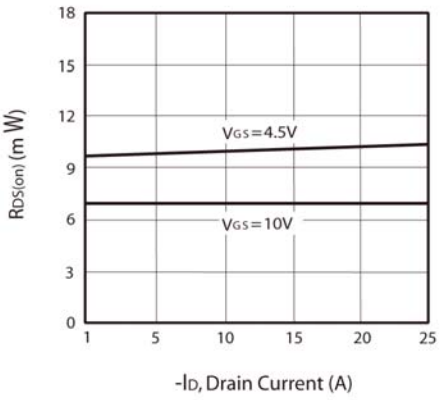


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

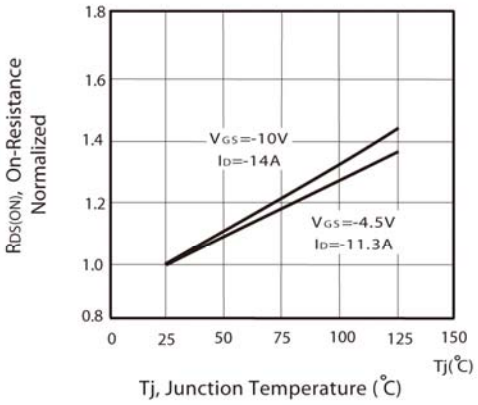


Figure 4. On-Resistance Variation with Drain Current and Temperature

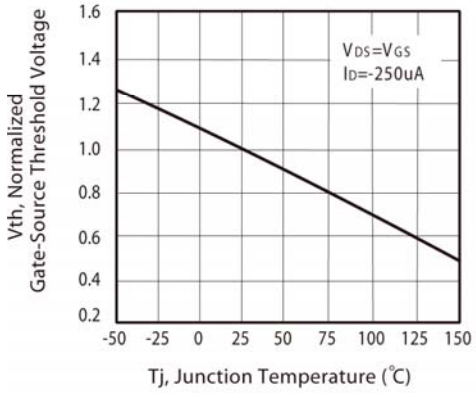


Figure 5. Gate Threshold Variation with Temperature

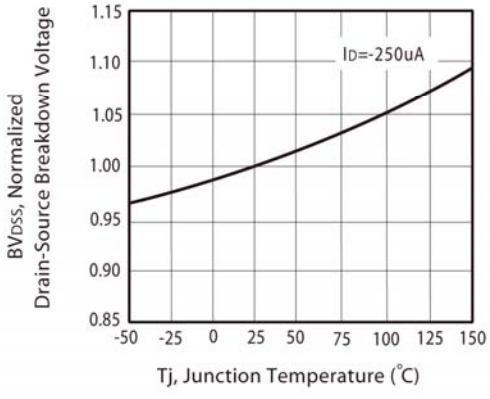


Figure 6. Breakdown Voltage Variation with Temperature

CHARACTERISTIC CURVE

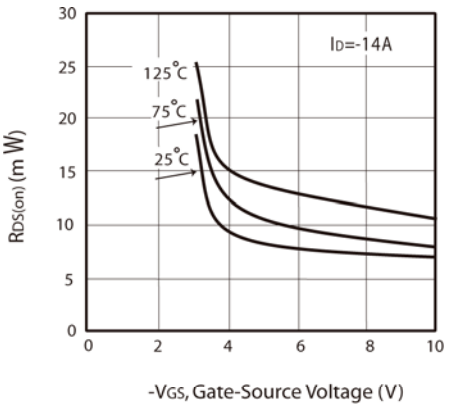


Figure 7. On-Resistance vs. Gate-Source Voltage

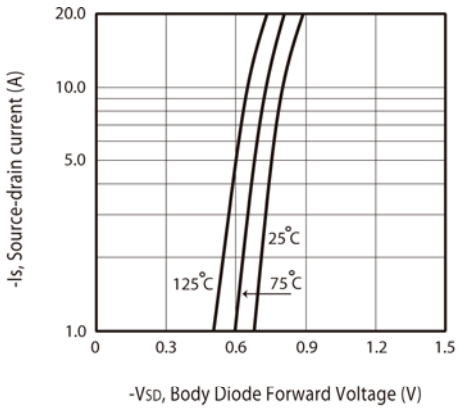


Figure 8. Body Diode Forward Voltage Variation with Source Current

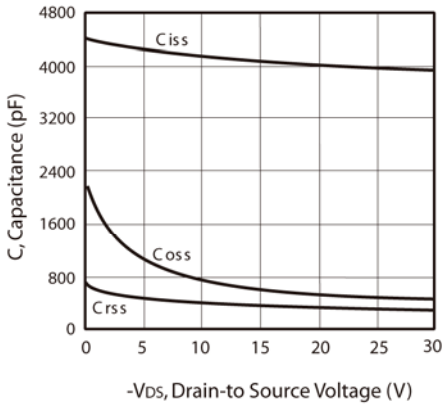


Figure 9. Capacitance

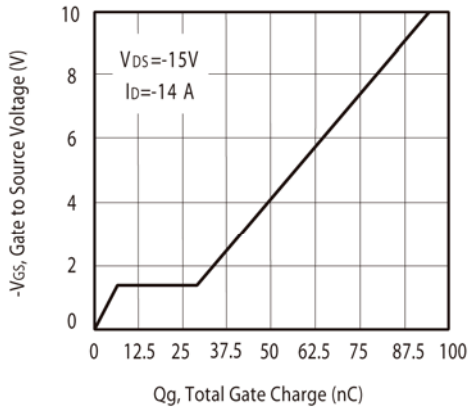


Figure 10. Gate Charge

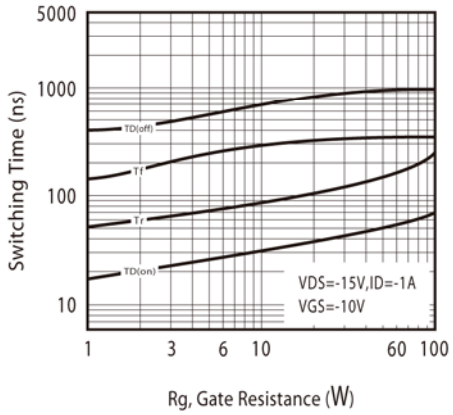


Figure 11.switching characteristics

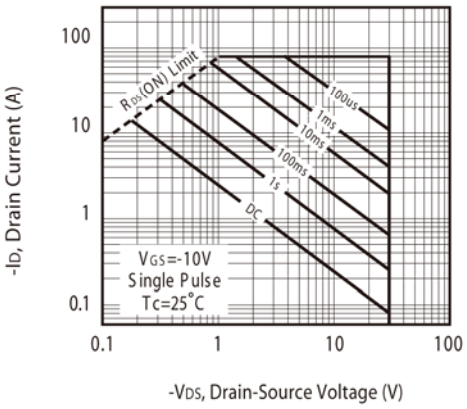
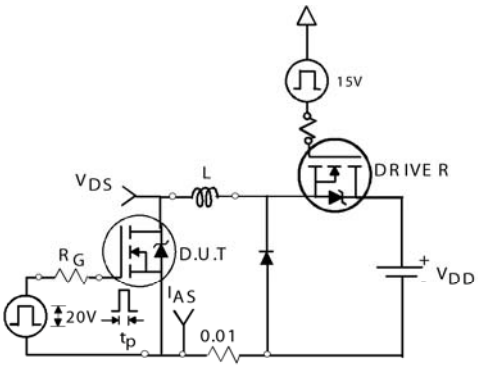


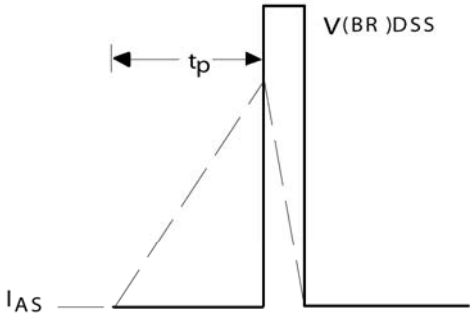
Figure 12. Maximum Safe Operating Area

CHARACTERISTIC CURVE



Unclamped Inductive Test Circuit

Figure 13a.



Unclamped Inductive Waveforms

Figure 13b.

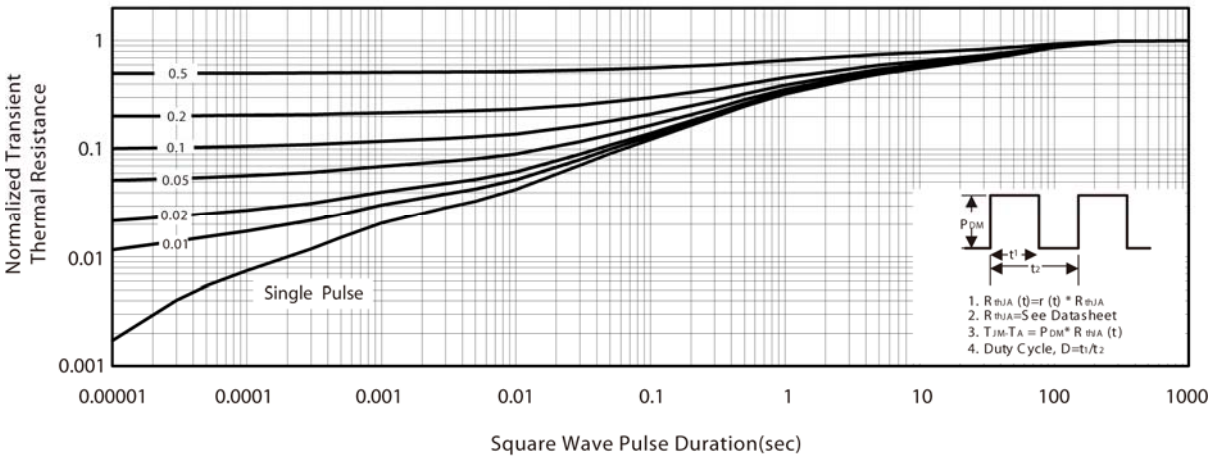


Figure 14. Normalized Thermal Transient Impedance Curve