30V DUAL N-Channel Enhancement Mode MOSFET

Description

The PECN6800MR uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge . The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.

General Features

- V_{DS} =30V,ID =4A
  $R_{DS(ON)}$=32mΩ (typical) @ V_{GS}=4.5V
  $R_{DS(ON)}$=45mΩ (typical) @ V_{GS}=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

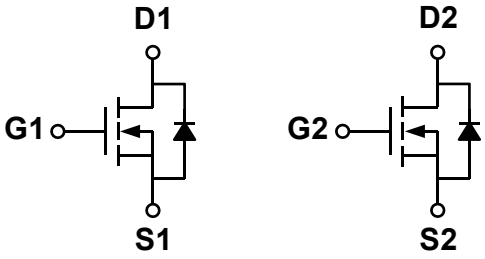
Application

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

Package

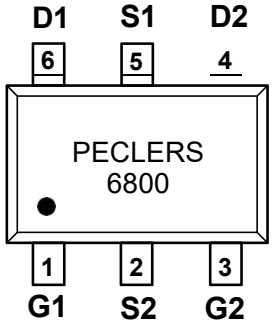
- SOT-23-6L

Schematic diagram



Marking and pin assignment

SOT-23-6L
(TOP VIEW)



Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN6800MR	-55°C to +150°C	SOT-23-6L	3000

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

parameter		symbol	limit	unit
Drain-source voltage		V_{DS}	30	V
Gate-source voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25℃	I_D	4	A
	T_A=70℃		3	
Pulsed Drain Current [C]		I_{DM}	16	A
Maximum power dissipation [B]	T_A=25℃	P_D	1.4	W
	T_A=70℃		0.9	

Operating junction Temperature range	Tj	-55—150	℃

Thermal Characteristics

Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient[A]	≤ 10s	$R_{\theta JA}$	70	90	℃/W
Maximum Junction-to-Ambient[A D]	Steady-State		100	125	
Maximum Junction-to-Lead[B]	Steady-State	$R_{\theta JL}$	63	80	

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°C. The value in any given application depends on the user's specific board design.

B. The power dissipation P_D is based on $T_{J(MAX)}$ =150°C, using ≤ 10s junction-to-ambient thermal resistance.

C.Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$ =150°C. Ratings are based on low frequency and duty cycles to keep initialTJ=25°C.

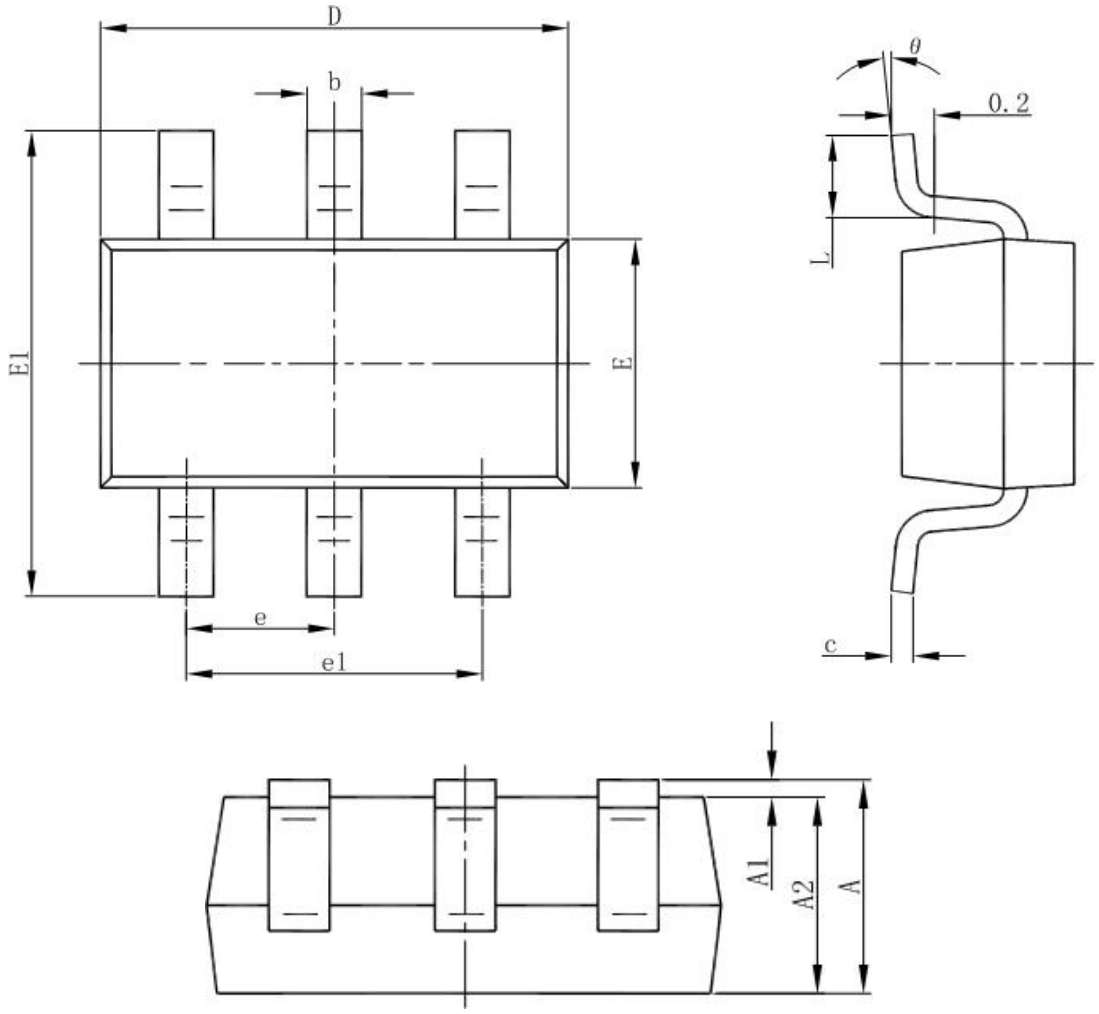
D. The $R_{\theta JA}$ is the sum of the thermal impedence from junction to lead $R_{\theta JL}$ and lead to ambient.

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	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}=±12V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D=250μA	0.6	0.9	1.3	V
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4A	-	32	45	mΩ
		V_{GS}=2.5V, I_D=3A		45	60	
Forward transconductance	g_{fs}	V_{DS}=5V, I_D=2A	-	5	-	S
Dynamic Characteristics						
Input capacitance	C_{ISS}	V_{DS}=15V ,V_{GS}=0V f=1.0MHz	-	822	-	pF
Output capacitance	C_{OSS}		-	98	-	
Reverse transfer capacitance	C_{RSS}		-	76	-	
Switching Characteristics						
Turn-on delay time	$t_{D(ON)}$	V_{DD}=15V R_L=3.3 ohm V_{GEN}=4.5V R_{GEN}=6ohm	-	3.3	-	ns
Rise time	tr		-	4.8	-	
Turn-off delay time	$t_{D(OFF)}$		-	25	-	
Fall time	tf		-	4	-	
Total gate charge	Qg	V_{DS} =15V I_D=4A V_{GS}=4.5V	-	9.5	-	nC
Gate-source charge	Qgs		-	1.5	-	
Gate-drain charge	Qgd		-	3	-	
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode forward voltage	V_{SD}	V_{GS}=0V,Is=3A	-	0.76	1.16	V

Package Information

- **SOT-23-6L**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°