

30V Dual N-Channel Enhancement Mode MOSFET

Description

The PECN4836SR 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

- ◆ $V_{DS} = 30V$, $I_D = 8A$
 $R_{DS(ON)} = 15.8m\Omega$ (typical) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 19.8m\Omega$ (typical) @ $V_{GS} = 4.5V$
- ◆ Excellent gate charge x $R_{DS(ON)}$ product(FOM)
- ◆ Very low on-resistance $R_{DS(ON)}$
- ◆ 150 °C operating temperature
- ◆ Pb-free lead plating
- ◆ 100% UIS tested

Application

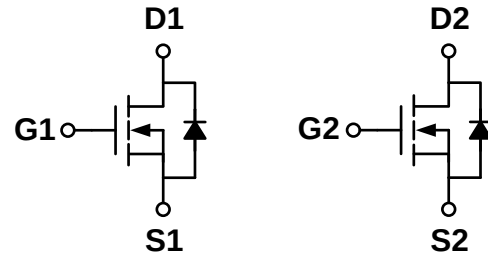
- ◆ DC/DC Converter
- ◆ Ideal for high-frequency switching and synchronous rectification

Package

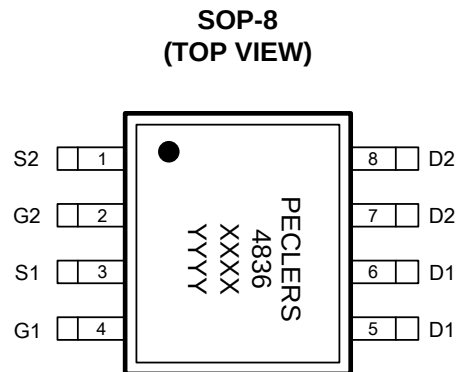
- ◆ SOP-8



Schematic diagram



Marking and pin assignment



XXXX—Wafer Information

YYYY—Quality Code

Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN4836SR	-55°C to +150°C	SOP-8	4000

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

parameter		symbol	limit	unit
Drain-source voltage		V_{DS}	30	V
Gate-source voltage		V_{GS}	±20	V
Drain Current-Continuous (Silicon Limited)	$T_A = 25^\circ C$	I_D	8	A
	$T_A = 75^\circ C$		6.5	
Pulsed Drain Current (Package Limited)		I_{DM}	35	A
Single pulse avalanche energy		E_{AS}	30	mJ
Maximum power dissipation	$T_A = 25^\circ C$	P_D	2	W
	$T_A = 75^\circ C$		1.3	

Operating junction Temperature range	T _j	-55—150	°C
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Electrical Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	30	-		V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	3.0	V
Drain-source on-state resistance	R _{DS(on)}	V _{GS} =10V, I _D =8A	-	15.8	20	mΩ
		V _{GS} =4.5V, I _D =7A	-	19.8	28	
Forward transconductance	g _{fs}	V _{DS} =5V, I _D =8A	-	43	-	S
Dynamic Characteristics						
Input capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V f=1.0MHz	-	531	-	pF
Output capacitance	C _{OSS}		-	74	-	
Reverse transfer capacitance	C _{RSS}		-	59	-	
Gate resistance	R _g	f=1.0MHz	-	2.1	4.9	Ω
Switching Characteristics						
Turn-on delay time	t _{D(on)}	V _{DS} =15V V _{GS} =10V R _L =1.5Ω R _{GEN} =3Ω	-	4.4	-	ns
Rise time	t _r		-	9	-	
Turn-off delay time	t _{D(off)}		-	17	-	
Fall time	t _f		-	6	-	
Total gate charge	Q _g	V _{DS} =15V, I _D =8A V _{GS} =10V	-	12.6	-	nC
Gate-source charge	Q _{gs}		-	1.6	-	
Gate-drain charge	Q _{gd}		-	2.6	-	

Thermal Characteristics

Thermal Resistance junction-to ambient	R _{th JA}	100	°C/W
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Typical Performance Characteristics

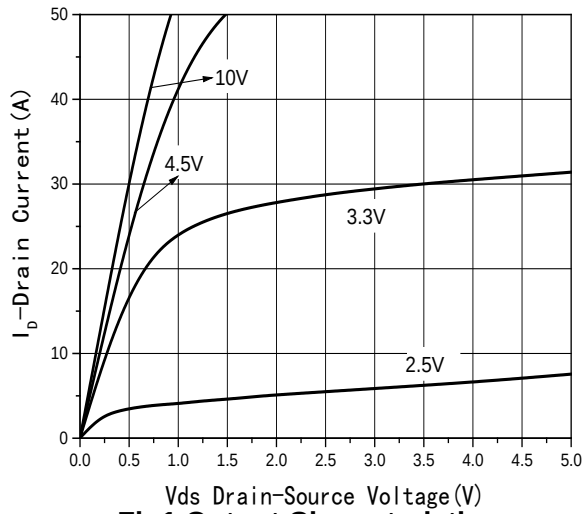


Fig1 Output Characteristics

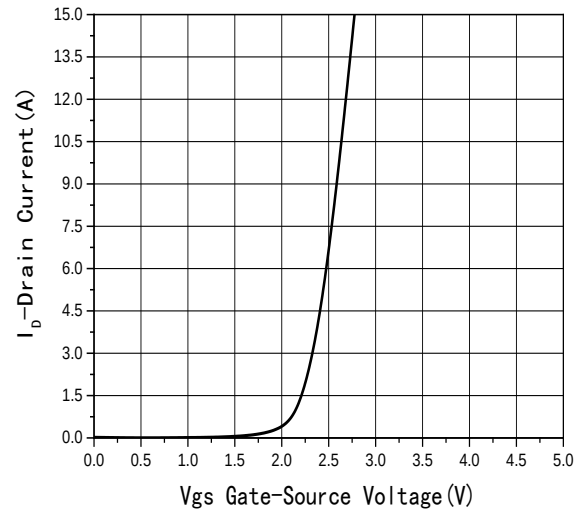


Fig2 Transfer Characteristics

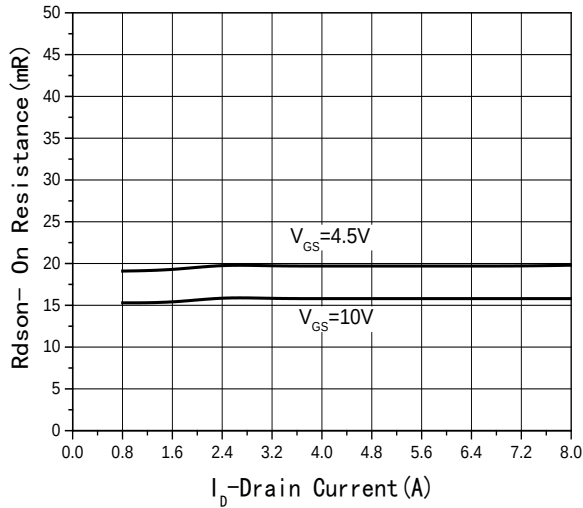


Fig3 $R_{DS(on)}$ -Drain current

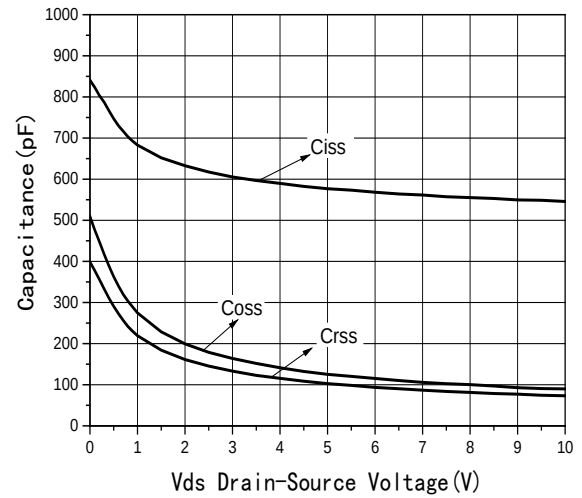


Fig4 Capacitance vs V_{DS}

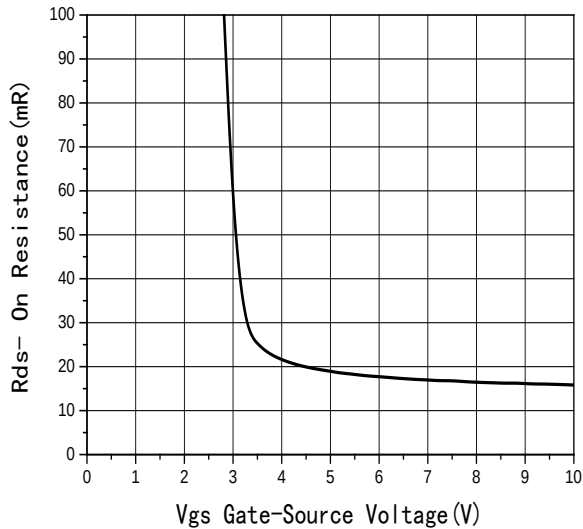


Fig5 $R_{DS(on)}$ -Gate Drain voltage

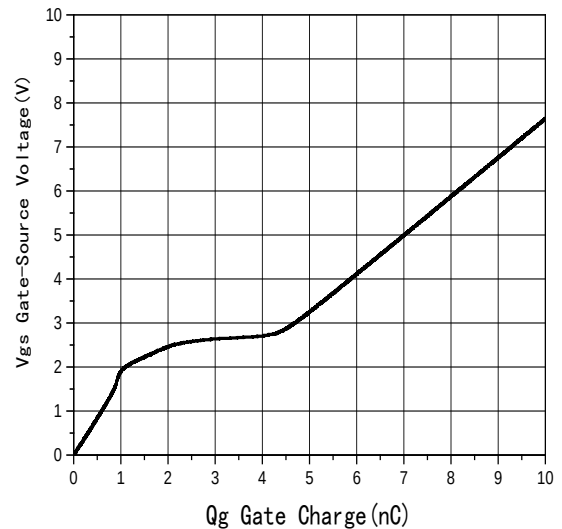


Fig6 Gate Charge

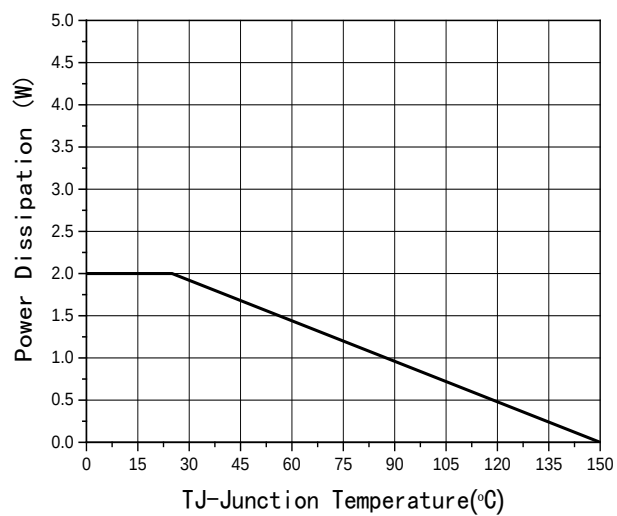


Fig7 Power De-rating

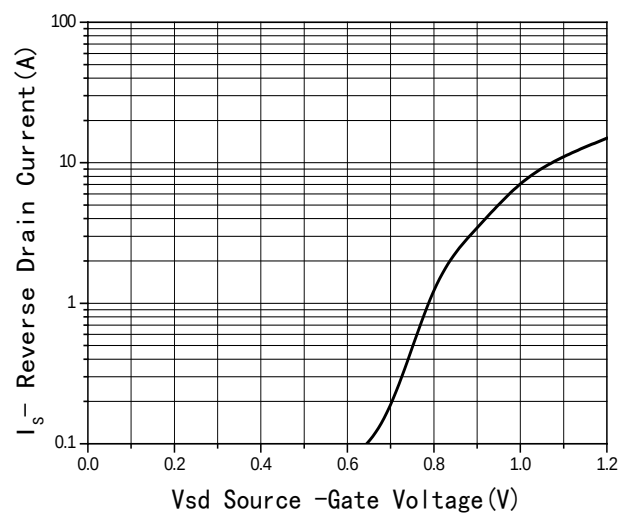
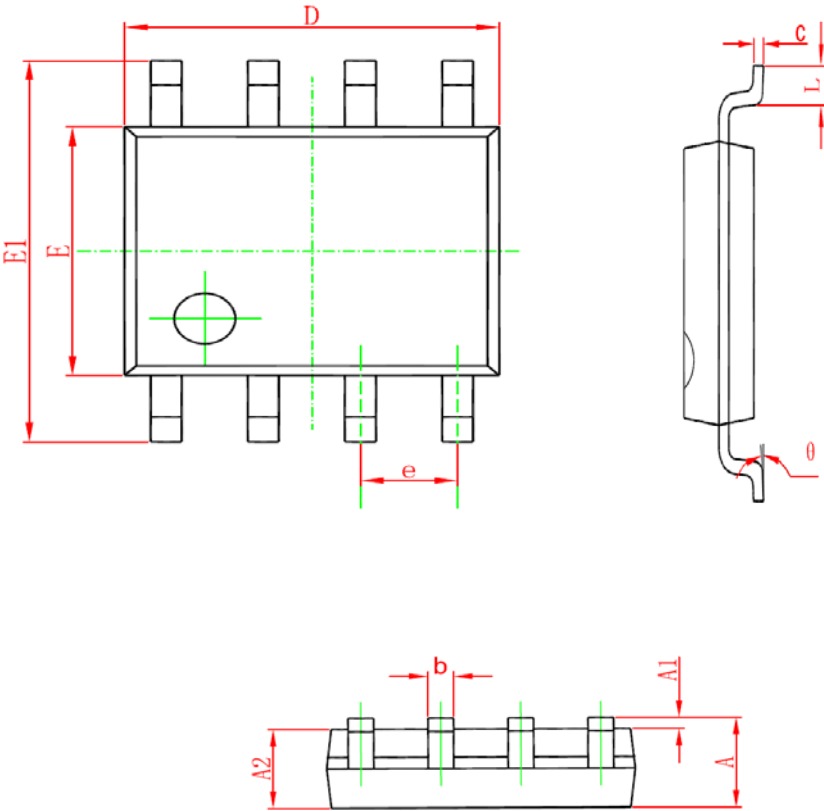


Fig8 Source-Drain Diode Forward

Package Information

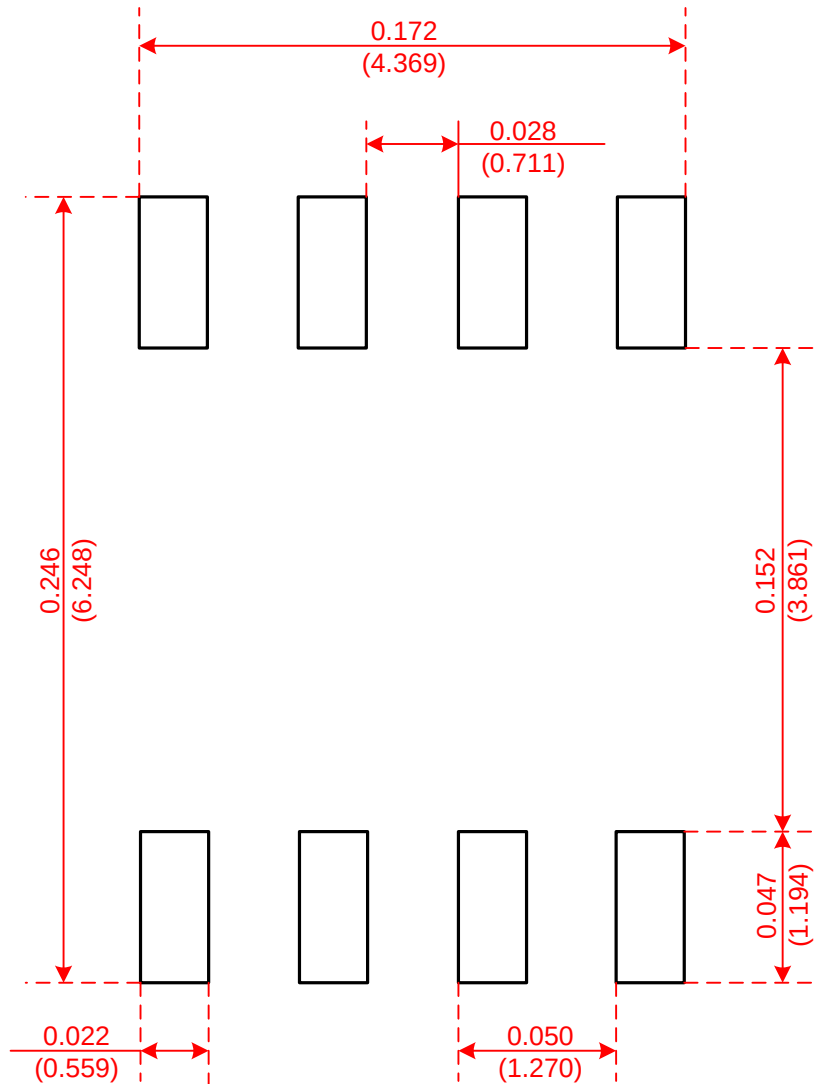
- SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Recommended Minimum Pads

- SOP-8



Recommended Minimum Pads
Dimensions in Inches/(mm)