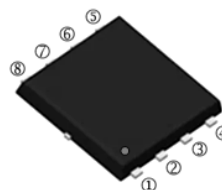


RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

These N-Channel enhancement mode power field effect transistors are using advanced trench 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 applications.

PR-8PP



FEATURES

- Fast Switching
- Green Device Available

APPLICATIONS

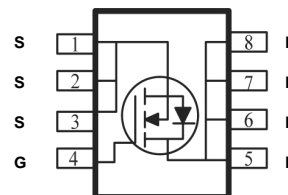
- BMS
- BLDC
- UPS

PACKAGE INFORMATION

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

ORDER INFORMATION

Part Number	Type
SPR200N04-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS ($T_c=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	200	A
Pulsed Drain Current ¹	I_{DM}	800	A
Power Dissipation	P_D	107	W
Operating Junction & Storage Temperature	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	62	$^\circ\text{C/W}$
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.4	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	40	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20V$
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	$V_{DS}=40V, V_{GS}=0$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	1	m Ω	$V_{GS}=10V, I_D=20A$
		-	-	1.5	m Ω	$V_{GS}=4.5V, I_D=15A$
Total Gate Charge	Q_g	-	125	-	nC	$V_{DS}=20V$ $V_{GS}=10V$ $I_D=85A$
Gate-Source Charge	Q_{gs}	-	18	-		
Gate-Drain Charge	Q_{gd}	-	13	-		
Turn-on Delay Time	$T_{d(on)}$	-	14.1	-	nS	$V_{DD}=20V$ $V_{GS}=10V$ $I_D=85A$ $R_G=1.6\Omega$
Rise Time	T_r	-	7.9	-		
Turn-off Delay Time	$T_{d(off)}$	-	56.5	-		
Fall Time	T_f	-	9.6	-		
Input Capacitance	C_{iss}	-	8300	-	pF	$V_{DS}=20V$ $V_{GS}=0$ $f=1MHz$
Output Capacitance	C_{oss}	-	1500	-		
Reverse Transfer Capacitance	C_{rss}	-	1470	-		
Source-Drain Diode						
Diode Forward Voltage	V_{SD}	-	-	1.2	V	$I_S=20A, V_{GS}=0$
Continuous Source Current	I_S	-	-	200	A	$V_G=V_D=0, \text{Force Current}$

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 $\leq 2\%$.

CHARACTERISTIC CURVES

FIG. 1-Drain Current

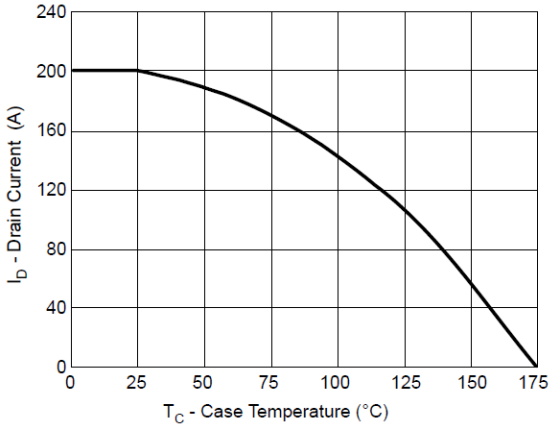


FIG. 2-Normalized BV_{DSS} vs T_J

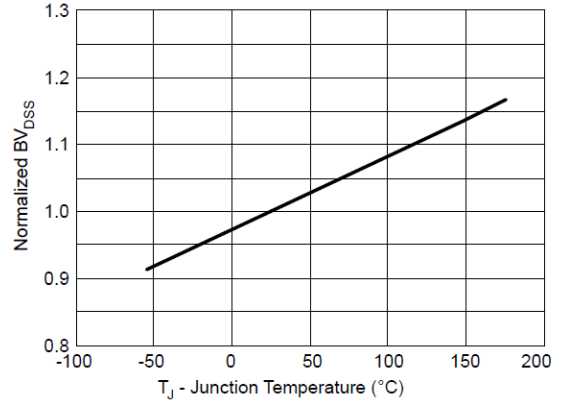


FIG. 3-Normalized $R_{DS(ON)}$ vs T_J

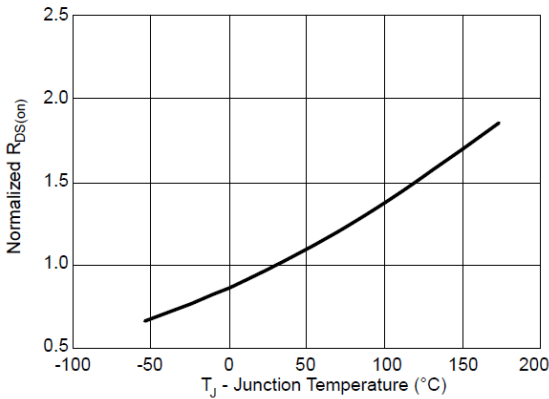


FIG. 4-Gate Charge Characteristics

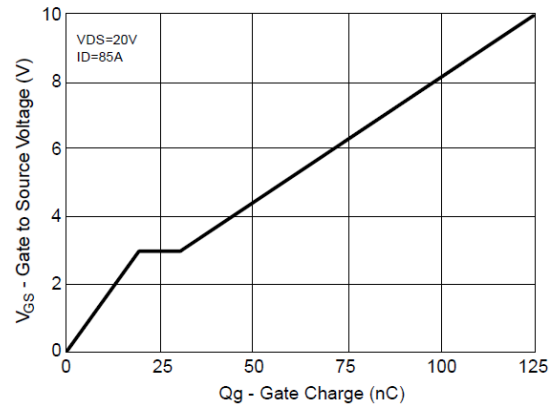


FIG. 5-Safe Operation Area

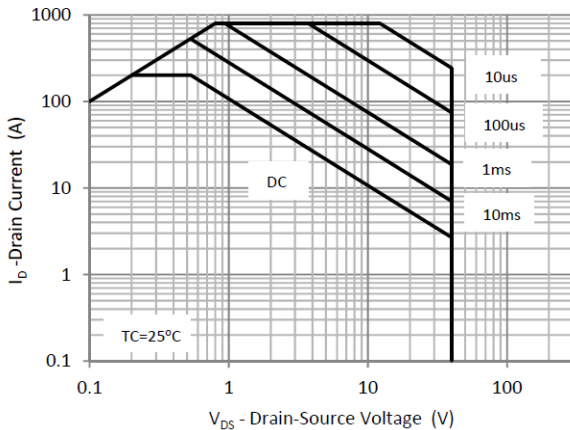
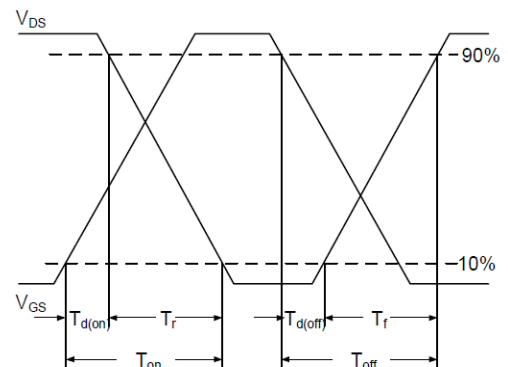
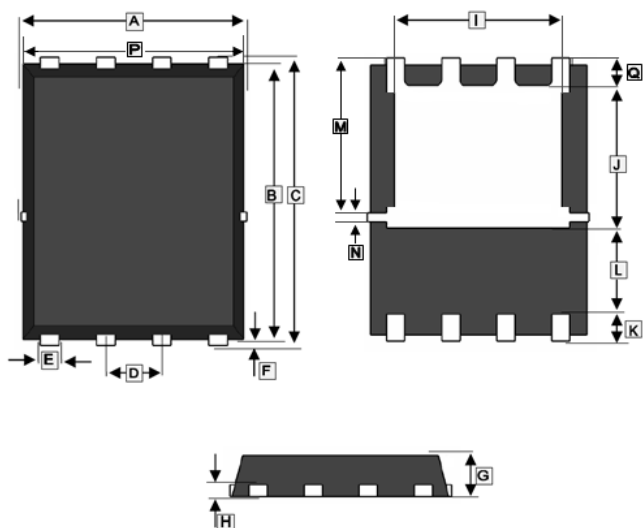


FIG. 6 - Switching Time Waveform



PACKAGE OUTLINE DIMENSIONS

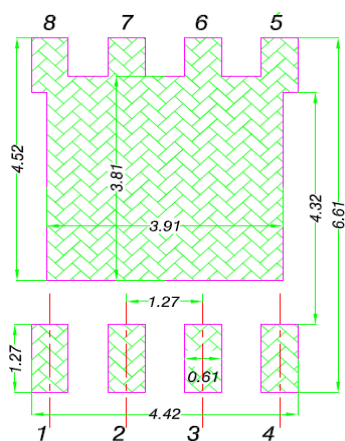
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REF.	Millimeter	
	Min.	Max.
A	4.80	5.40
B	5.45	6.06
C	5.80	6.35
D	1.27 BSC.	
E	0.30	0.51
F	0.05	0.36
G	0.80	1.30
H	0.254 REF.	
I	3.80 REF.	
J	3.60 REF.	
K	0.60 REF.	
L	1.10 REF.	
M	3.75 REF.	
N	0.25 REF.	
P	4.80	5.00
Q	0.50 REF.	

MOUNTING PAD LAYOUT

PR-8PP



*Dimensions in millimeters