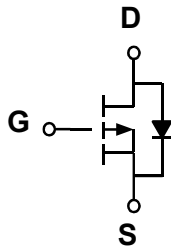
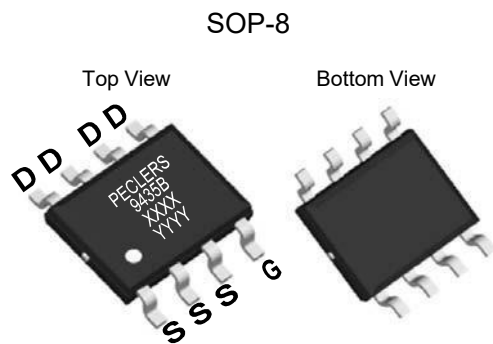


30V P-Channel Enhancement Mode MOSFET

Schematic diagram



Marking and pin assignment



XXXX—Wafer Lot No. YYYY—
Quality code



Description

The PECN9435BSR uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in load switch and battery protection applications.

General Features

- ◆ $V_{DS} = -30V$, $I_D = -6A$
 $R_{DS(ON)}(Typ.) = 49.5m\Omega$ @ $V_{GS} = -4.5V$
 $R_{DS(ON)}(Typ.) = 38.5m\Omega$ @ $V_{GS} = -10V$
- ◆ High power and current handling capability
- ◆ Lead free product is acquired
- ◆ Surface mount package

Application

- ◆ Battery protection
- ◆ Load switch

Package

- ◆ SOP-8

100% UIS TESTED!
100% ΔV_{ds} TESTED!

Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN9435BSR	-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
Continuous Drain Current	I_D	$T_A = 25^\circ C$	-6
		$T_A = 70^\circ C$	-4.5
Pulsed Drain Current ^C	I_{DP}	-24	A
Avalanche energy(L=0.1mH) ^C	E_{AS}	12	mJ
Maximum power dissipation ^B	P_D	$T_A = 25^\circ C$	3.1
		$T_A = 70^\circ C$	2
Operating junction Temperature range	T_J	-55—150	°C

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient ^A	$R_{\theta JA}$	33	40	°C/W
Maximum Junction-to-Ambient ^{A D}		59	75	
Maximum Junction-to-Lead ^B	$R_{\theta JL}$	16	24	

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any given application depends on the user's specific board design.

B: The power dissipation P_D is based on $T_{J(\text{MAX})} = 150^\circ\text{C}$, using $\leq 10\text{s}$ junction-to-ambient thermal resistance.

C: Repetitive rating, pulse width limited by junction temperature $T_{J(\text{MAX})} = 150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^\circ\text{C}$.

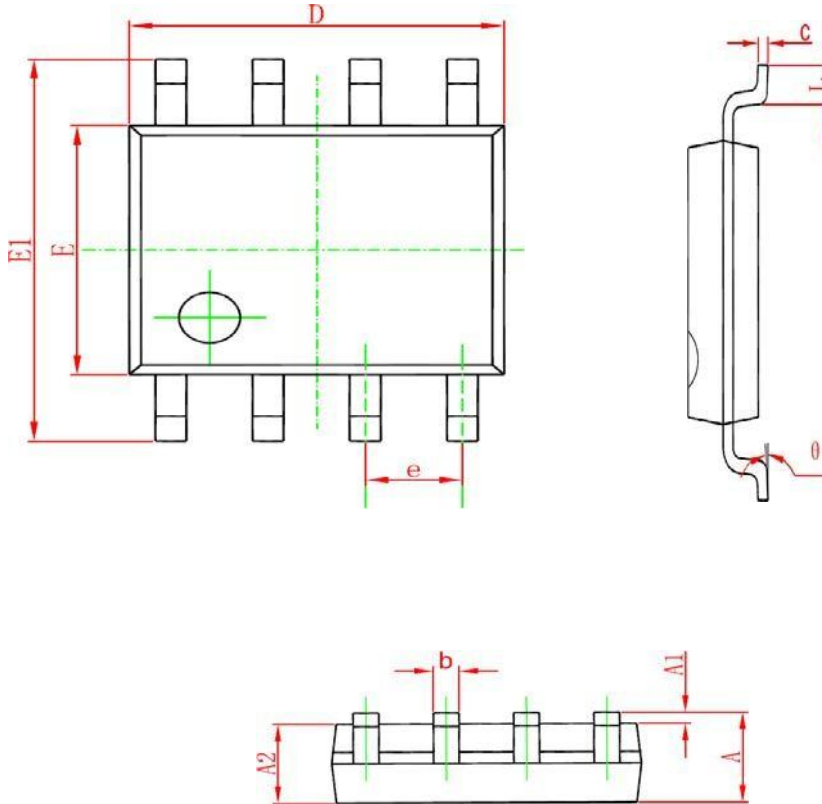
D: The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$	-	-	-1	μA
Gate-body leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.8	-1.4	-2.5	V
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -6A$	-	38.5	45	m Ω
		$V_{GS} = -4.5V, I_D = -4A$	-	49.5	60	
Forward transconductance	gfs	$V_{DS} = -5V, I_D = -6A$	-	8	-	S
Dynamic Characteristics						
Input capacitance	C_{ISS}	$V_{DS} = -15V, V_{GS} = 0V$ $f = 1.0\text{MHz}$	-	760	-	pF
Output capacitance	C_{OSS}		-	140	-	
Reverse transfer capacitance	C_{RSS}		-	95	-	
Switching Characteristics						
Turn-on delay time	$t_{D(ON)}$	$V_{DS} = -15V$ $I_D = -1A$ $V_{GS} = -10V$ $R_{GEN} = 6\Omega$	-	8	-	ns
Rise time	tr		-	6	-	
Turn-off delay time	$t_{D(OFF)}$		-	17	-	
Fall time	tf		-	5	-	
Total gate charge	Qg(10V)	$V_{DS} = -15V, I_D = -6A$ $V_{GS} = -10V$	-	13.6	-	nC
Total gate charge	Qg(4.5V)		-	11	-	
Gate-source charge	Qgs		-	2.5	-	
Gate-drain charge	Qgd		-	3.2	-	
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode forward voltage	V_{SD}	$V_{GS} = 0V, I_S = -1.0A$	-	-0.75	-1.0	V

Package Information

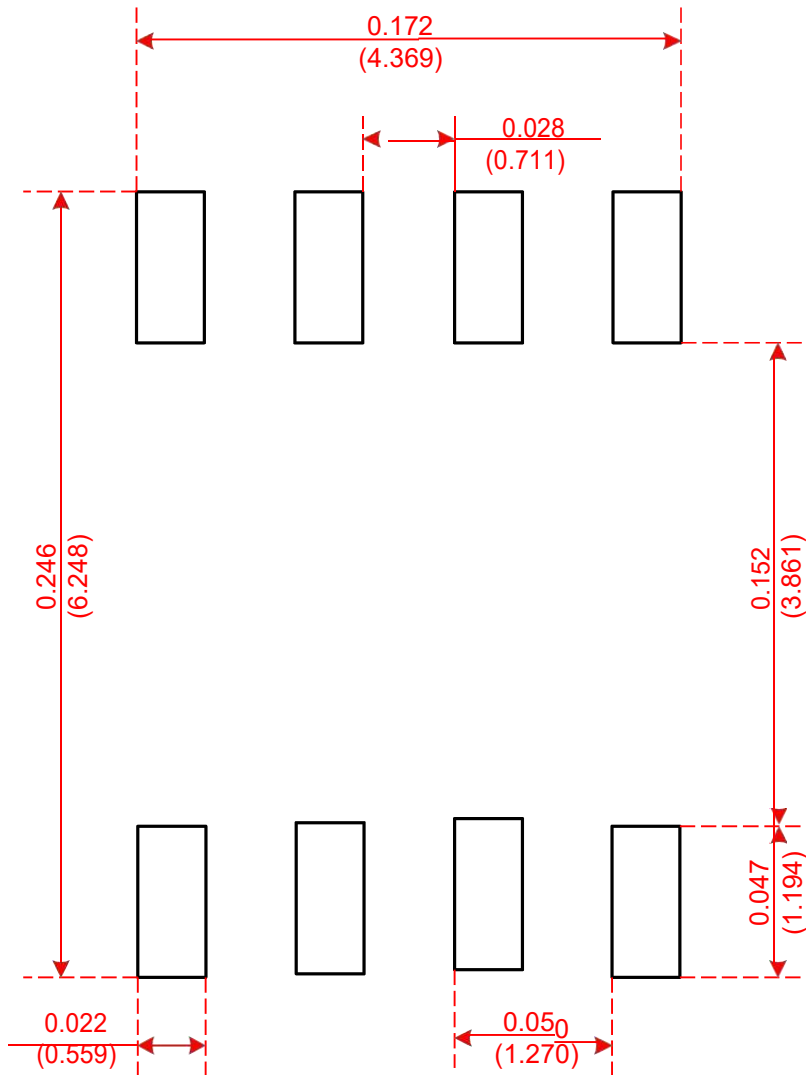
- SOP-8



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

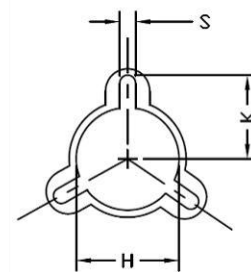
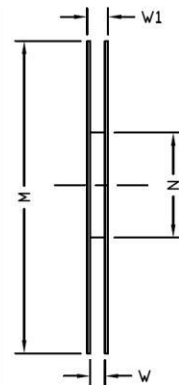
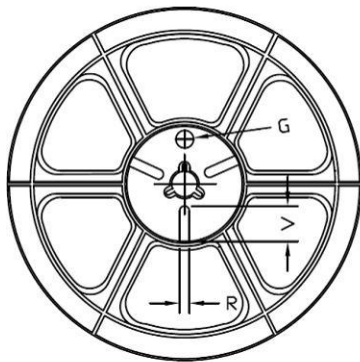
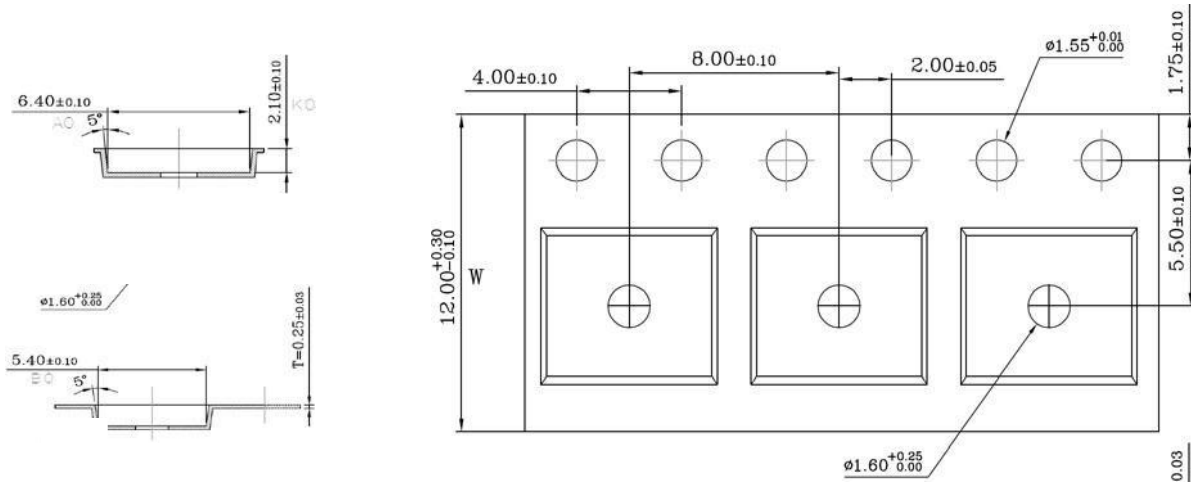
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Recommended Minimum Pads
Dimensions in Inches/(mm)

Tape and Reel

- SOP-8



Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
12mm	Φ330	Φ330.00 ±0.50	Φ97.00 ±0.30	13.00 ±0.30	17.40 ±1.00	Φ13.00 ±0.5	10.6	2.00 ±0.50	—	—	—

Unit Per Reel:
4000pcs

