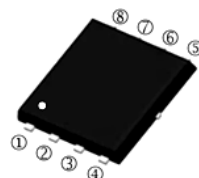


RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching application.

SPR-8PP



FEATURES

- Improved dv/dt capability
- Fast switching
- Green Device Available

APPLICATION

- MB / VGA / Vcore
- POL Applications
- SMPS 2nd SR

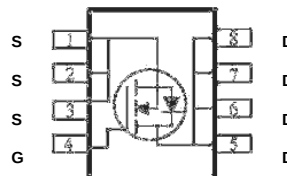
MARKING

NC8P5

DC3908

PACKAGE INFORMATION

Package	MPQ	Leader Size
SPR-8PP	3K	13 inch



ORDER INFORMATION

Part Number	Type
SSPR48N03-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_C=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 @ $V_{GS}=10V$	I_D	48	A
		30	
Pulsed Drain Current ¹	I_{DM}	192	A
Power Dissipation	P_D	35	W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-50~150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	62	°C/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	3.6	

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV _{DSS}	30	-	-	V	V _{GS} =0V, I _D =250μA
Gate-Threshold Voltage		V _{GS(th)}	1.2	1.6	2.5	V	V _{DS} =V _{GS} , I _D =250μA
Gate-Source Leakage Current		I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
Drain-Source Leakage Current	T _C =25℃	I _{DSS}	-	-	1	μA	V _{DS} =24V, V _{GS} =0V
	T _C =125℃		-	-	10		V _{DS} =24V, V _{GS} =0V
Static Drain-Source On-Resistance ³		R _{DS(ON)}	-	-	8.5	mΩ	V _{GS} =10V, I _D =15A
			-	-	13		V _{GS} =4.5V, I _D =8A
Gate resistance		R _g	-	3.2	-	Ω	V _{GS} =0V, V _{DS} =0V, F=1MHz
Forward Transconductance		g _{fs}	-	17	-	S	V _{DS} =5V, I _D =15A
Total Gate Charge		Q _g	-	23.2	-	nC	V _{DS} =15V
Gate-Source Charge		Q _{gs}	-	3.2	-		V _{GS} =10V
Gate-Drain Change		Q _{gd}	-	3.7	-		I _D =1A
Turn-on Delay Time		T _{d(on)}	-	7	-	nS	V _{DD} =10V
Rise Time		T _r	-	76.6	-		V _{GS} =10V
Turn-off Delay Time		T _{d(off)}	-	27.1	-		I _D =30A
Fall Time		T _f	-	52.6	-		R _G =2.7Ω
Input Capacitance		C _{iss}	-	1180	-	pF	V _{DS} =15V
Output Capacitance		C _{oss}	-	177	-		V _{GS} =0V
Reverse Transfer Capacitance		C _{rss}	-	132	-		f=1MHz
Source-Drain Diode							
Continuous Source Current		I _S	-	-	48	A	V _G =V _D =0V, Force Current
Pulsed Source Current ³		I _{SM}	-	-	192		
Diode Forward Voltage ³		V _{SD}	-	-	1	V	I _S =1A, V _{GS} =0V

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature

TYPICAL CHARACTERISTICS

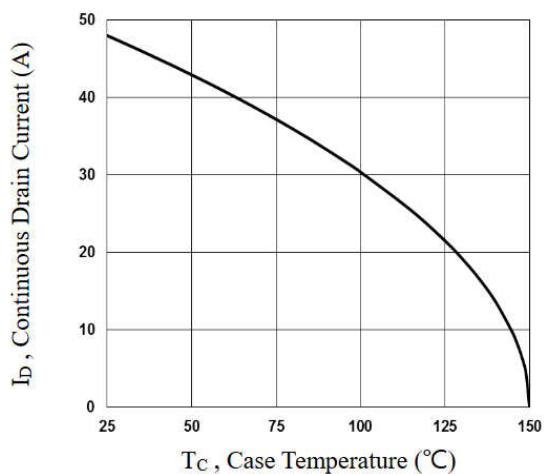


Fig.1 Continuous Drain Current vs. T_C

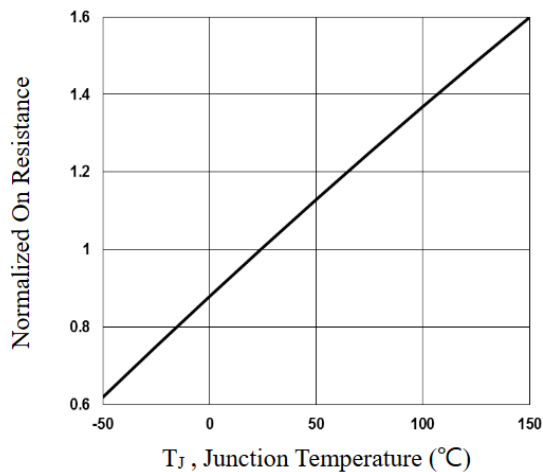


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

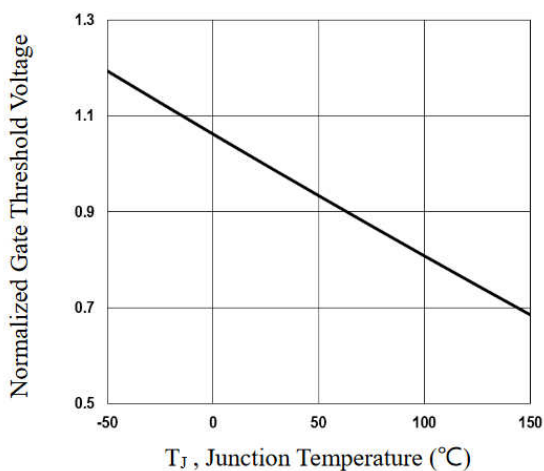


Fig.3 Normalized V_{th} vs. T_J

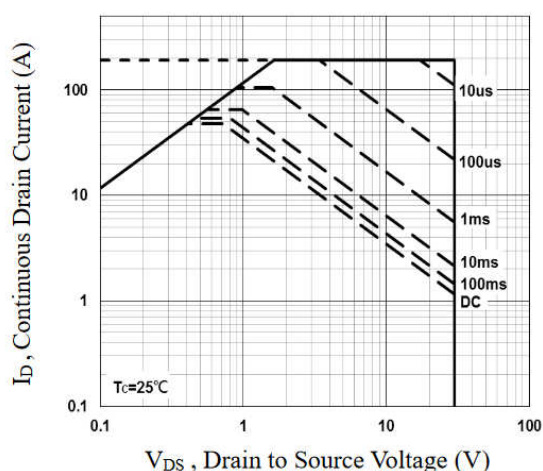


Fig.4 Maximum Safe Operation Area

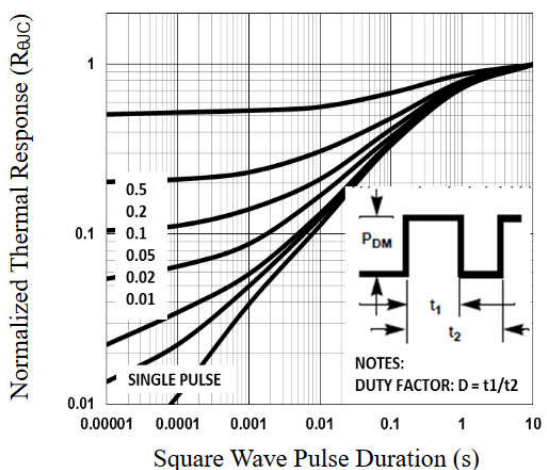


Fig.5 Normalized Transient Impedance

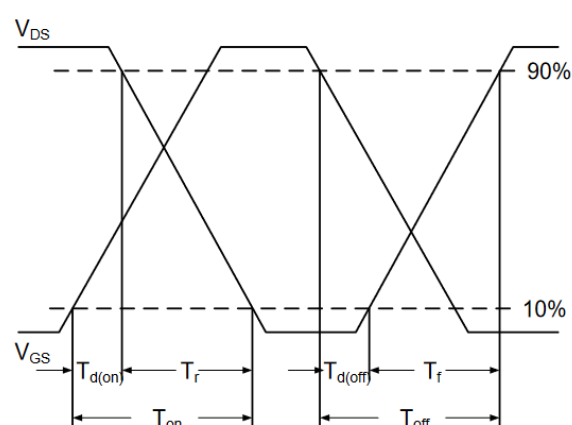


Fig.6 Switching Time Waveform

TYPICAL CHARACTERISTICS

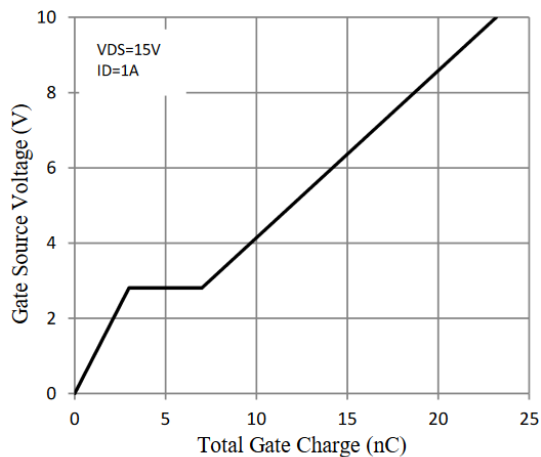


FIG. 7 Gate Charge Characteristics

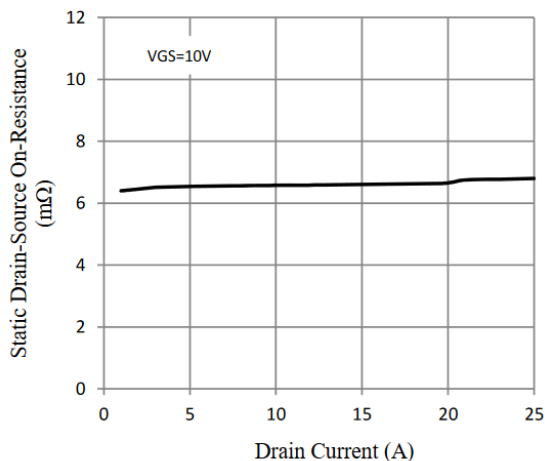


FIG. 8 $R_{DS(ON)}$ vs I_D

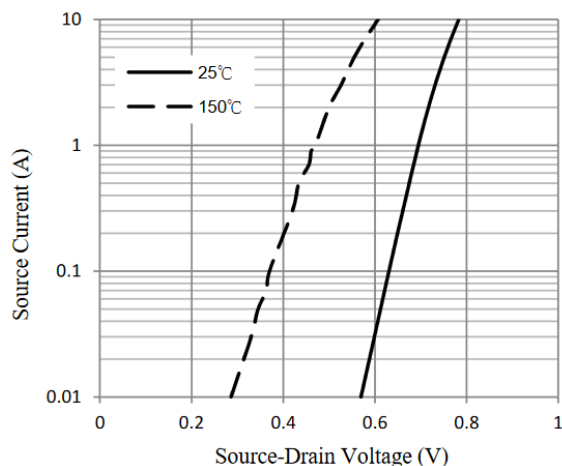


FIG. 9 Diode Forward Characteristics

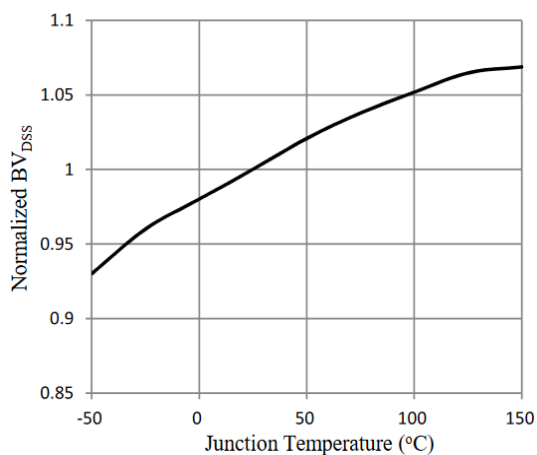


FIG. 10 Normalized BV_{DSS} vs T_J

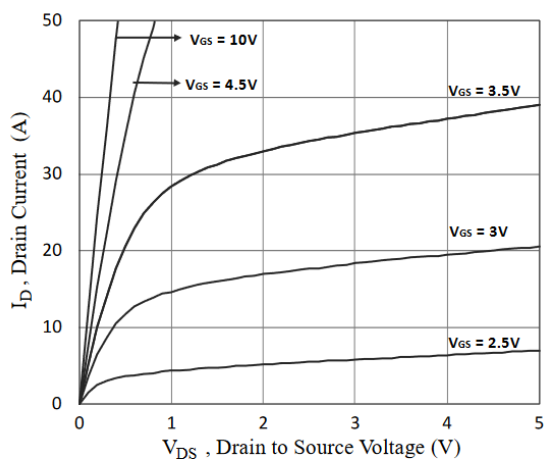


FIG. 11 Output Characteristics

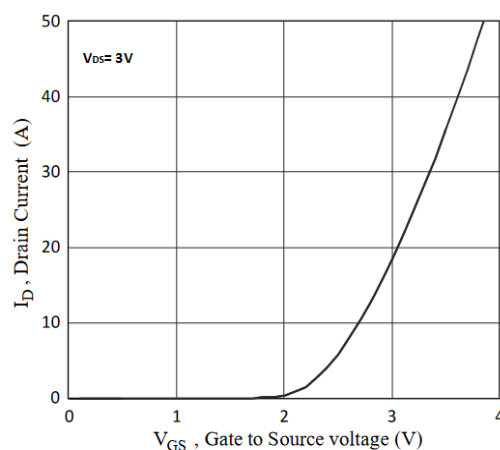
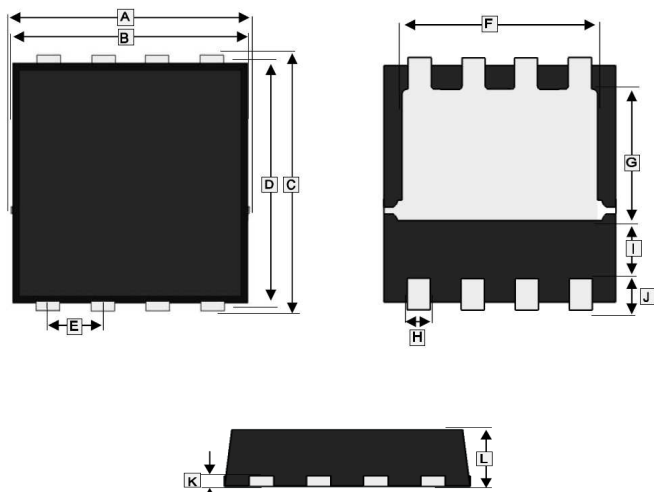


FIG. 12 Transfer Characteristics

PACKAGE OUTLINE DIMENSIONS

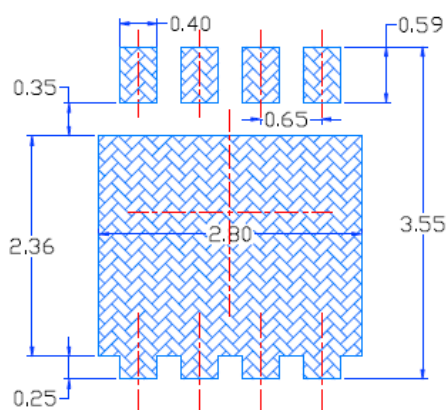
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REF.	Millimeter	
	Min.	Max.
A	3.00	3.45
B	3.00	3.25
C	3.05	3.50
D	2.90	3.20
E	0.65 BSC.	
F	2.29	2.65
G	1.35	1.98
H	0.20	0.40
I	0.57	0.87
J	0.30	0.60
K	0.10	0.25
L	0.60	0.90

MOUNTING PAD LAYOUT

SPR-8PP



*Dimensions in millimeters