CP4810QR-N

20V Dual N-Channel Enhancement Mode MOSFET

Description

The CP4810QR-N uses advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge.

This device is suitable for high side switch in SMPS and general purpose applications.

General Features

- V_{DS} =20V，ID =30A
  $R_{DS(ON)}$=8.7mΩ (typical) @ VGS=4.5V
  $R_{DS(ON)}$=11.5mΩ (typical) @ VGS=2.5V
- Excellent gate charge x $R_{DS(ON)}$ product(FOM)
- Very low on-resistance $R_{DS(ON)}$
- 150 °C operating temperature
- Pb-free lead plating

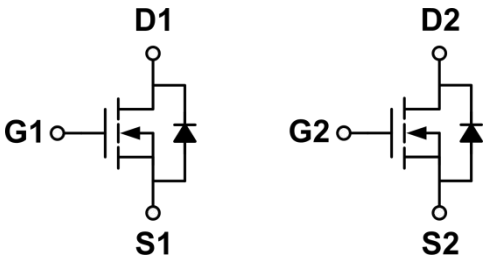
Application

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

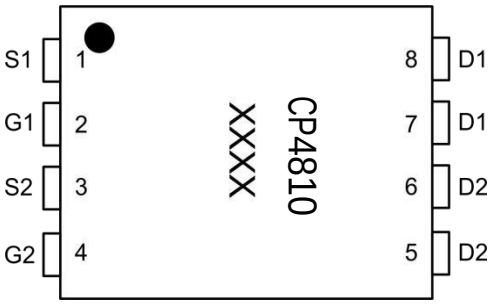
Package

- PDFN3*3-8L

Schematic diagram



Marking and pin assignment



XXXX—Quality Code

Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
CP4810QR-N-G	-55°C to +150°C	PDFN3*3-8L	5000

Absolute Maximum Ratings (TA=25℃ unless otherwise noted)

parameter		symbol	limit	unit
Drain-source voltage		V_{DS}	20	V
Gate-source voltage		V_{GS}	±12	V
Drain Current-Continuous (Silicon Limited)	T_A=25°C	I_D	30	A
	T_A=75°C		18	
Pulsed Drain Current (Package Limited)		I_{DM}	92	A
Single pulse avalanche energy		E_{AS}	40	mJ
Maximum power dissipation	T_A=25°C	P_D	20	W
	T_A=75°C		8	

Operating junction Temperature range	Tj	-55—150	℃

Electrical Characteristics (TA=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	20	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	μA
Gate-body leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±12V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.4	0.65	1	V
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=10A	-	8.7	11.5	mΩ
		V_{GS}=2.5V, I_D=8A	-	11.5	15	
Forward transconductance	gfs	V_{DS}=10V, I_D=10A	-	35	-	S
Dynamic Characteristics						
Input capacitance	C_{ISS}	V_{DS}=10V ,V_{GS}=0V f=1.0MHz	-	965	-	pF
Output capacitance	C_{OSS}		-	186	-	
Reverse transfer capacitance	C_{RSS}		-	174	-	
Gate resistance	Rg	V_{GS}=0V, V_{DS}=0V, f=1.0MHz	-	2.5	3.5	Ω
Switching Characteristics						
Turn-on delay time	$t_{D(ON)}$	V_{DS}=10V V_{GS}=5V R_L=1.5Ω R_{GEN}=3Ω	-	22	-	ns
Rise time	tr		-	34	-	
Turn-off delay time	$t_{D(OFF)}$		-	51	-	
Fall time	tf		-	17	-	
Total gate charge	Qg	V_{DS}=10V,I_D=10A V_{GS}=5V	-	14.2	-	nC
Gate-source charge	Qgs		-	2.7	-	
Gate-drain charge	Qgd		-	3.2	-	

Thermal Characteristics

Thermal Resistance junction-to ambient	Rth JA	52	℃/W

Typical Performance Characteristics

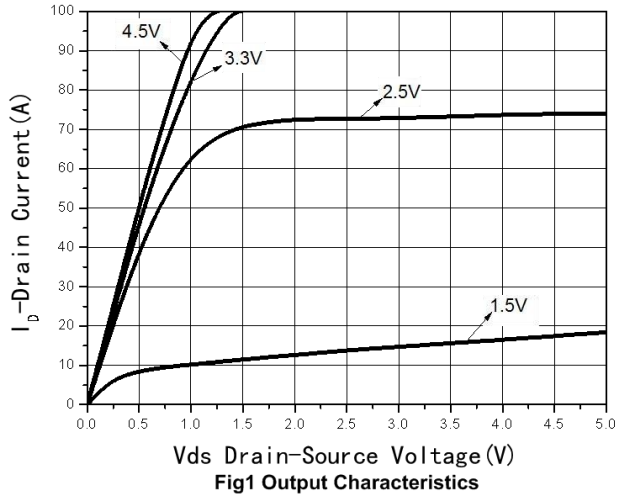


Fig1 Output Characteristics

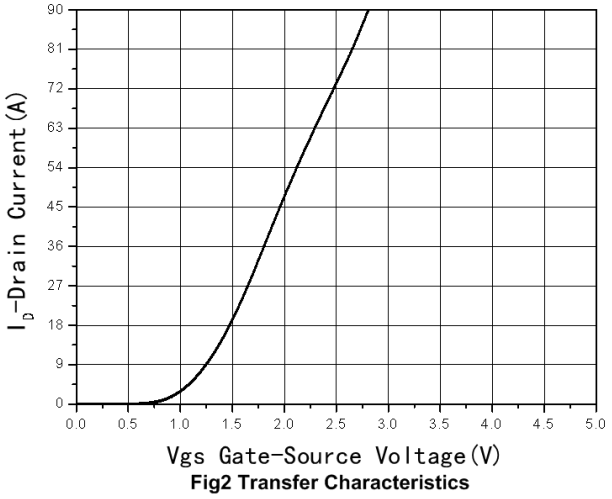


Fig2 Transfer Characteristics

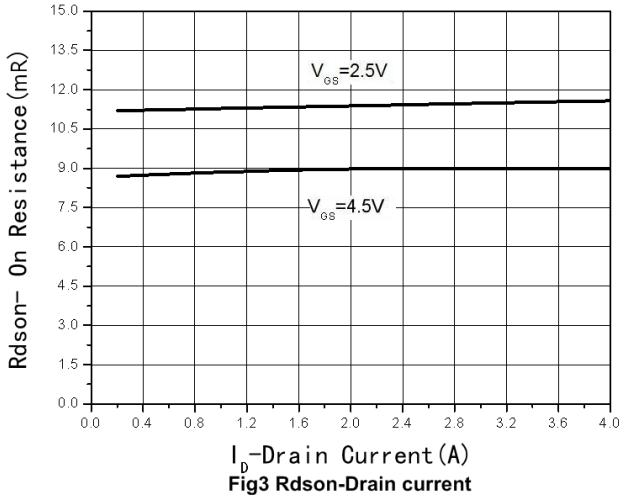


Fig3 Rdson-Drain current

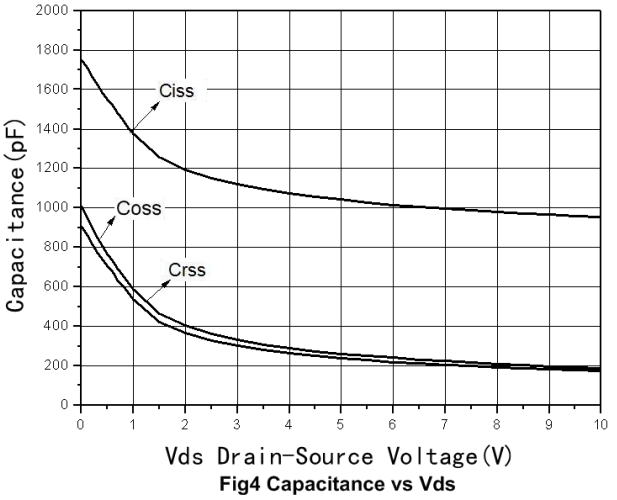


Fig4 Capacitance vs Vds

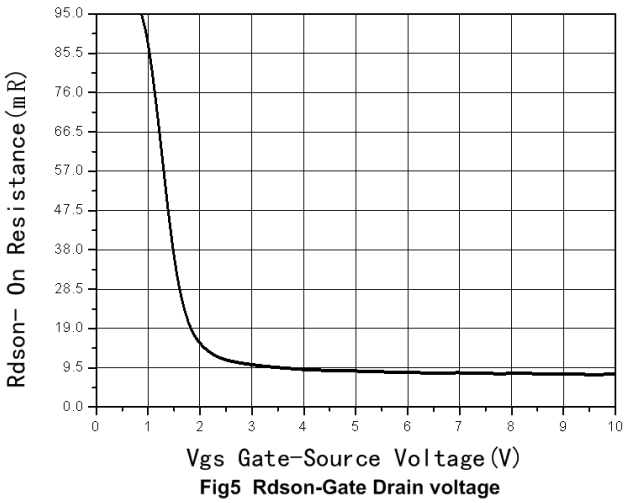


Fig5 Rdson-Gate Drain voltage

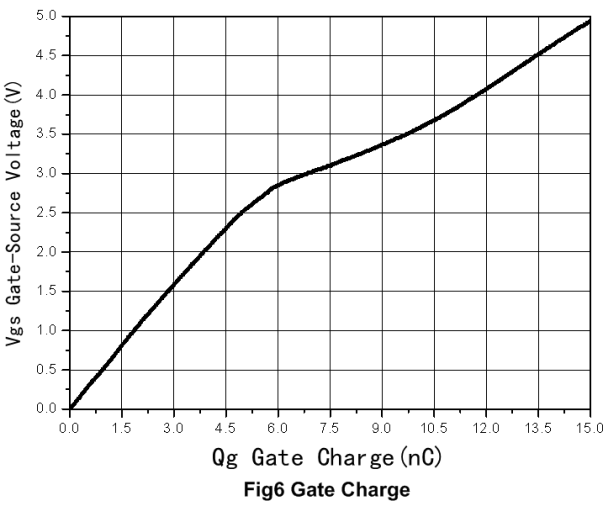


Fig6 Gate Charge

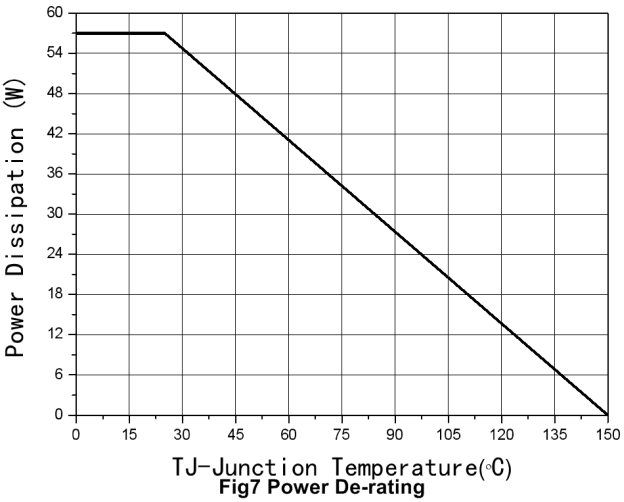


Fig7 Power De-rating

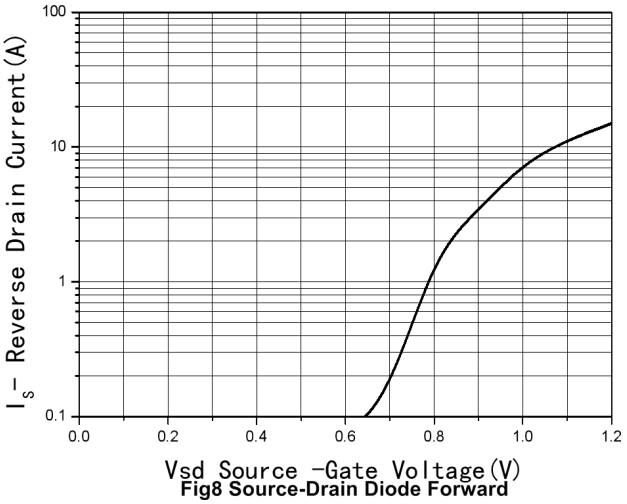
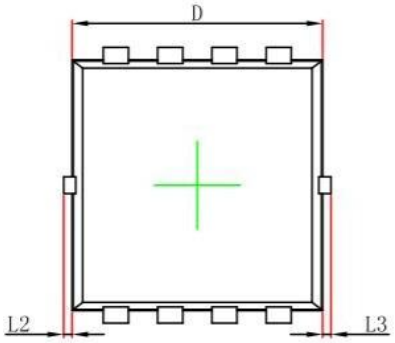


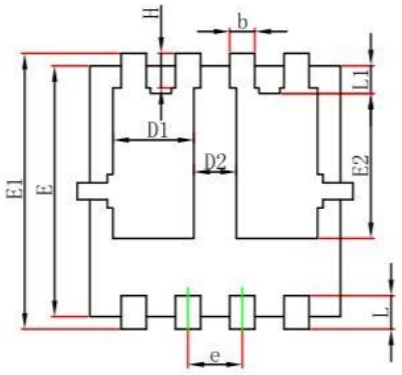
Fig8 Source-Drain Diode Forward

Package Information

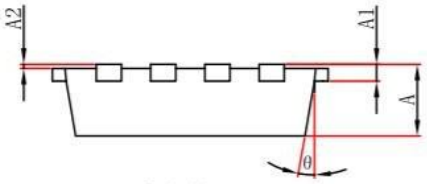
- **PDFN3*3-8L**



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	0.935	1.135	0.037	0.045
D2	0.280	0.480	0.011	0.019
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°