Elektronische Bauelemente

SSQ5N50

4.5A, 500V, $R_{DS(ON)}$ 1500mΩ

N-Ch Enhancement Mode Power MOSFET

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

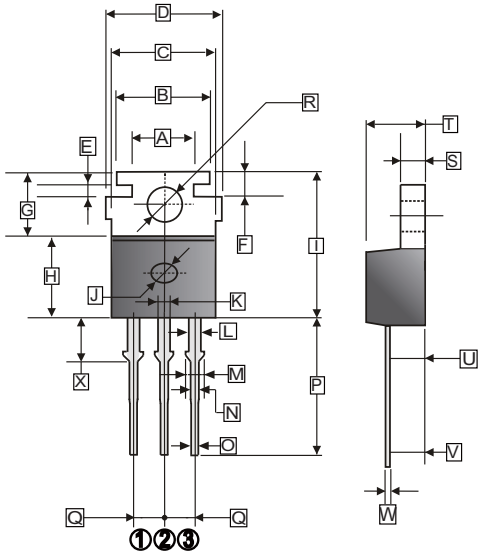
TO-220P

FEATURES

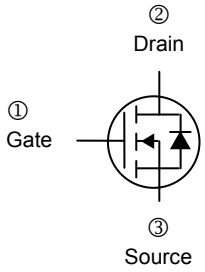
- Low $R_{DS(on)}$ Technology.
- Low thermal impedance.
- Fast switching speed.

APPLICATIONS

- Electronic ballast.
- Electronic transformer
- Switch mode power supply.



Dimensions in millimeters



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	7.90	8.10	N	0.75	0.95
B	9.45	9.65	O	0.66	0.86
C	9.87	10.47	P	13.50	14.50
D	-	11.50	Q	2.44	3.44
E	1.06	1.46	R	3.50	3.70
F	2.60	3.00	S	1.15	1.45
G	6.30	6.70	T	4.30	4.70
H	8.35	8.75	U	-	2.7
J	1.60 Typ.		V	1.89	3.09
K	1.10	1.30	W	0.40	0.60
L	1.17	1.37	X	2.60	3.60
M	-	1.50			

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	500	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current [1]	I_D @T_C=25℃	4.5	A
Pulsed Drain Current [2]	I_{DM}	18	A
Continuous Source Current (Diode Conduction) [1]	I_S	4.5	A
Total Power Dissipation [1]	P_D @T_C=25℃	74	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 175	°C
THERMAL RESISTANCE RATINGS			
Maximum Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	62.5	°C / W
Maximum Thermal Resistance Junction-Case	$R_{\theta JC}$	1.7	°C / W

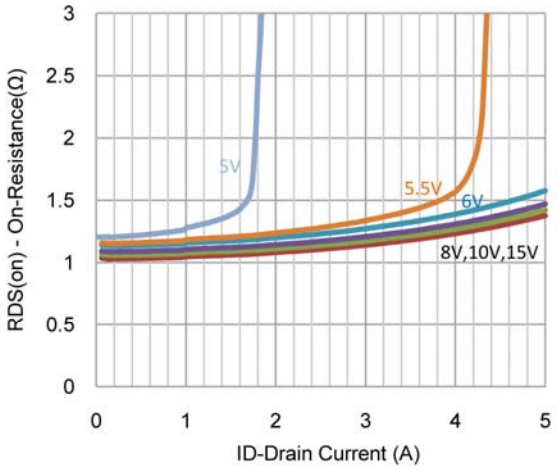
Notes：
1 Package Limited.
2 Pulse width limited by maximum junction temperature.

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

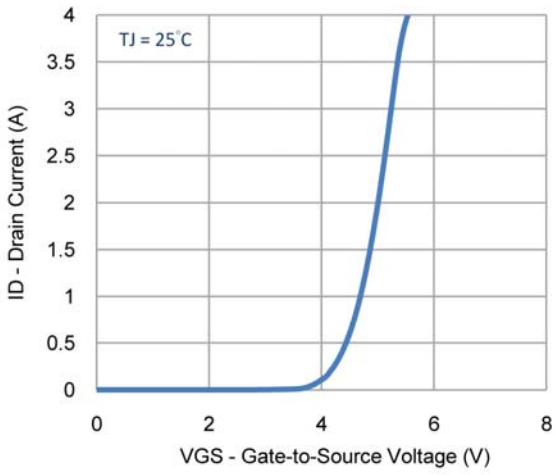
PARAMETER	SYMBO	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	2	-	4	V	V_{DS}= V_{GS}, I_D = 250 μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS} = 0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	25	μA	V_{DS}= 500V, V_{GS}= 0V
		-	-	250		V_{DS}= 400V, V_{GS}= 0V, T_J=125°C
On-State Drain Current [1]	$I_{D(on)}$	5	-	-	A	V_{DS} = 10V, V_{GS}= 10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	1500	mΩ	V_{GS}= 10V, I_D= 2.7 A
Forward Transconductance [1]	g_{fs}	-	2.5	-	S	V_{DS}= 50V, I_D= 2.7 A
Diode Forward Voltage	V_{SD}	-	1.6	-	V	I_S= 4.5 A, V_{GS}= 0 V
Dynamic [2]						
Total Gate Charge	Q_g	-	26	-	nC	V_{DS} = 400 V V_{GS} = 10 V I_D = 3.1 A
Gate-Source Charge	Q_{gs}	-	4	-		
Gate-Drain Charge	Q_{gd}	-	15	-		
Turn-on Delay Time	$T_{d(on)}$	-	12.8	-	nS	V_{DD}= 250 V I_D= 3.1 A V_{GEN} = 10 V R_L= 79 Ω R_{GEN} = 12 Ω
Rise Time	T_r	-	7.4	-		
Turn-off Delay Time	$T_{d(off)}$	-	38	-		
Fall Time	T_f	-	19.6	-		
Input Capacitance	C_{ISS}	-	623	-	pF	V_{DS} = 25 V V_{GS} = 0 V f = 1MHz
Output Capacitance	C_{OSS}	-	112	-		
Reverse Transfer Capacitance	C_{RSS}	-	24	-		

Notes
1 Pulse test：Pulse width ≦ 300 μs, duty cycle ≦ 2%.
2 Guaranteed by design, not subject to production testing.

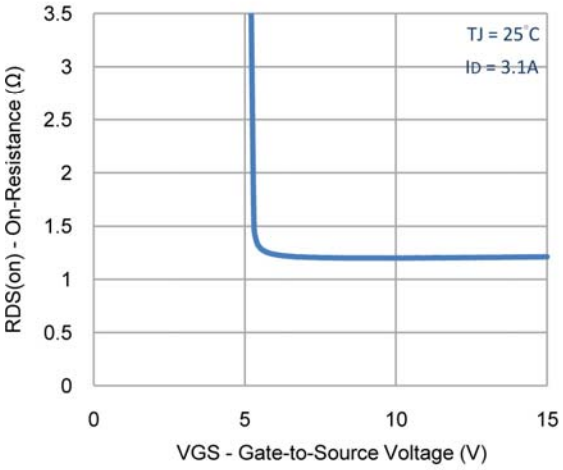
CHARACTERISTIC CURVE



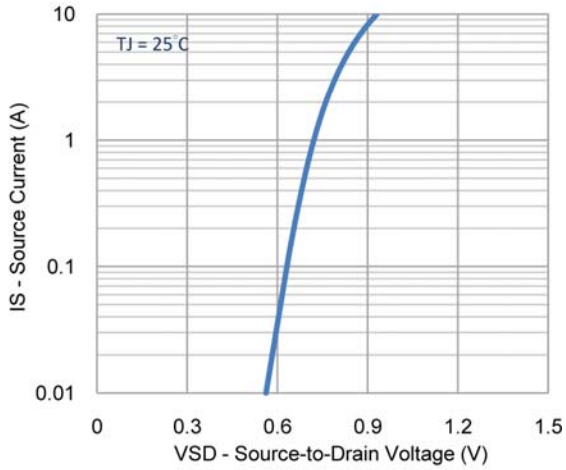
1. On-Resistance vs. Drain Current



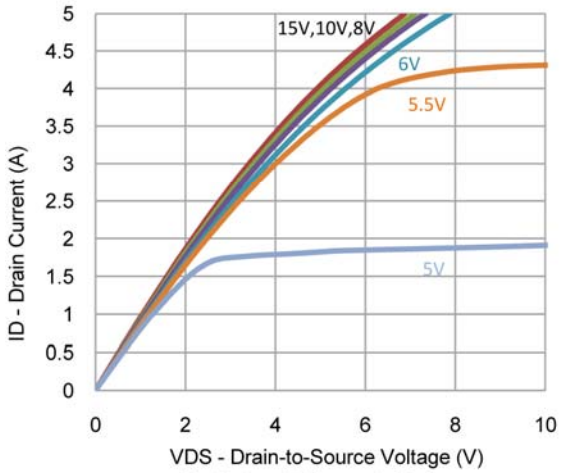
2. Transfer Characteristics



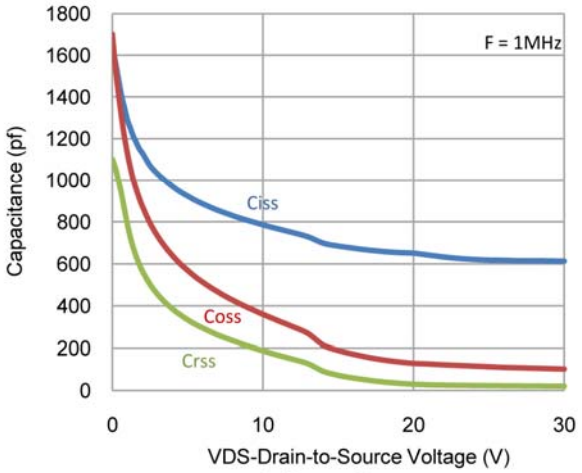
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

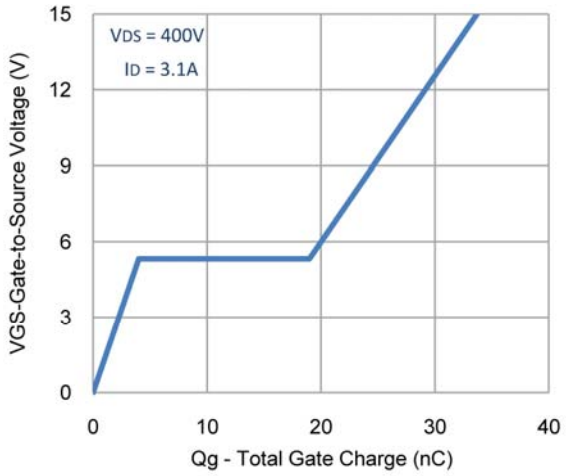


5. Output Characteristics

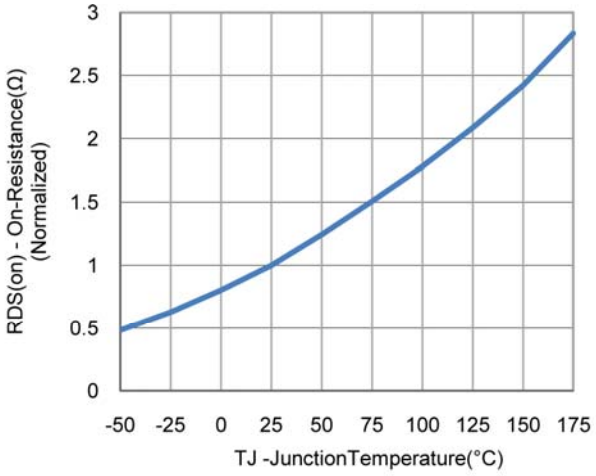


6. Capacitance

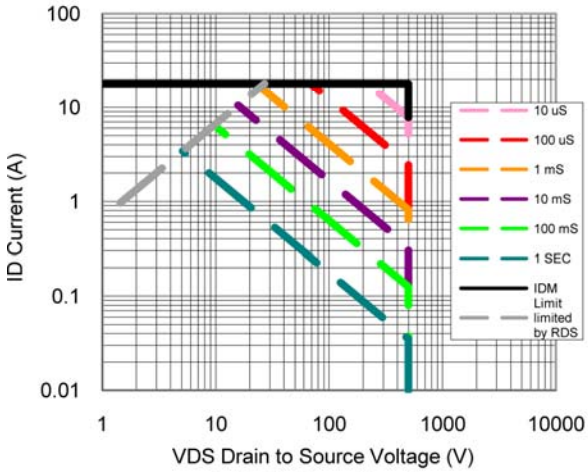
CHARACTERISTIC CURVE



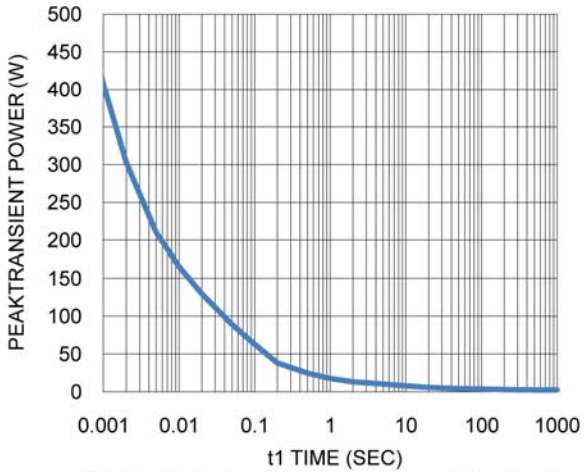
7. Gate Charge



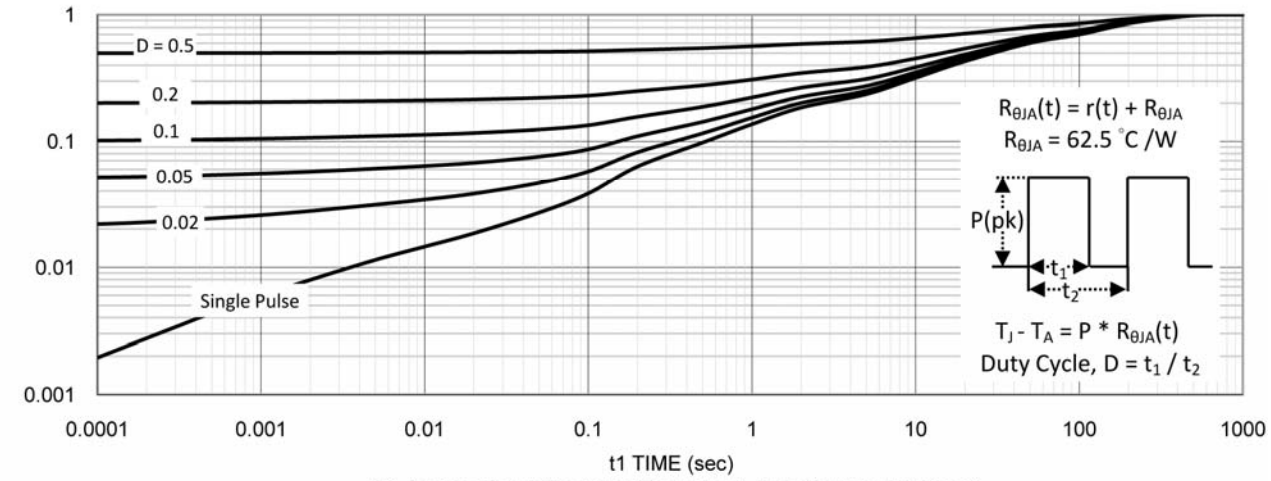
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient