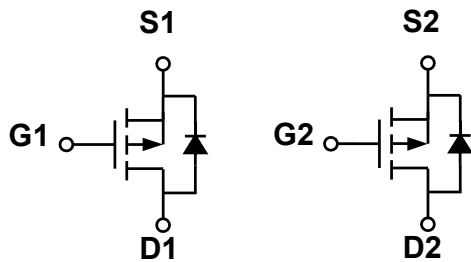
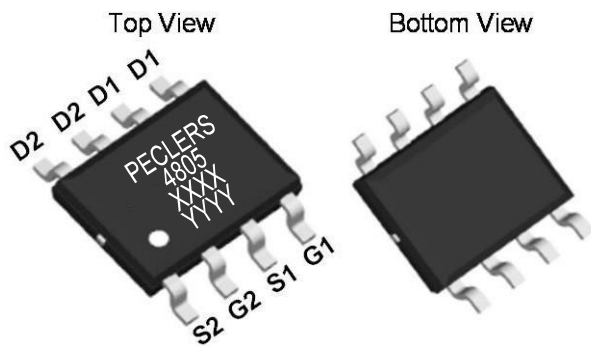


## 30V Dual P-Channel Enhancement Mode MOSFET

### Schematic diagram



### Marking and pin assignment



XXXX—Wafer Information YYYY—  
Quality Code

### Description

The PECN4805SR uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a load switch or in PWM applications.

### General Features

- ◆  $V_{DS} = -30V$ ,  $I_D = -8A$   
 $R_{DS(ON)}(Typ.) = 24.6m\Omega$  @  $V_{GS} = -4.5V$   
 $R_{DS(ON)}(Typ.) = 18.7m\Omega$  @  $V_{GS} = -10V$
- ◆ High power and current handling capability
- ◆ Lead free product is acquired
- ◆ Surface mount package

### Application

- ◆ PWM applications
- ◆ Load switch

### Package

- ◆ SOP-8



### Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN4805SR	-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)	$I_D$	$T_A = 25^\circ C$	-8	A
		$T_A = 75^\circ C$	-6	
Pulsed Drain Current (Package Limited)	$I_{DM}$	-32	A	
Maximum power dissipation	$P_D$	$T_A = 25^\circ C$	2	W
		$T_A = 75^\circ C$	1.3	
Operating junction Temperature range	$T_j$	-55—150	°C	

### Electrical Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	$\mu A$
		$T_J=85^\circ C$	-	-	-30	
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 100$	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.2	-1.6	-2.5	V
Drain-source on-state resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-8A$	-	18.7	20	m $\Omega$
		$V_{GS}=-4.5V, I_D=-7A$	-	24.6	25	
On Status Drain Current	$I_{D(ON)}$	$V_{DS}=-15V, V_{GS}=-10V$	-8	-	-	A
<b>Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$I_{SD}=-8A, V_{GS}=0V$	-	-0.8	-1.3	V
Diode Continuous Forward Current	$I_S$		-	-8	-	A
Reverse Recovery Time	$t_{rr}$	$I_F=-8A,$ $di/dt=-100A/\mu s$	-	24	-	ns
Reverse Recovery Charge	$Q_{rr}$		-	16	-	nC
<b>Dynamic Characteristics</b>						
Gate Resistance	$R_G$	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	-	0.65	-	$\Omega$
Input capacitance	$C_{ISS}$	$V_{GS}=0V, V_{DS}=-15V$ $f=1.0MHz$	-	1605	-	pF
Output capacitance	$C_{OSS}$		-	163	-	
Reverse transfer capacitance	$C_{RSS}$		-	145	-	
Turn-on delay time	$t_{D(ON)}$	$V_{GS}=-10V, V_{DD}=-30V,$ $R_L=3\Omega, I_D=-1A, R_G=2.5\Omega$	-	9	-	ns
Turn-on Rise time	$t_r$		-	10	-	
Turn-off delay time	$t_{D(OFF)}$		-	50	-	
Turn-off Fall time	$t_f$		-	20	-	
Total gate charge	$Q_g$	$V_{GS}=-10V, I_D=-8A$ $V_{DS}=-15V$	-	31.8	-	nC
Gate-source charge	$Q_{gs}$		-	4.4	-	
Gate-drain charge	$Q_{gd}$		-	6.1	-	

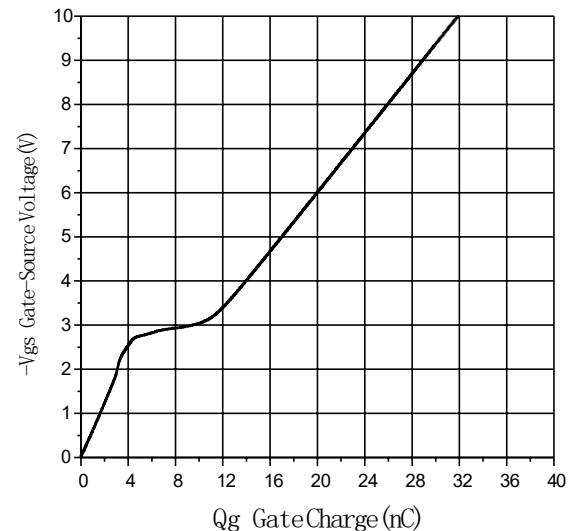
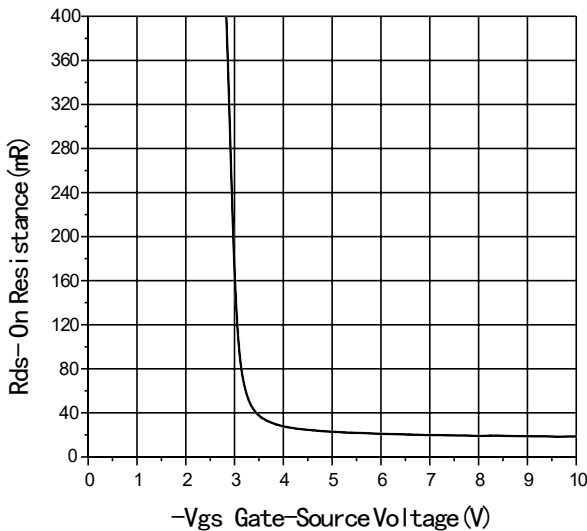
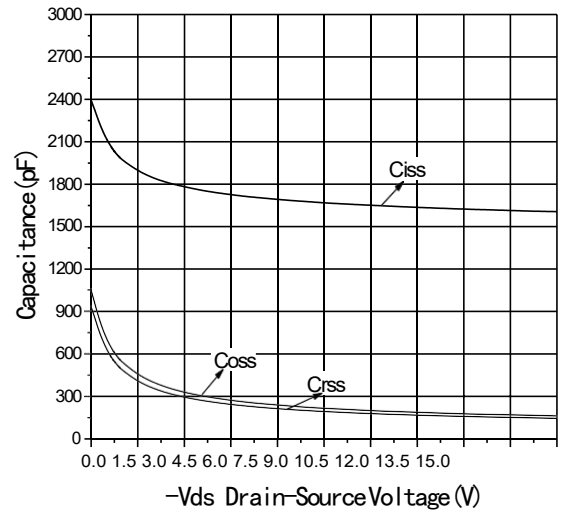
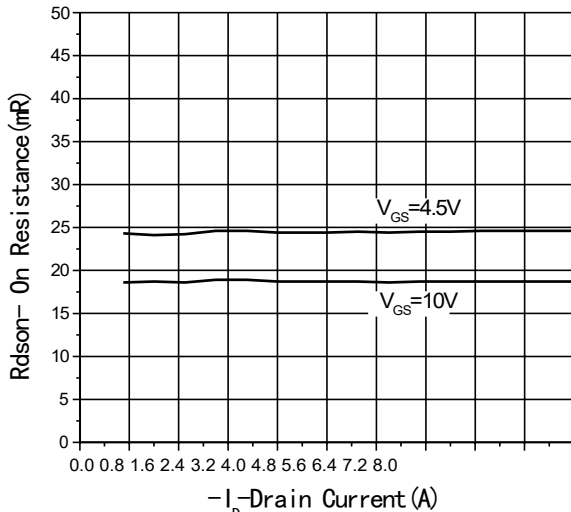
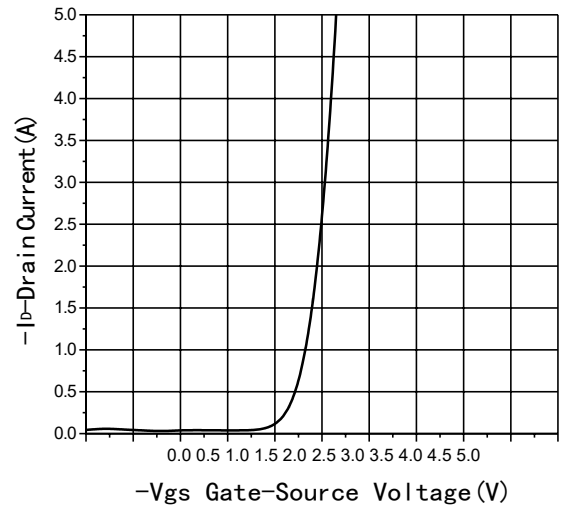
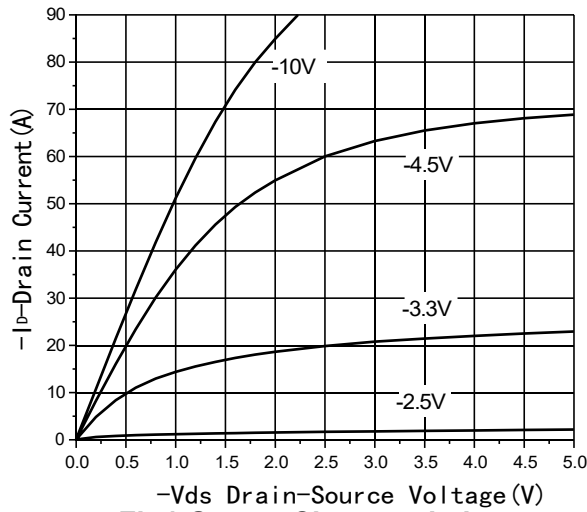
### Thermal Characteristics

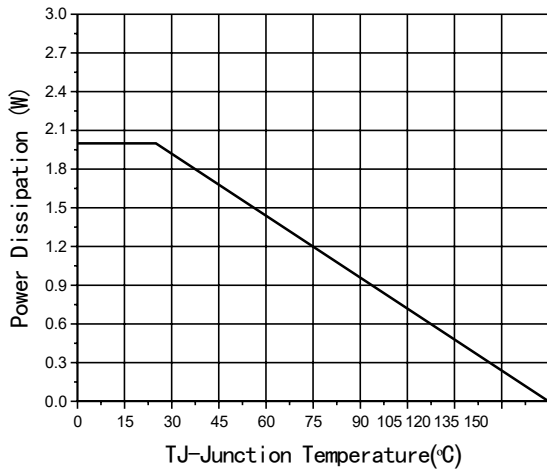
Parameter	Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient <sup>A</sup>	$\leq 10s$	33	40	$^\circ C/W$
Maximum Junction-to-Ambient <sup>A</sup>	Steady-State			
Maximum Junction-to-Lead <sup>B</sup>	Steady-State	16	24	

A: The value of  $R_{qJA}$  is measured with the device mounted on 1in 2 FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ C$ . The value in any given application depends on the user's specific board design. The current rating is based on the  $t \leq 10s$  thermal resistance rating.

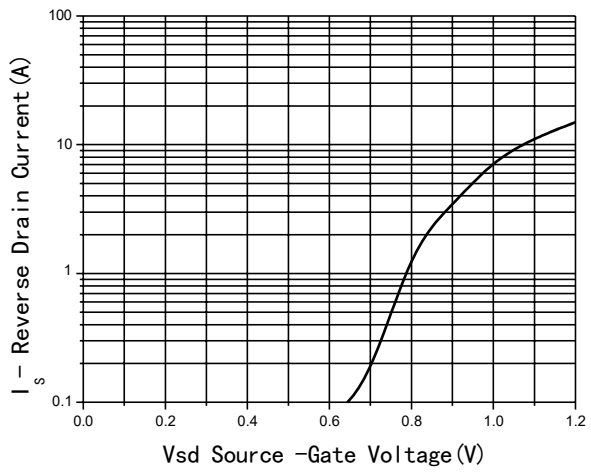
B: The  $R_{qJA}$  is the sum of the thermal impedance from junction to lead  $R_{qJL}$  and lead to ambient.

### Typical Performance Characteristics

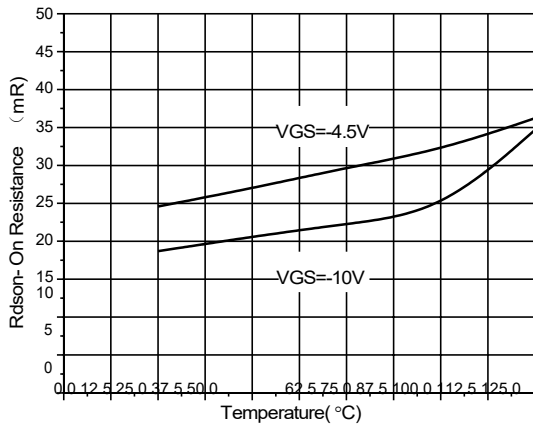




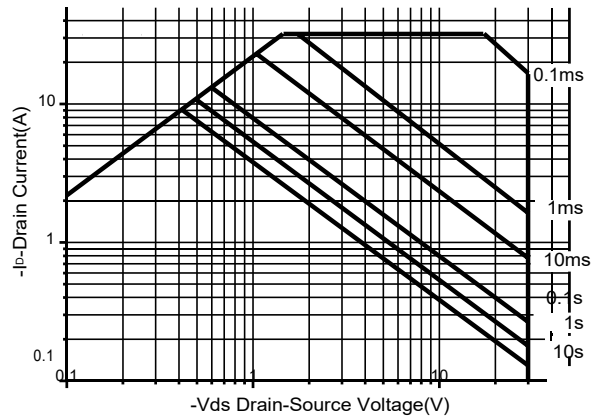
**Fig7 Power De-rating**



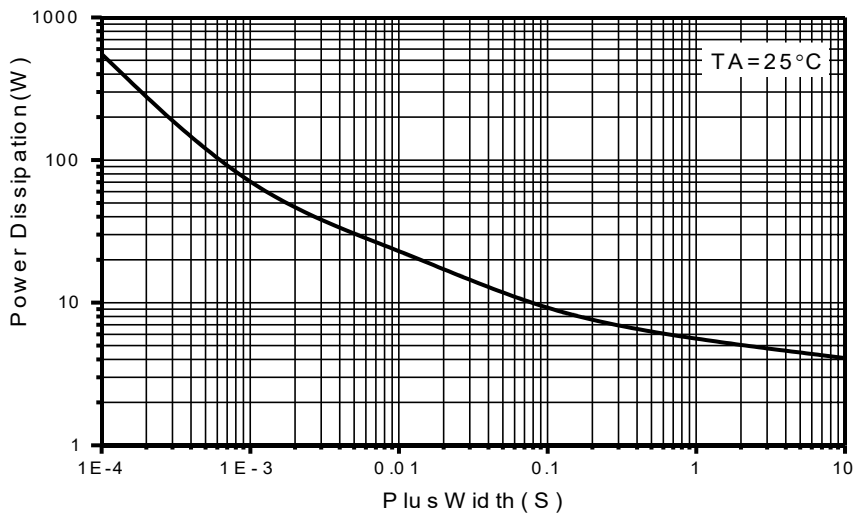
**Fig8 Source-Drain Diode Forward**



**fig9 Rdson vs Junction Temperature**



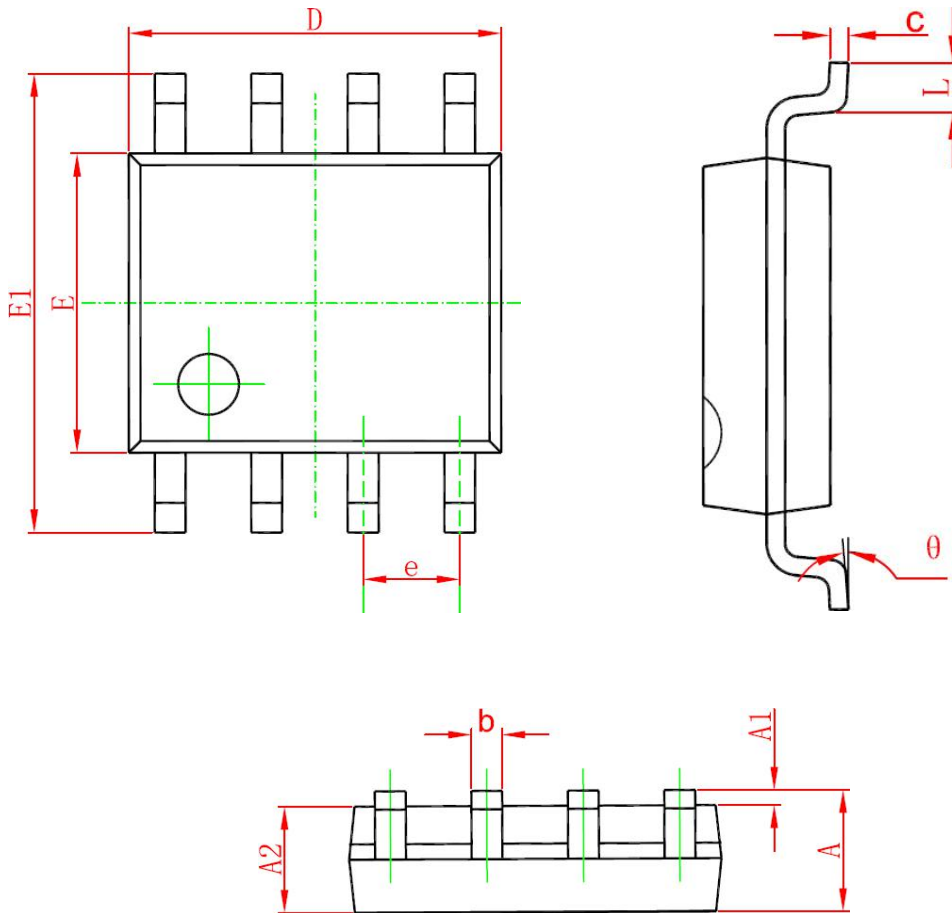
**Fig10 Safe Operation Area**



**Fig11 Single Plus Power Rating Junction to Ambient**

### Package Information

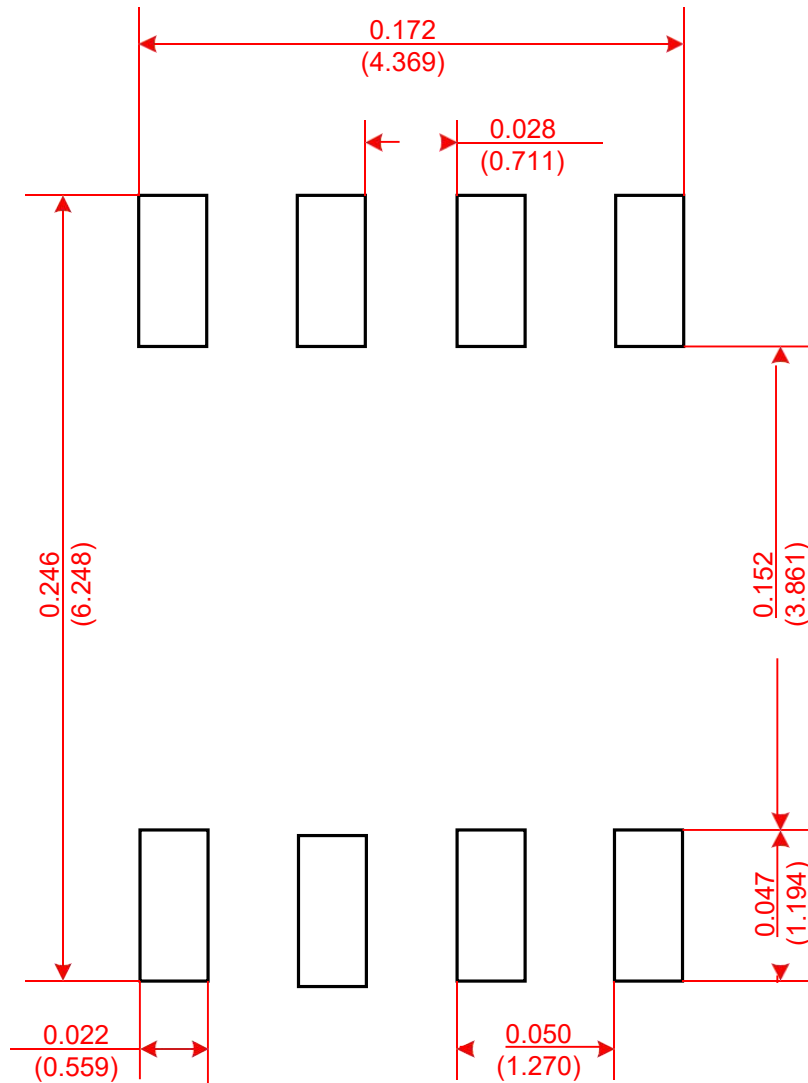
- SOP-8



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
$\theta$	0°	8°	0°	8°

### Recommended Minimum Pads

- SOP-8



**Recommended Minimum Pads**  
Dimensions in Inches/(mm)