

### • General Description

The ZMP68306N combines advanced trench MOSFET technology with a low resistance package to provide extremely low  $R_{DS(ON)}$ . Two P Channel MOSFET inside for dual DIE implication.

### • Features

- Advance high cell density Trench technology
- Low  $R_{DS(ON)}$  to minimize conductive loss
- Low Gate Charge for fast switching
- Dual DIE in one package

### • Application

- Power Management in Notebook Computer
- BLDC Motor driver

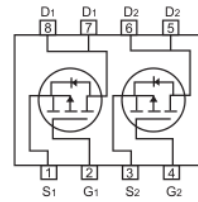
### • Ordering Information:

Part NO.	ZMP68306N
Marking	ZMP68306
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

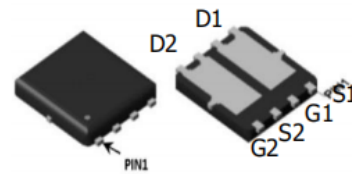
### • P Channel Absolute Maximum Ratings ( $T_C = 25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_{D@TC=25^\circ\text{C}}$	-25	A
	$I_{D@TC=75^\circ\text{C}}$	-19	A
	$I_{D@TC=100^\circ\text{C}}$	-15.8	A
Pulsed Drain Current <sup>①</sup>	$I_{DM}$	-75	A
Total Power Dissipation	$P_D@TC=25^\circ\text{C}$	62	W
Total Power Dissipation	$P_D@TA=25^\circ\text{C}$	2.8	W
Operating Junction Temperature	$T_J$	-55 to 150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^\circ\text{C}$
Single Pulse Avalanche Energy	$E_{AS}$	135	mJ

### • Product Summary



$V_{DS1} = -30\text{V}$   
 $V_{DS2} = -30\text{V}$   
 $R_{DS(ON)1} = 7.5\text{m}\Omega$   
 $R_{DS(ON)2} = 7.5\text{m}\Omega$   
 $I_{D1} = -25\text{A}$   
 $I_{D2} = -25\text{A}$



DFN5 x 6



**•Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R <sub>thJC</sub>	-	-	2	° C/W
Thermal resistance, junction - ambient	R <sub>thJA</sub>	-	-	45	° C/W
Soldering temperature, wavesoldering for 10s	T <sub>sold</sub>	-	-	265	° C

**•Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-30			V
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-250uA	-1.2		-2.5	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1.0	uA
Gate- Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V			±100	nA
Static Drain-source On Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-20A		7.5	10	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-10A		9.5	12.5	mΩ
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-5A		12		s
Source-drain voltage	V <sub>SD</sub>	I <sub>S</sub> =-20A			1.28	V

**•Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C <sub>iss</sub>	f = 1MHz	-	2650	-	pF
Output capacitance	C <sub>oss</sub>		-	430	-	
Reverse transfer capacitance	C <sub>rss</sub>		-	313	-	

**•Gate Charge characteristics(T<sub>a</sub> = 25°C)**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q <sub>g</sub>	V <sub>DD</sub> =25V	-	18	-	nC
Gate - Source charge	Q <sub>gs</sub>	I <sub>D</sub> = 8A	-	6	-	
Gate - Drain charge	Q <sub>gd</sub>	V <sub>GS</sub> = 10V	-	9	-	
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/μs		27		nS
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/μs		65		nC

•P Channel characteristics curve

Fig.1 Power Dissipation Derating Curve

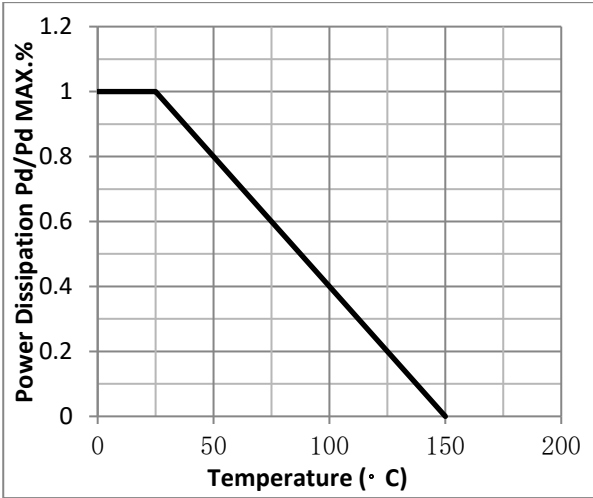


Fig.2 Typical output Characteristics

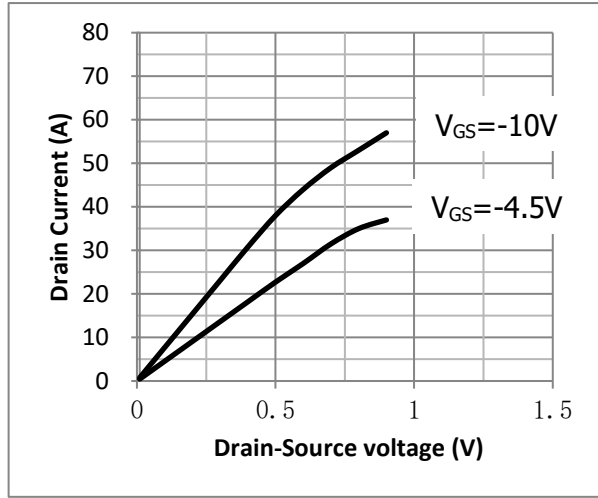


Fig.3 Threshold Voltage V.S Junction Temperature

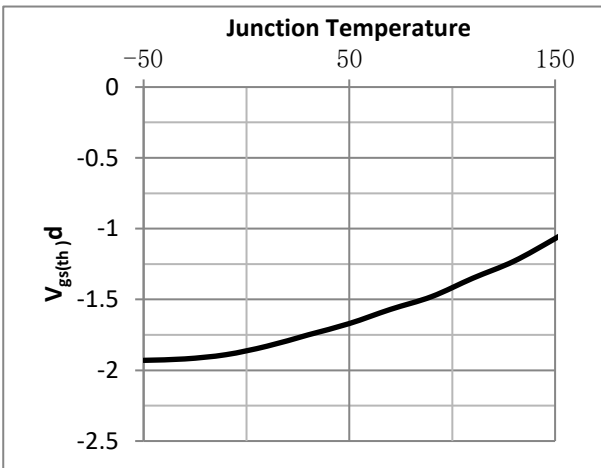


Fig.4 Resistance V.S Drain Current

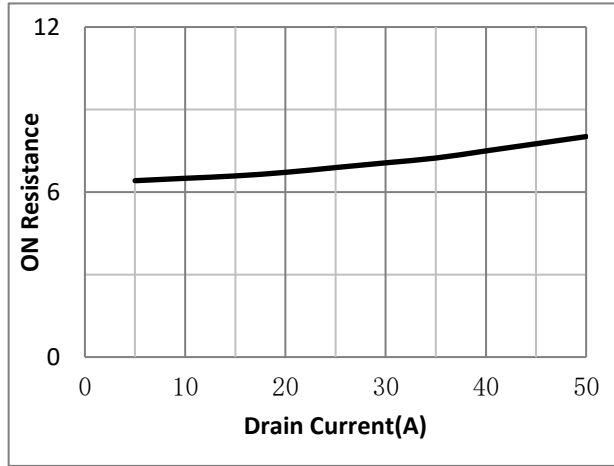


Fig.5 On-Resistance VS Gate Source Voltage

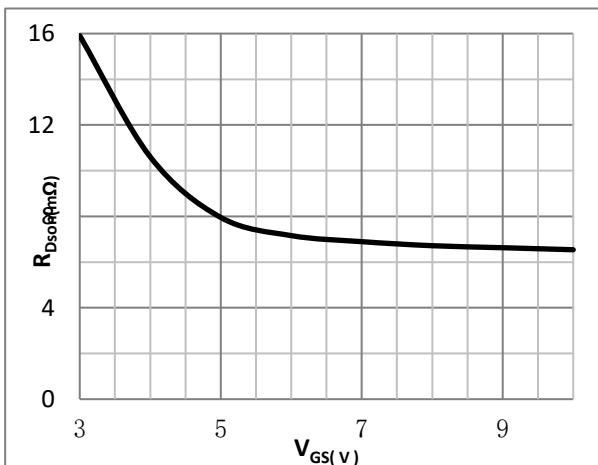
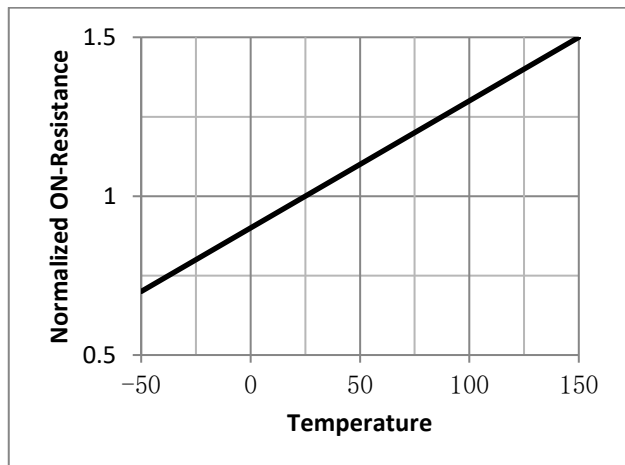


Fig.6 On-Resistance V.S Junction Temperature



•Test Circuit

Fig.1 Switching Time Measurement Circuit

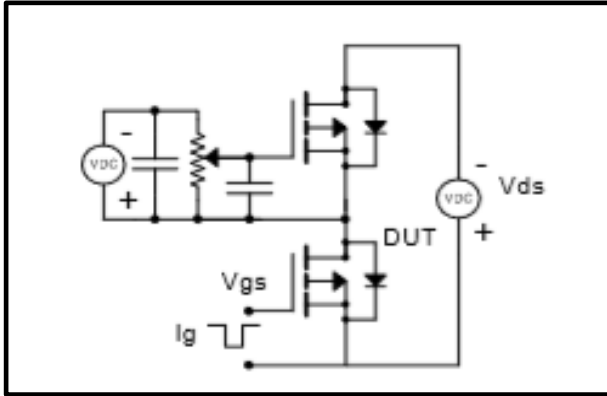


Fig.2 Gate Charge Waveform

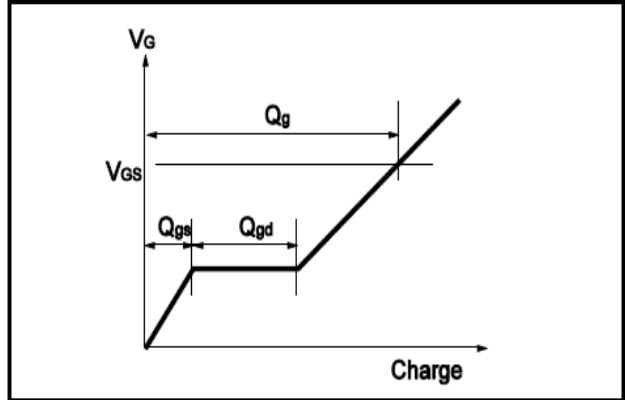


Fig.3 Switching Time Measurement Circuit

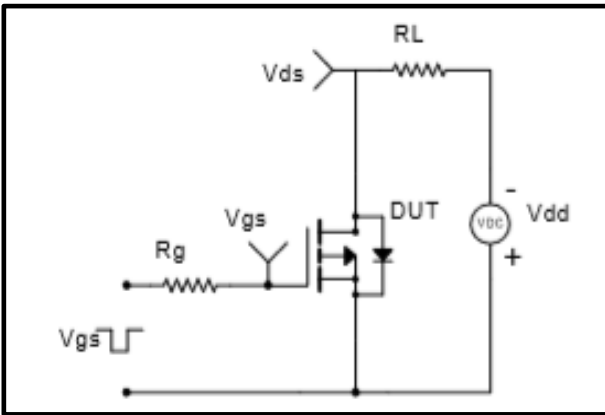


Fig.4 Gate Charge Waveform

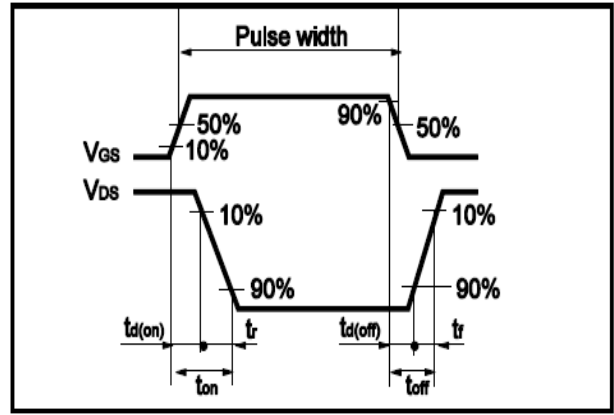


Fig.5 Avalanche Measurement Circuit

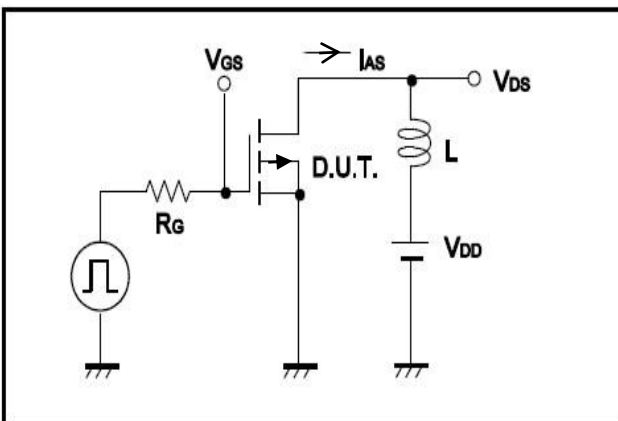
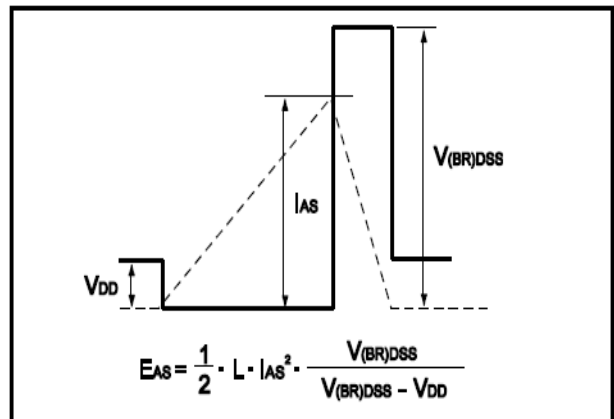
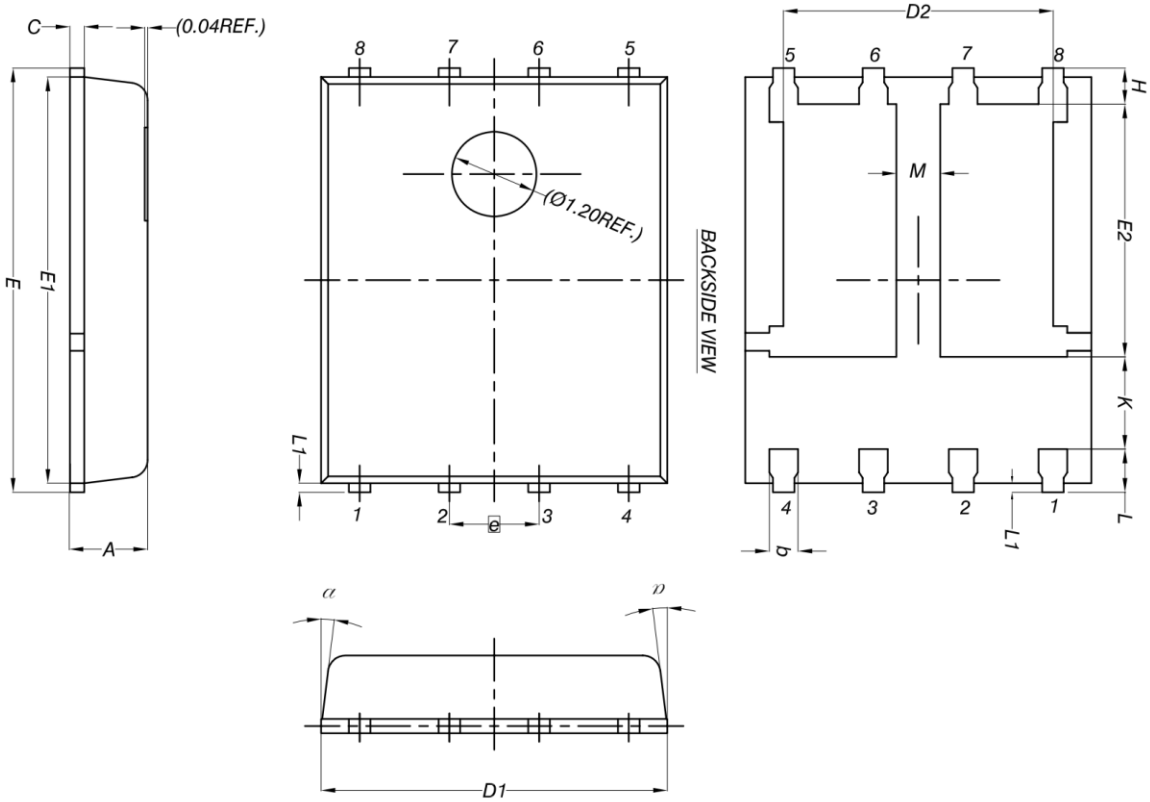


Fig.6 Avalanche Waveform





•Dimensions (DFN5x6)



DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
b	0.33	0.41	0.51
C	0.20	0.25	0.30
D1	4.80	4.90	5.00
D2	3.61	3.81	3.96
E	5.90	6.00	6.10
E1	5.70	5.75	5.80
E2	3.38	3.58	3.78
e	1.27 BSC		
H	0.41	0.51	0.61
K	1.10	-	-
L	0.51	0.61	0.71
L1	0.06	0.13	0.20
M	0.50	-	-
α	0°	-	12°

Land Pattern  
(Only for Reference)

