Elektronische Bauelemente

SSG9435P

-5A, -30V, $R_{DS(ON)}$ 48 mΩ
P-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

The SSG9435P is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSG9435P meet the RoHS and Green Product requirement with full function reliability approved.

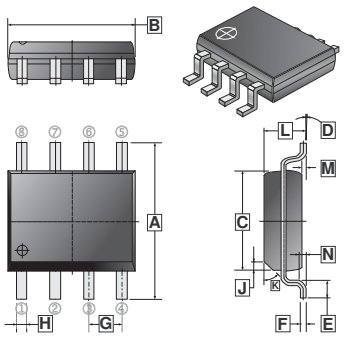
FEATURES

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Green Device Available

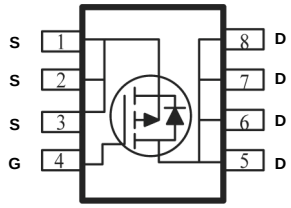
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.79	6.20	H	0.33	0.51
B	4.70	5.11	J	0.375 REF.	
C	3.80	4.00	K	45°REF.	
D	0°	8°	L	1.3	1.752
E	0.40	1.27	M	0	0.25
F	0.10	0.25	N	0.25 REF.	
G	1.27 TYP.				



MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_A=25℃	I_D	-5	A
	T_A=70℃		-4	A
Pulsed Drain Current [3]		I_{DM}	-25	A
Total Power Dissipation	T_A=25℃	P_D	2.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	℃
Thermal Resistance Rating				
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	t≦10sec , 50	℃ / W
			Steady State , 83	
Maximum Thermal Resistance from Junction to Ambient [2]		$R_{\theta JA}$	125	
Maximum Thermal Resistance from Junction to Case [1]		$R_{\theta JC}$	25	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	V_{GS}=0, I_D= -250uA
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-1.5	-2	V	V_{DS}= V_{GS}, I_D= -250μA
Forward Transfer conductance	g_{fs}	-	11	-	S	V_{DS}= -5V, I_D= -4A
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}= 0V
		-	-	-5		V_{DS}= -24V, V_{GS}= 0V, T_J=55℃
Drain-Source On-Resistance [4]	$R_{DS(ON)}$	-	38	48	mΩ	V_{GS}= -10V, I_D= -4A
		-	54	75		V_{GS}= -4.5V, I_D= -3A
Total Gate Charge	Q_g	-	6.4	-	nC	I_D= -4A V_{DS}= -15V V_{GS}= -4.5V
Gate-Source Charge	Q_{gs}	-	2.3	-		
Gate-Drain("Miller") Charge	Q_{gd}	-	2	-		
Turn-On Delay Time	$T_{d(on)}$	-	2.8	-	nS	V_{DD}= -15V I_D= -4A V_{GS}= -10V R_G= 3.3Ω
Rise Time	T_r	-	8.4	-		
Turn-Off Delay Time	$T_{d(off)}$	-	39	-		
Fall Time	T_f	-	6	-		
Input Capacitance	C_{iss}	-	585	-	pF	V_{GS}=0V V_{DS}= -15V f=1.0MHz
Output Capacitance	C_{oss}	-	100	-		
Reverse Transfer Capacitance	C_{rss}	-	85	-		
Source-Drain Diode						
Continuous Source Current [1]	I_S	-	-	-5	A	
Pulsed Source Current [3]	I_{SM}	-	-	-25	A	
Diode Forward Voltage [4]	V_{SD}	-	-0.8	-1.2	V	V_{GS}=0V , I_S= -2.1A , T_J=25℃
Reverse Recovery Time	t_{rr}	-	7.8	-	nS	I_F= -4A , dI/dt=100A/μs , T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	2.5	-	nC	

Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. when mounted on Min. copper pad.
3. The power dissipation is limited by 150℃ junction temperature
4. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

CHARACTERISTIC CURVE

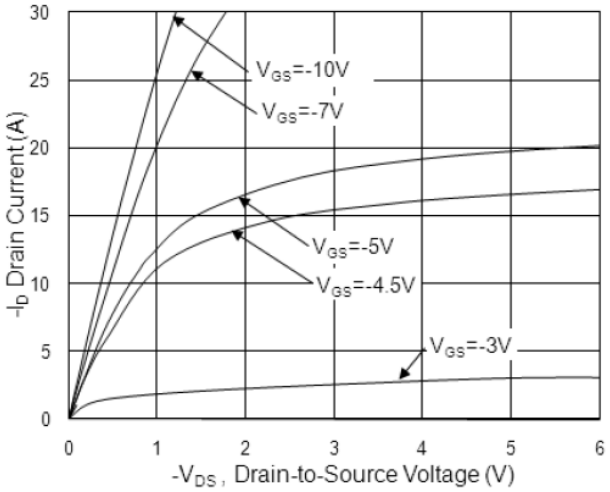


Fig.1 Typical Output Characteristics

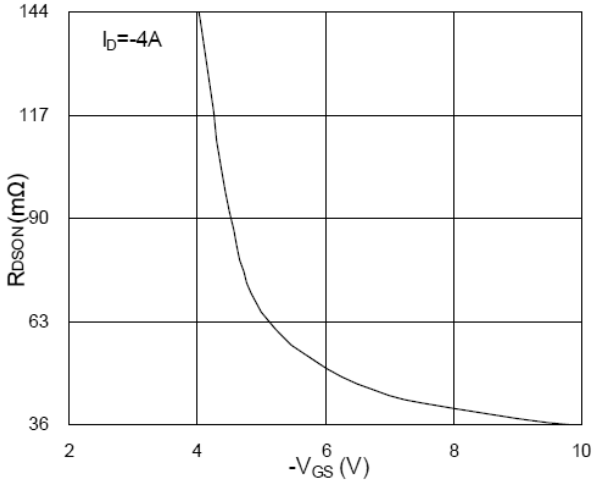


Fig.2 On-Resistance vs. Gate-Source

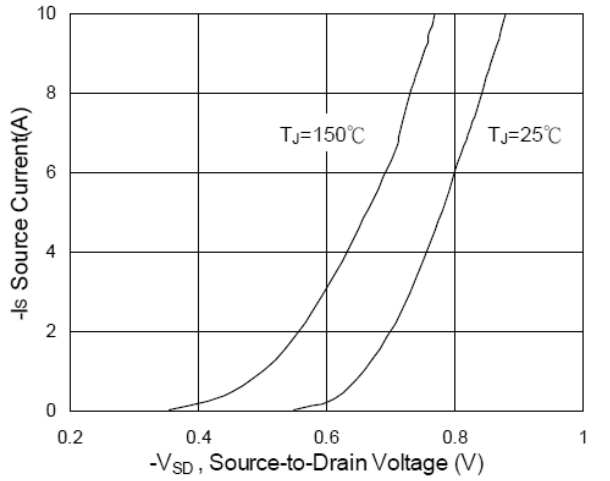


Fig.3 Forward Characteristics of Reverse

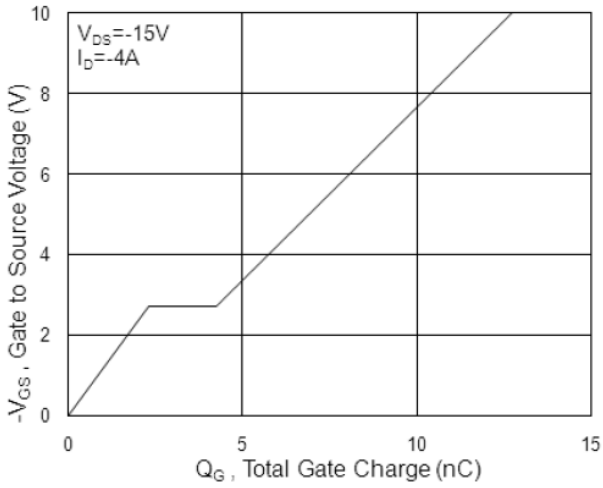


Fig.4 Gate-Charge Characteristics

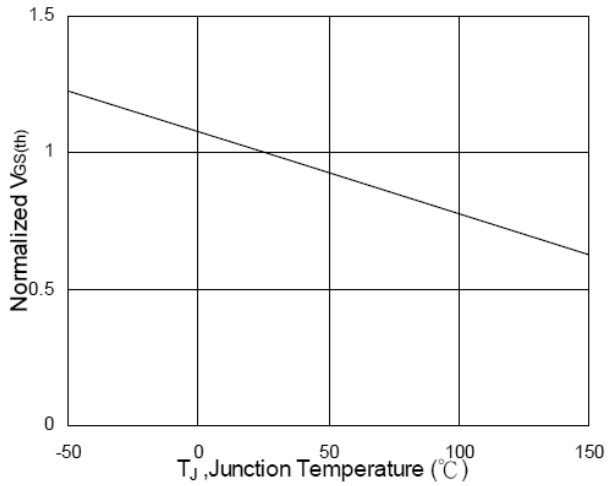


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

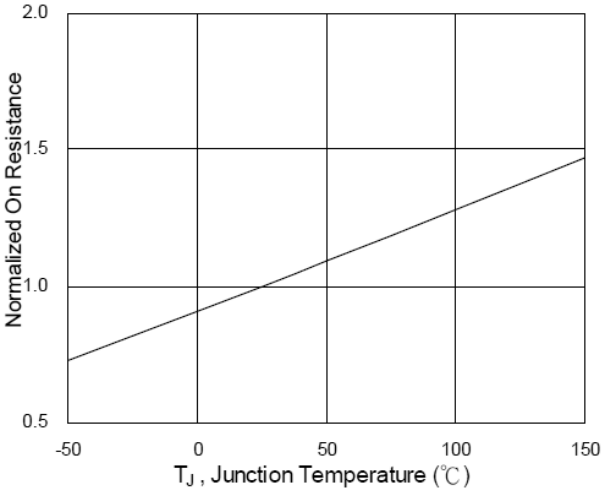


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVE

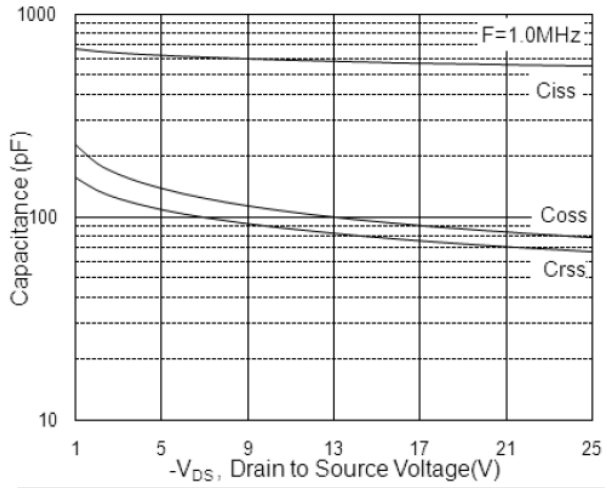


Fig.7 Capacitance

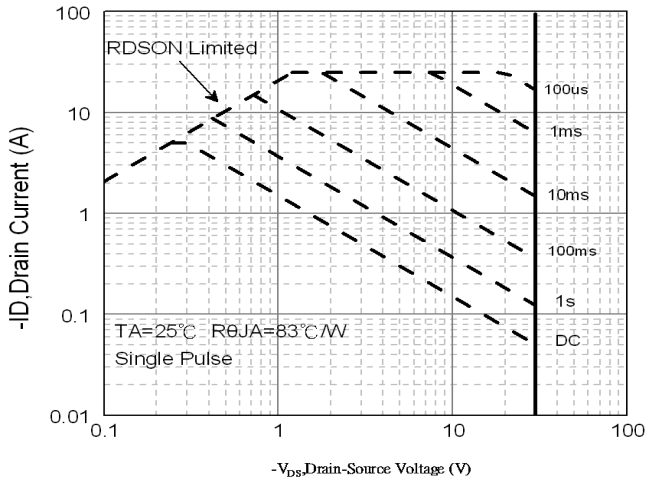


Fig.8 Safe Operating Area

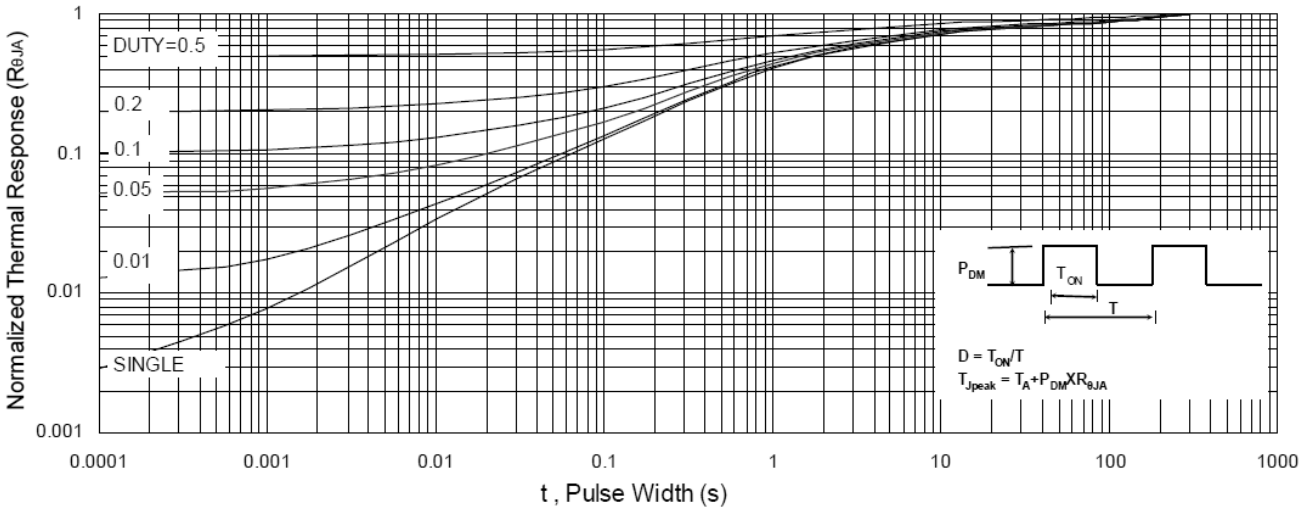


Fig.9 Normalized Maximum Transient Thermal Impedance

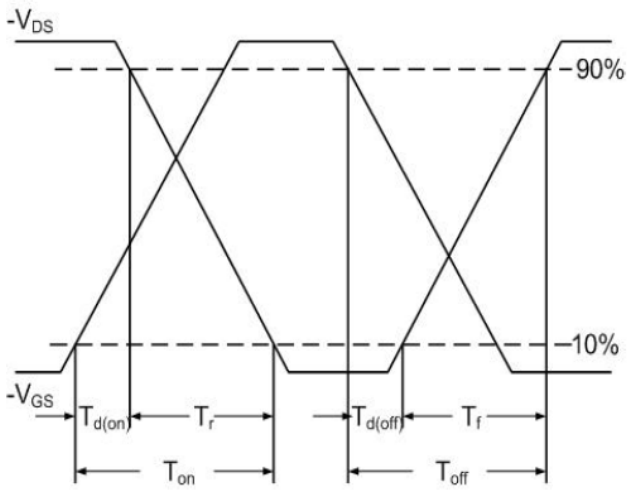


Fig.10 Switching Time Waveform

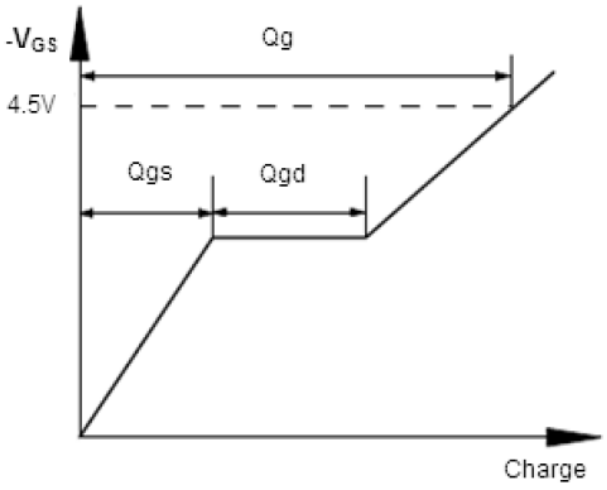


Fig.11 Gate Charge Waveform