Elektronische Bauelemente

SSRF90N06

N-Ch Enhancement Mode Power MOSFET

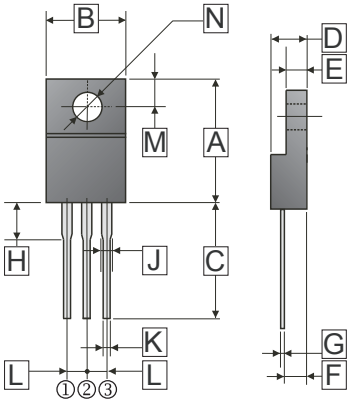
87A, 60V, $R_{DS(ON)}$ 26.5mΩ

RoHS Compliant Product
A suffix of "-C" specifies halogen 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. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

ITO-220



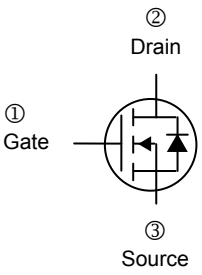
Dimensions in millimeters

FEATURES

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

PRODUCT SUMMARY

PRODUCT SUMMARY		
V_{DS}(V)	R_{DS}(on) m(Ω)	I_D(A)
60	26.5@V_{GS}= 10V	87 [a]
	32.5@V_{GS}= 4.5V	



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	15.00	15.60	H	3.00	3.80
B	9.50	10.50	J	0.90	1.50
C	13.00 Min		K	0.50	0.90
D	4.30	4.70	L	2.34	2.74
E	2.50	3.10	M	2.50	2.90
F	2.40	2.80	N	ϕ3.1	ϕ3.4
G	0.30	0.70			

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current [a]	I_D @T_C=25℃	87	A
Pulsed Drain Current [b]	I_{DM}	240	A
Continuous Source Current (Diode Conduction) [a]	I_S	90	A
Total Power Dissipation [a]	P_D @T_C=25℃	300	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 175	°C
THERMAL RESISTANCE RATINGS			
Maximum Thermal Resistance Junction-Ambient [a]	$R_{\theta JA}$	62.5	°C / W
Maximum Thermal Resistance Junction-Case	$R_{\theta JC}$	3.2	°C / W

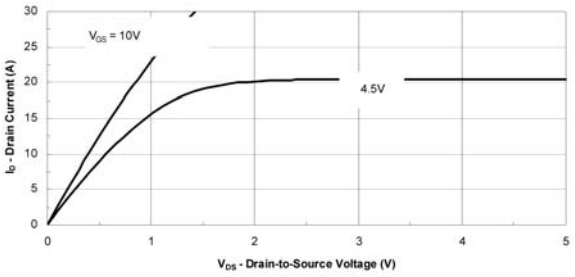
Notes：
a. Package Limited.
b. Pulse width limited by maximum junction temperature.

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

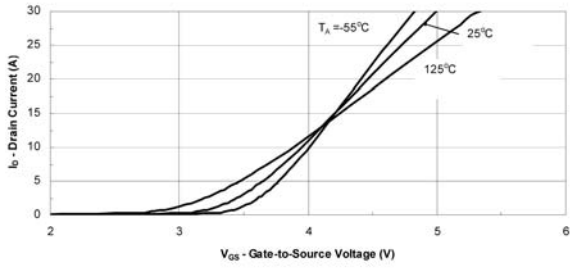
PARAMETER	SYMBO	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	3	V	V_{DS}= $V_{GS,}$ I_D = 250 μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS} = 0V, V_{GS}= 20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}= 48V, V_{GS}= 0V
		-	-	25		V_{DS}= 48V, V_{GS}= 0V, T_J=55°C
On-State Drain Current [a]	$I_{D(on)}$	120	-	-	A	V_{DS} = 5V, V_{GS}= 10V
Drain-Source On-Resistance [a]	$R_{DS(ON)}$	-	-	26.5	mΩ	V_{GS}= 10V, I_D= 30 A
		-	-	32.5		V_{GS}= 4.5V, I_D= 20 A
Forward Transconductance [a]	g_{fs}	-	30	-	S	V_{DS}= 15V, I_D= 30 A
Diode Forward Voltage	V_{SD}	-	1.1	-	V	I_S= 34 A, V_{GS}= 0 V
Dynamic [b]						
Total Gate Charge	Q_g	-	8.5	-	nC	V_{DS} = 15 V V_{GS} = 4.5 V I_D = 90 A
Gate-Source Charge	Q_{gs}	-	3.3	-		
Gate-Drain Charge	Q_{gd}	-	4.0	-		
Turn-on Delay Time	$T_{d(on)}$	-	18	-	nS	V_{DD}= 25 V I_D= 34 A V_{GEN} = 10 V R_L= 25 Ω
Rise Time	T_r	-	59	-		
Turn-off Delay Time	$T_{d(off)}$	-	37	-		
Fall Time	T_f	-	9	-		

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

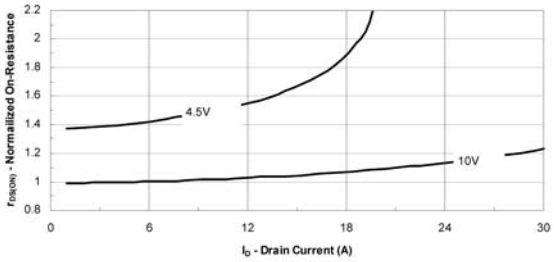
CHARACTERISTIC CURVE



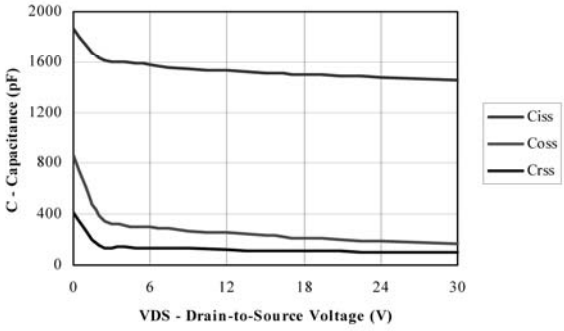
Output Characteristics



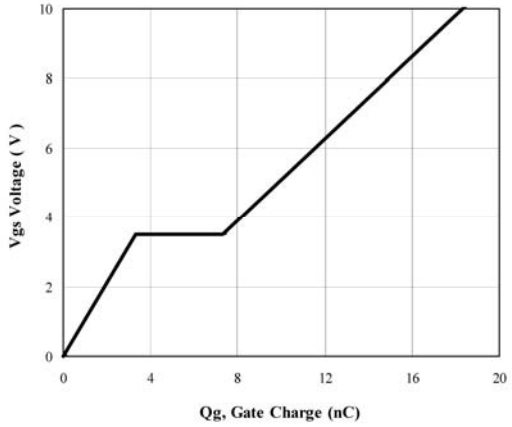
Transfer Characteristics



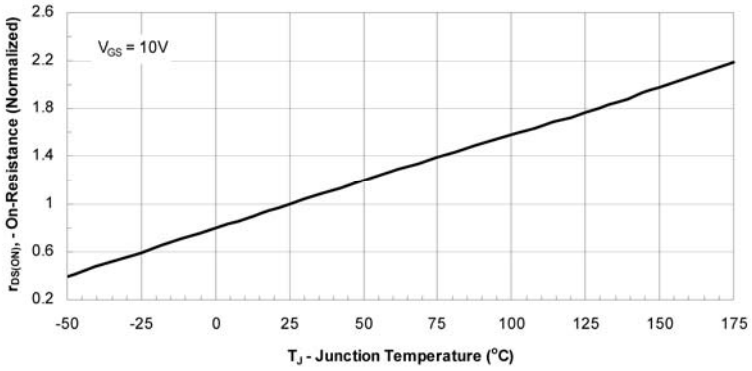
On-Resistance vs. Drain Current



Capacitance

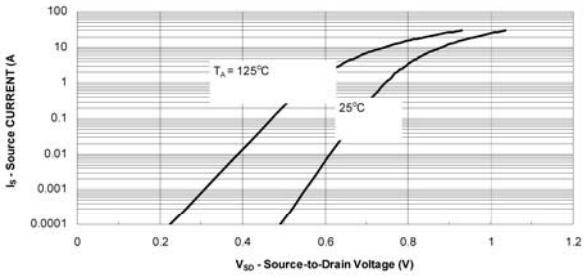


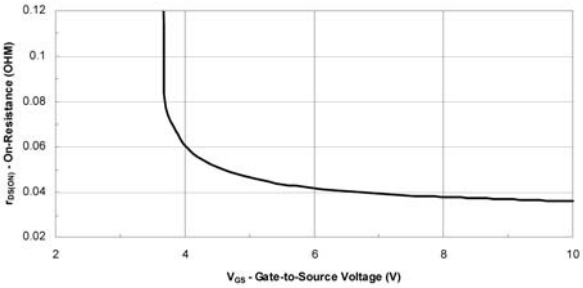
Gate Charge



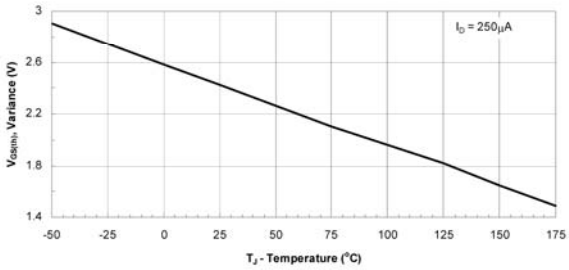
On-Resistance vs. Junction Temperature

CHARACTERISTIC CURVE

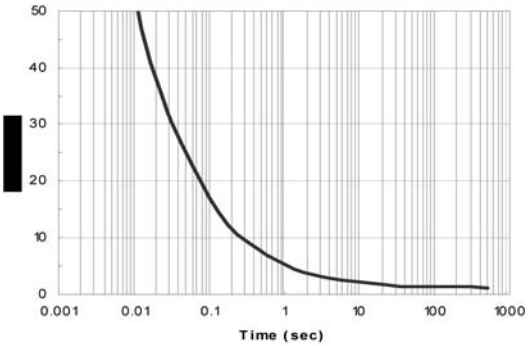




Source-Drain Diode Forward Voltage

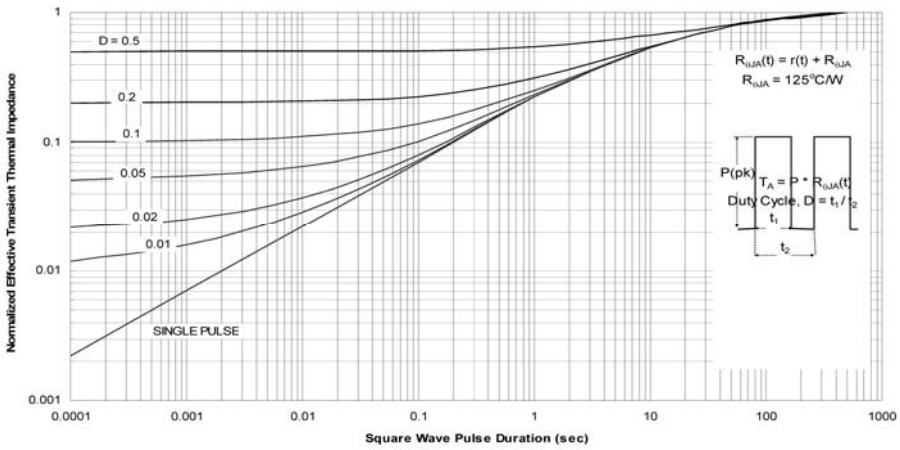


On-Resistance vs.Gate-to Source Voltage



Threshold Voltage

Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient