Elektronische Bauelemente

SSE90N10-14

90A , 100V , $R_{DS(ON)}$ 16mΩ

N-Channel Enhancement Mode MOSFET

RoHS Compliant Product

A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

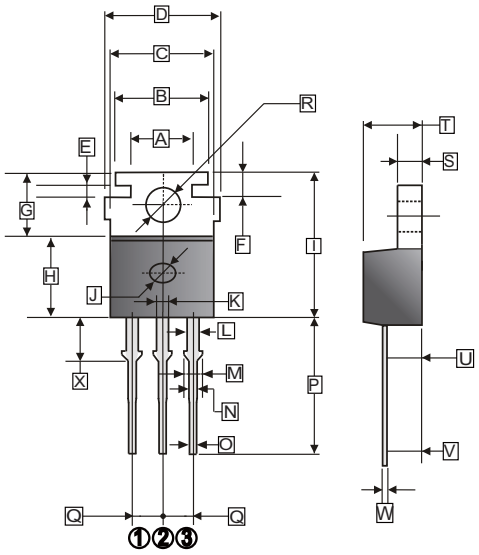
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe TO-220P saves board space.
- Fast Switch Speed.
- High performance trench technology.

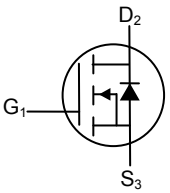
APPLICATION

DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

TO-220P



N-Channel



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	7.90	8.10	M	-	1.50
B	9.45	9.65	N	0.75	0.95
C	9.87	10.47	O	0.66	0.86
D	-	11.50	P	13.50	14.50
E	1.06	1.46	Q	2.44	3.44
F	2.60	3.00	R	3.50	3.70
G	6.30	6.70	S	1.15	1.45
H	8.35	8.75	T	4.30	4.70
I	14.7	15.3	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

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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_C=25°C	I_D	90	A
Pulsed Drain Current [2]		I_{DM}	240	A
Continuous Source Current (Diode Conduction) [1]		I_S	90	A
Power Dissipation [1]	T_C=25°C	P_D	300	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~175	°C
Thermal Resistance Rating				
Maximum Junction to Ambient [1]		$R_{\theta JA}$	62.5	°C / W
Maximum Junction to Case		$R_{\theta JC}$	0.5	

Notes:

1 Package Limited.

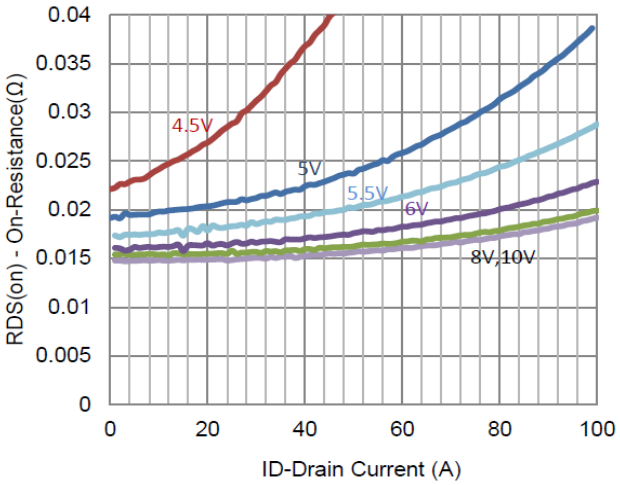
2 Pulse width limited by maximum junction temperature.

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

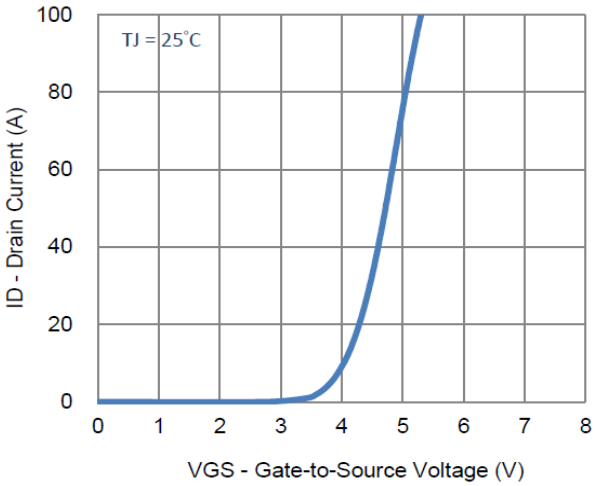
Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}=±25V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0
		-	-	25		V_{DS}=80V, V_{GS}=0, T_J=55°C
On-State Drain Current [1]	$I_{D(on)}$	180	-	-	A	V_{DS}=5V, V_{GS}=10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	16	mΩ	V_{GS}=10V, I_D=30A
		-	-	19		V_{GS}=5.5V, I_D=20A
Forward Transconductance [1]	g_{fs}	-	40	-	S	V_{DS}=15V, I_D=20A
Diode Forward Voltage	V_{SD}	-	0.9	-	V	I_S=45A, V_{GS}=0
Dynamic [2]						
Input Capacitance	C_{iss}	-	4221	-	pF	V_{DS}=15V, V_{GS}=0, f=1 MHz
Output Capacitance	C_{oss}	-	392	-		
Reverse Transfer Capacitance	C_{rss}	-	364	-		
Total Gate Charge	Q_g	-	60	-	nC	V_{DS}=50V, V_{GS}=5.5V, I_D=20A
Gate-Source Charge	Q_{gs}	-	19	-		
Gate-Drain Charge	Q_{gd}	-	39	-		
Turn-on Delay Time	$T_{d(on)}$	-	25	-	nS	V_{DS}=50V, V_{GEN}=10V, R_L=2.5Ω, I_D=20A R_{GEN}=6Ω
Rise Time	T_r	-	49	-		
Turn-off Delay Time	$T_{d(off)}$	-	111	-		
Fall Time	T_f	-	44	-		

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

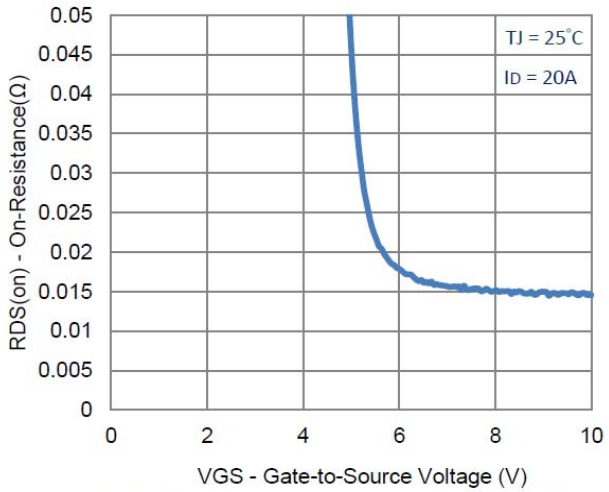
CHARACTERISTIC CURVES



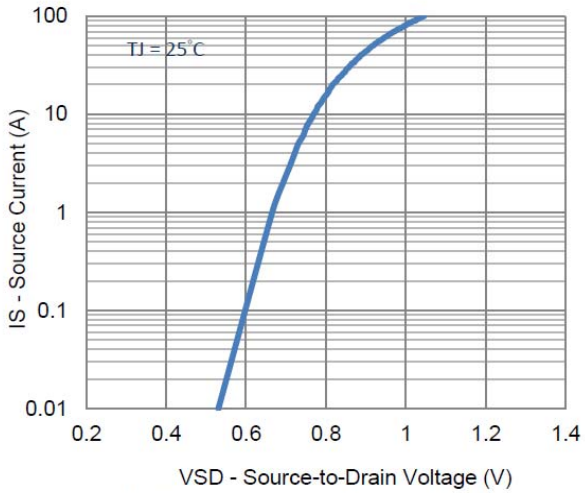
1. On-Resistance vs. Drain Current



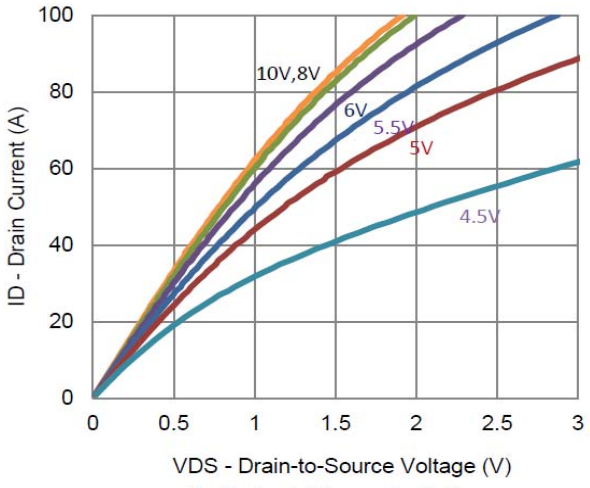
2. Transfer Characteristics



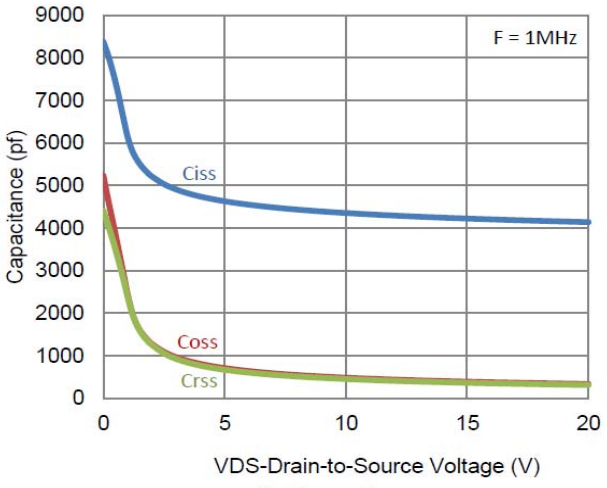
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

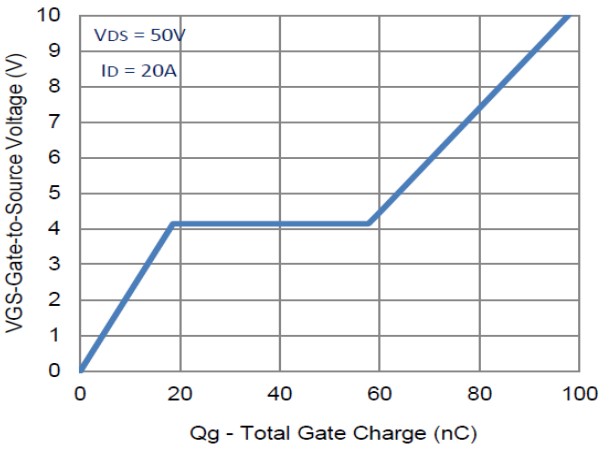


5. Output Characteristics

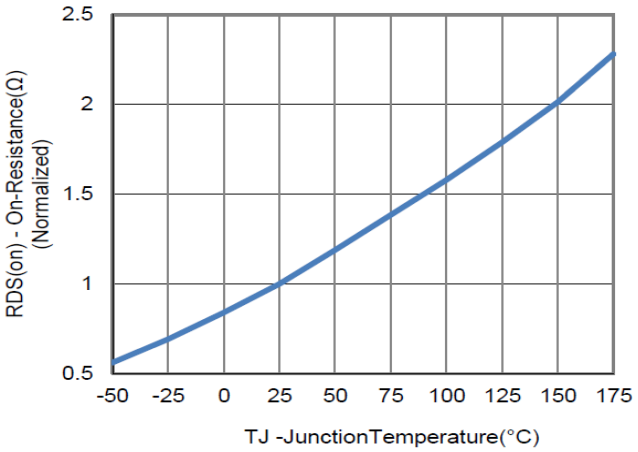


6. Capacitance

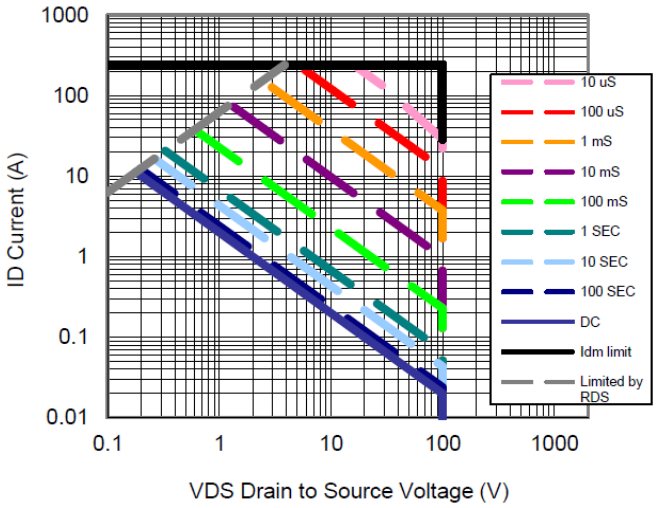
CHARACTERISTIC CURVES



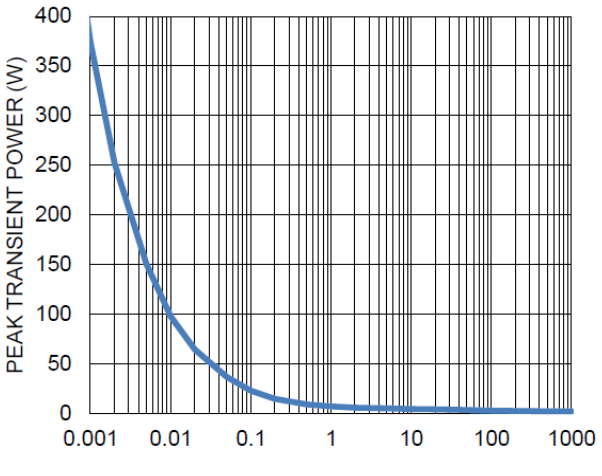
7. Gate Charge



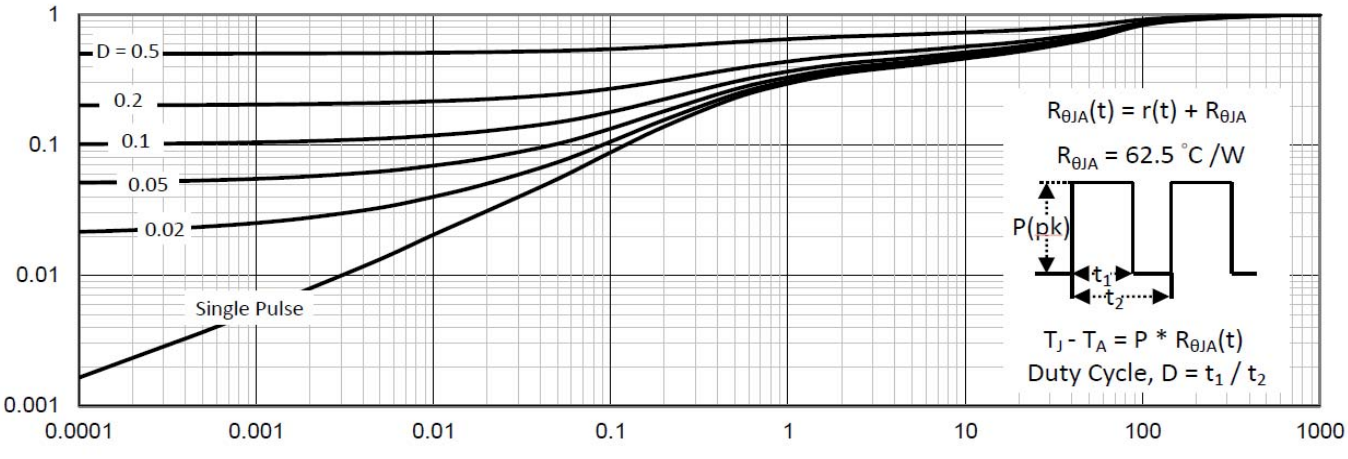
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient