PECLERS

PECN6667D6

N And P-Channel Enhancement Mode MOSFET

Description

The PECN6667D6 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

◆ **N-channel**：

V_{DS} =30V,ID =10A

$R_{DS(ON)}$=15mΩ (typical) @ VGS=10V

$R_{DS(ON)}$=19mΩ (typical) @ VGS=4.5V

P-Channel：

V_{DS} =-30V,ID =-10A

$R_{DS(ON)}$=16mΩ (typical) @ VGS=-10V

$R_{DS(ON)}$=22mΩ (typical) @ VGS=-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

100% UIS TESTED!

100% ΔVds TESTED!

Application

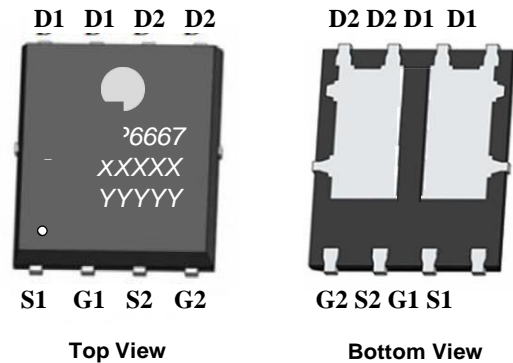◆ Pch+Nch Complementary MOSFET for DC-FAN

◆ H-Bridge application

Schematic diagram

N-CH   P-CH
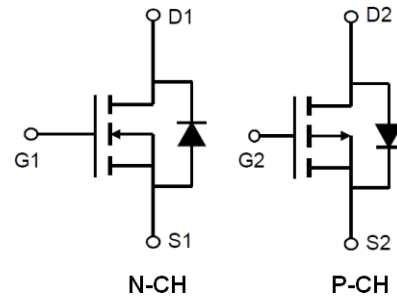
Marking and pin assignment

PDFN5×6-8L-B

Top View   **Bottom View**

Note：

XXXX is the date code ,

YYYY is the Quality Code.

Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
PECN6667D6-G	-55°C to +150°C	PDFN5*6-8L-B	5000

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

Parameter		Symbol	Limit		Unit
			N	P	
Drain-source voltage		V_{DS}	30	-30	V
Gate-source voltage		V_{GS}	±20	±20	V
Operating junction Temperature range		T_j	-55—150	-55—150	℃
Drain Current-Continuous (Silicon Limited)	T_A=25°C	I_D	18	-18	A
	T_A=75°C		12	-12	

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Pulsed Drain Current (Package Limited)	I_{DM}	72	-72		A
Avalanche Current [C]	I_{AS}, I_{AR}	16	-27		A
Avalanche energy L=0.1mH[C]	E_{AS}, E_{AR}	18	36		mJ
Power Dissipation [B]	T_A=25°C	P_D	10	20	W
	T_A=75°C		4	8	
Junction and Storage Temperature Range	T_J, T_{STG}	-55—150			℃

N-Channel Electrical Characteristics (T_J=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}=±20V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250µA	1.0	1.45	2.0	V
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A	-	15	20	mΩ
		V_{GS}=4.5V, I_D=10A	-	19	26	
Forward transconductance	gfs	V_{DS}=5V, I_D=10A	-	15	-	S
Dynamic Characteristics						
Input capacitance	C_{ISS}	V_{DS}=15V ,V_{GS}=0V f=1.0MHz	-	740	-	pF
Output capacitance	C_{OSS}		-	110	-	
Reverse transfer capacitance	C_{RSS}		-	82	-	
Gate resistance	Rg	V_{GS}=0V, V_{DS}=0V, f=1.0MHz	-	1.1	-	Ω
Switching Characteristics						
Turn-on delay time	$t_{D(ON)}$	V_{DS}=15V V_{GS}=10V R_L=1.8Ω R_{GEN}=3Ω	-	5	-	ns
Rise time	tr		-	3.5	-	
Turn-off delay time	$t_{D(OFF)}$		-	9	-	
Fall time	tf		-	3.5	-	
Total gate charge	Qg	V_{DS}=15V,I_D=10A V_{GS}=10V	-	15	-	nC
Gate-source charge	Qgs		-	2.5	-	
Gate-drain charge	Qgd		-	3	-	

P-Channel Electrical Characteristics (T$_J$=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$_{GS}$=±20V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	V$_{GS(th)}$	V$_{DS}$=V$_{GS}$, I$_D$=-250µA	-1	-1.6	-2.5	V
Drain-source on-state resistance	R$_{DS(ON)}$	V$_{GS}$=-10V, I$_D$=-10A	-	16	22	mΩ
		V$_{GS}$=-4.5V, I$_D$=-10A	-	22	30	
Forward transconductance	gfs	V$_{DS}$=-5V, I$_D$=-10A	-	18	-	S
Dynamic Characteristics						
Input capacitance	C$_{ISS}$	V$_{DS}$=-15V ,V$_{GS}$=0V f=1.0MHz	-	1040	-	pF
Output capacitance	C$_{OSS}$		-	180	-	
Reverse transfer capacitance	C$_{RSS}$		-	125	-	
Gate resistance	Rg	V$_{GS}$=0V, V$_{DS}$=0V, f=1.0MHz	-	4	-	Ω
Switching Characteristics						
Turn-on delay time	t$_{D(ON)}$	V$_{DS}$=-15V V$_{GS}$=-10V R$_L$=2.3Ω R$_{GEN}$=3Ω	-	10	-	ns
Rise time	tr		-	5.5	-	
Turn-off delay time	t$_{D(OFF)}$		-	3.6	-	
Fall time	tf		-	4.6	-	
Total gate charge	Qg	V$_{DS}$=-15V,I$_D$=-10A V$_{GS}$=-10V	-	19	-	nC
Gate-source charge	Qgs		-	3.6	-	
Gate-drain charge	Qgd		-	4.6	-	

Gate Charge Test Circuit & Waveform
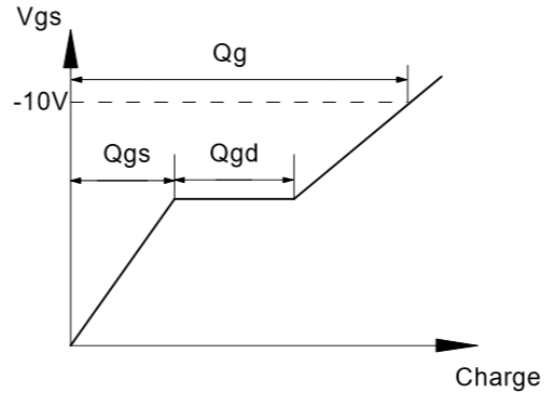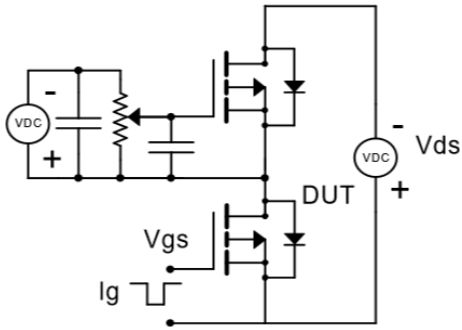
Resistive Switching Test Circuit & Waveforms
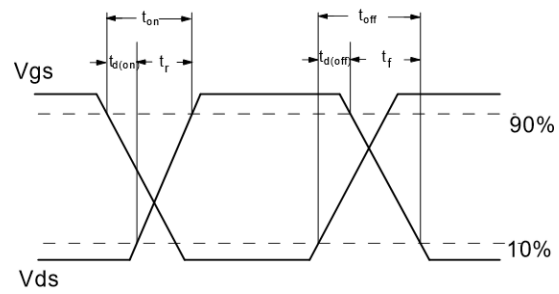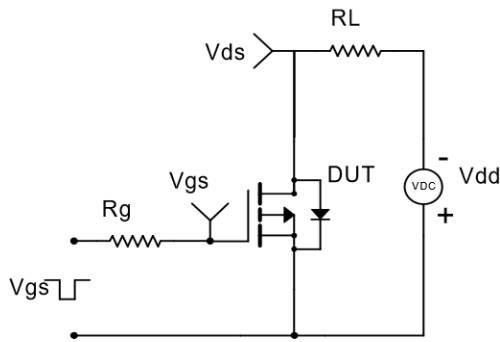
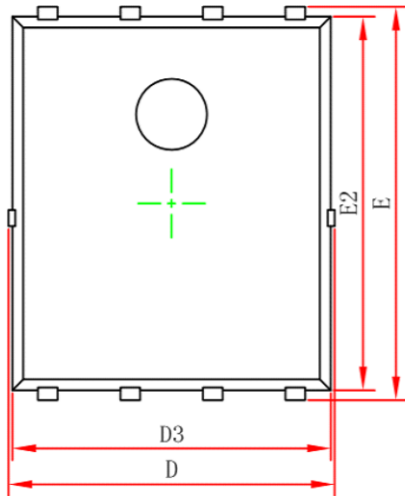## Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

$$E_{AR} = 1/2 \, LI_{AR}^2$$
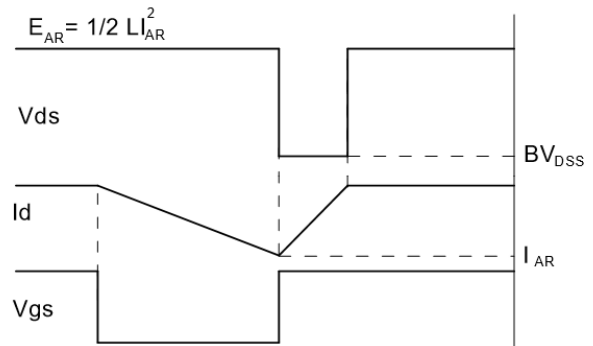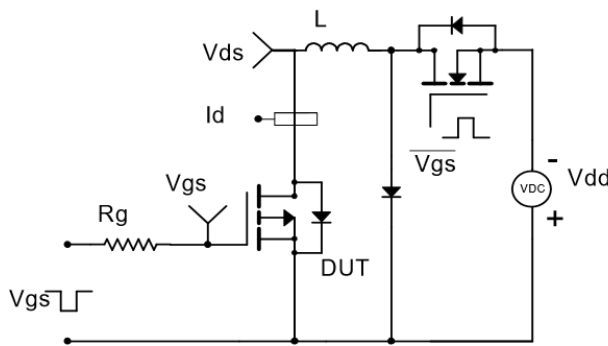
Diode Recovery Test Circuit & Waveforms
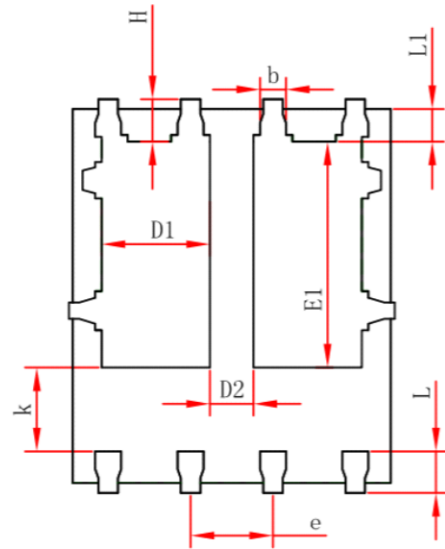
$$Q_{rr} = -\int I dt$$
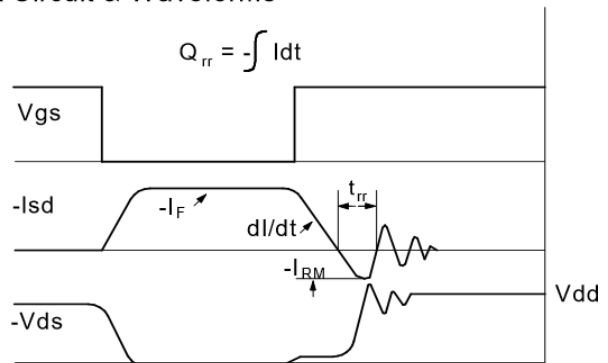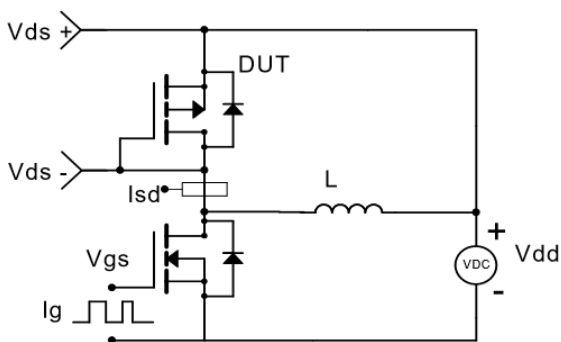
Package Information

- **PDFN5*6-8L-B**

Top View

Bottom View
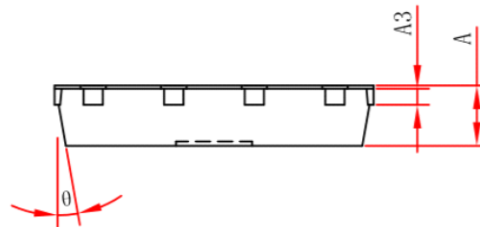
Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.154REF.		0.006REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	1.470	1.870	0.058	0.074
D2	0.470	0.870	0.019	0.034
E1	3.375	3.575	0.133	0.141
D3	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°