

20V DUAL N-Channel Enhancement Mode MOSFET

Description

The PECN6824MR 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

$V_{DS} = 20V, I_D = 5A$

$R_{DS(ON)} = 25m\Omega$ (typical) @ $V_{GS} = 4.5V$

$R_{DS(ON)} = 28m\Omega$ (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

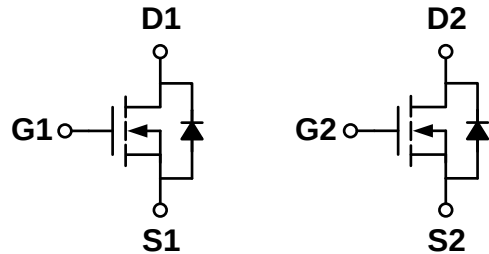
- ◆ DC/DC Converter
- ◆ Ideal for high-frequency switching and synchronous rectification

Package

- ◆ SOT-23-6L

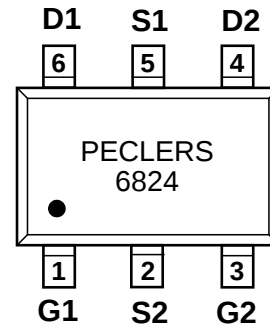


Schematic diagram



Marking and pin assignment

SOT-23-6L
(TOP VIEW)



Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN6824MR	-55°C to +150°C	SOT-23-6L	3000

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

parameter	symbol	limit	unit
Drain-source voltage	V_{DS}	20	V
Gate-source voltage	V_{GS}	±12	V
Drain current-continuous ^a @Tj=125°C -pulse ^b	I_D	5	A
	I_{DM}	25	A
Drain-source Diode forward current	I_S	5	A
Maximum power dissipation	P_D	1.4	W
Operating junction Temperature range	T_j	-55—150	°C

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

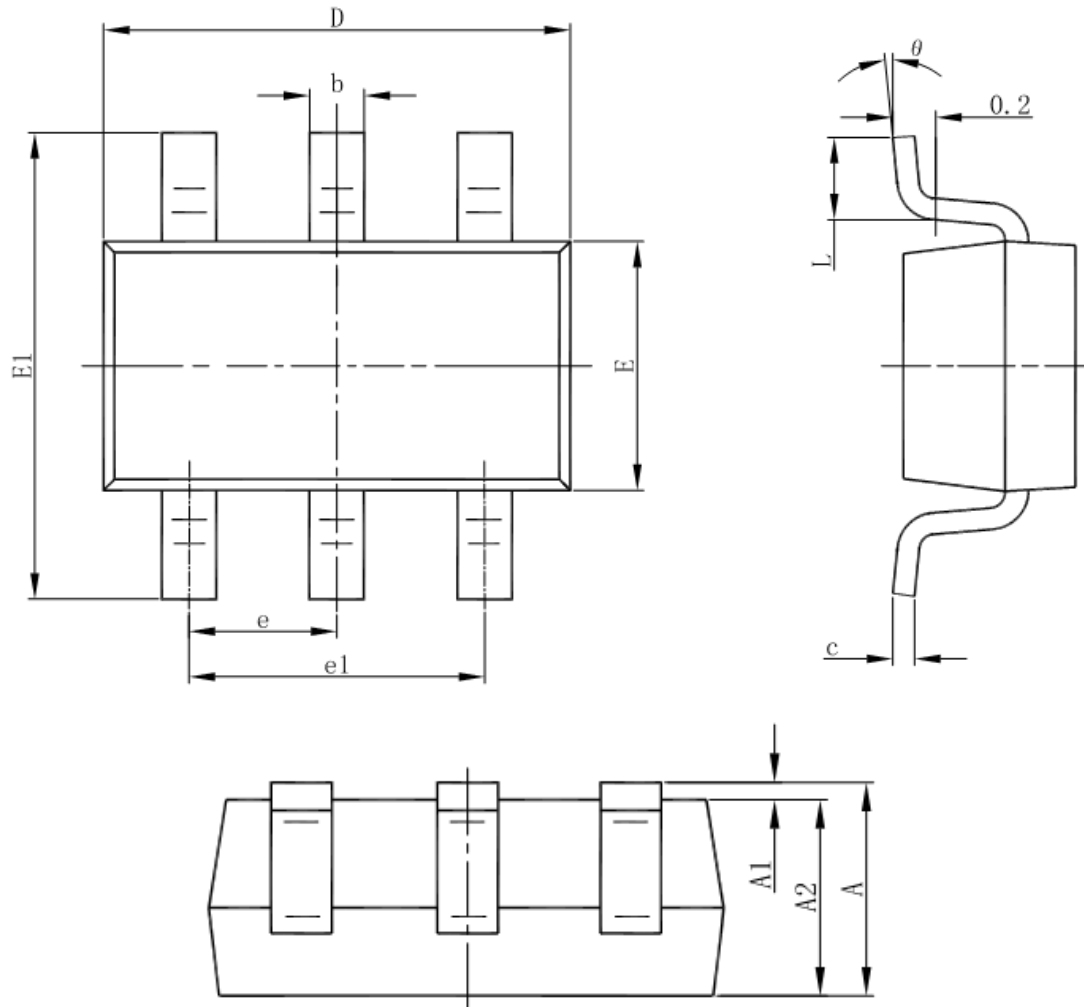
Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45	0.66	1.3	V
Drain-source on-state resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =5A	-	25	30	mΩ
		V _{GS} =2.5V, I _D =3A		28	35	
Forward transconductance	gfs	V _{GS} =5V, I _D =4A	-	10	-	S
Dynamic Characteristics						
Input capacitance	C _{ISS}	V _{DS} =10V ,V _{GS} =0V f=1.0MHz	-	525	-	pF
Output capacitance	C _{OSS}		-	95	-	
Reverse transfer capacitance	C _{RSS}		-	75	-	
Switching Characteristics						
Turn-on delay time	t _{D(ON)}	V _{DD} =10V R _L =3.3 ohm V _{GEN} =4.5V R _{GEN} =6ohm	-	3	-	ns
Rise time	tr		-	7.5	-	
Turn-off delay time	t _{D(OFF)}		-	20	-	
Fall time	tf		-	6	-	
Total gate charge	Qg	V _{DS} =10V I _D =4A V _{GS} =4.5V	-	12.5	-	nC
Gate-source charge	Qgs		-	1	-	
Gate-drain charge	Qgd		-	2	-	
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode forward voltage	V _{SD}	V _{GS} =0V,Is=3A	-	0.76	1.16	V

Thermal Characteristics

Thermal Resistance junction-to ambient	Rth JA	100	°C/W
--	--------	-----	------

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°