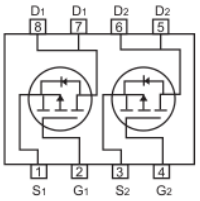
● General Description

The ZMP68304S 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.

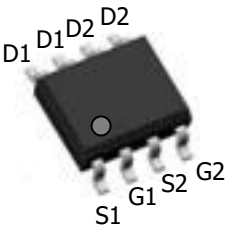
● Product Summary



V_{DS1} =-30V
V_{DS2} =-30V
$R_{DS(ON)1}$ =38mΩ
$R_{DS(ON)2}$ =38mΩ
I_{D1} =-5A
I_{D2} =-5A

● 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



SOP8

●Application

- ■ Power Management in Notebook Computer
- ■ BLDC Motor driver

●Ordering Information:

Part NO.	ZMP68304S
Marking	ZMP68304
Packing Information	REEL TAPE
Basic ordering unit (pcs)	4000

●P Channel Absolute Maximum Ratings (T_C =25℃)

Parameter	**Symbol**	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$I_{D@}$TC=25℃	-5	A
	$I_{D@}$TC=75℃	-3.8	A
	$I_{D@}$TC=100℃	-3.2	A
Pulsed Drain Current ①	I_{DM}	-10	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	3.6	W
Total Power Dissipation(TA=25℃)	P_D@TA=25℃	0.69	W
Operating Junction Temperature	T_J	-55 to 150	℃
Storage Temperature	T_{STG}	-55 to 150	℃
Single Pulse Avalanche Energy	E_{AS}	25	mJ

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	34	° C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	180	° C/W
Soldering temperature, wavesoldering for 10s	T_{sold}	-	-	265	° C

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V,I_D =-250uA	-30			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =-250uA	-1.2		-2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-30V, V_{GS} =0V			-1.0	uA
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±12V ,V_{DS} =0V			±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-20A		38	45	mΩ
		V_{GS}=-4.5V, I_D=-10A		55	65	mΩ
Forward Transconductance	g_{FS}	V_{DS} =-10V, I_D=-5A		6		s
Source-drain voltage	V_{SD}	Is=-20A			1.28	V

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	f = 1MHz	-	550	-	pF
Output capacitance	C_{oss}		-	230	-	
Reverse transfer capacitance	C_{rss}		-	113	-	

●Gate Charge characteristics(T_a = 25℃)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	V_{DD} =25V	-	10	-	nC
Gate - Source charge	Q_{gs}	I_D = 2A	-	4	-	
Gate - Drain charge	Q_{gd}	V_{GS} = 10V	-	6	-	

●P Channel characteristics curve

Fig.1 Power Dissipation Derating Curve

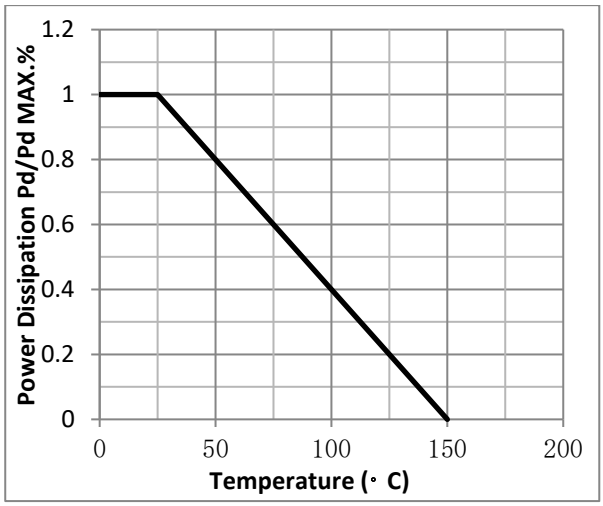


Fig.2 Typical output Characteristics

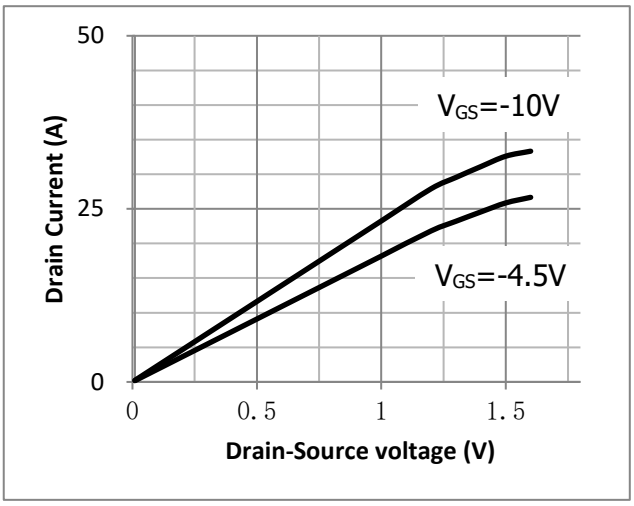


Fig.3 Threshold Voltage V.S Junction Temperature

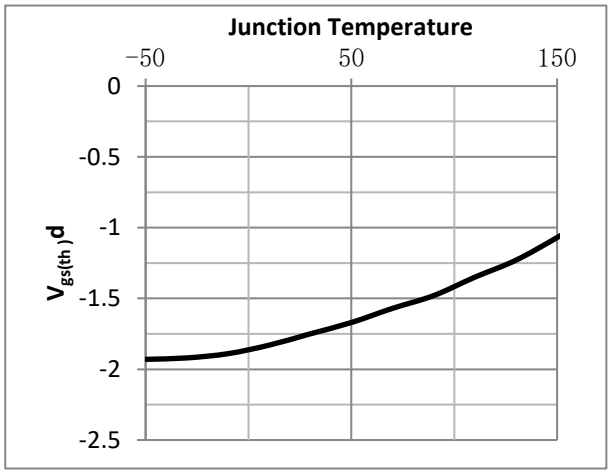


Fig.4 Resistance V.S Drain Current

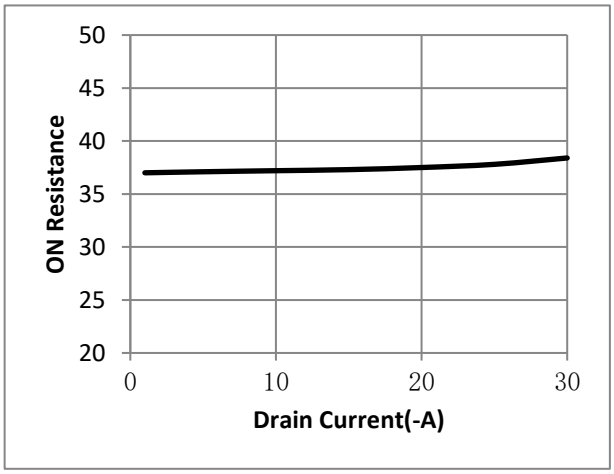


Fig.5 On-Resistance VS Gate Source Voltage

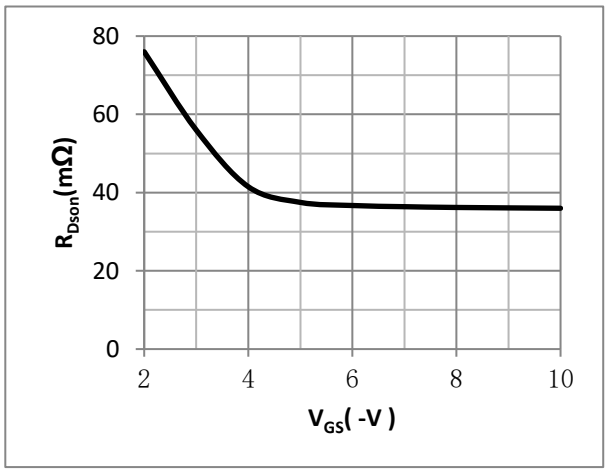
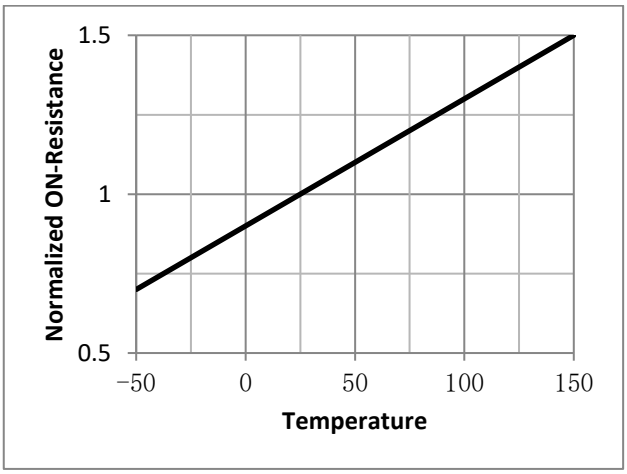


Fig.6 On-Resistance V.S Junction Temperature



●Test Circuit

Fig.7 Switching Time Measurement Circuit

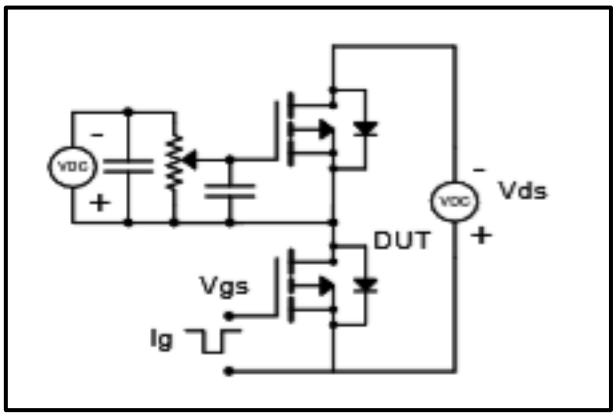


Fig.8 Gate Charge Waveform

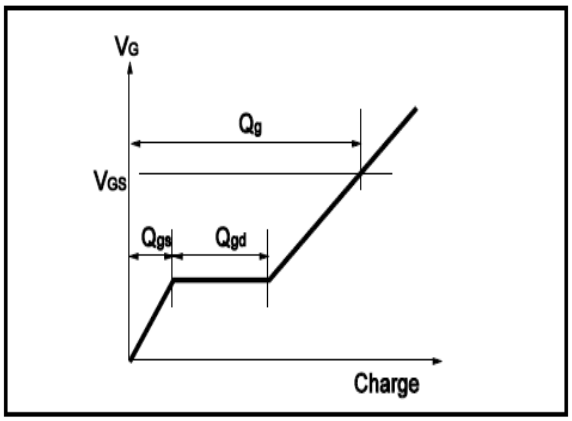


Fig.9 Switching Time Measurement Circuit

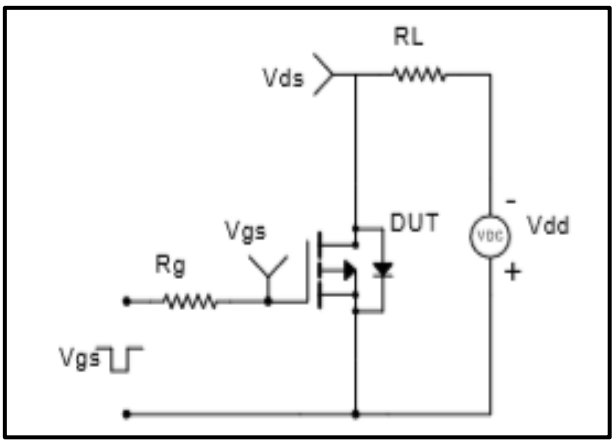


Fig.10 Gate Charge Waveform

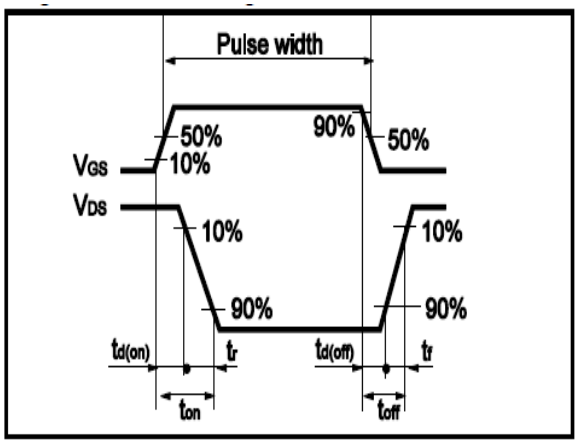


Fig.11 Avalanche Measurement Circuit

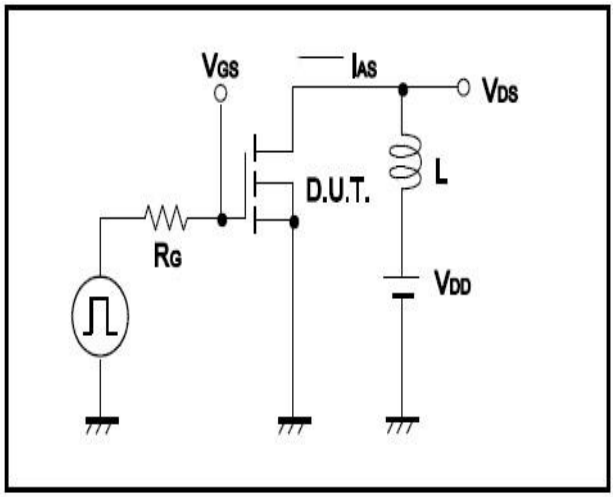
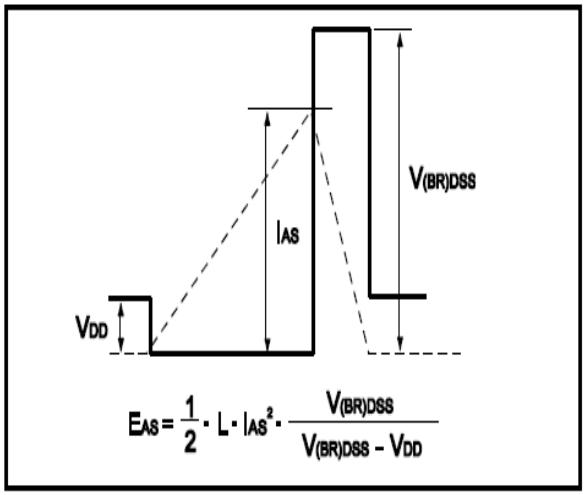


Fig.12 Avalanche Waveform



●Dimensions(SOP8)

Unit: mm

SYMBOL	min	TYP	max	SYMBOL	min		max
A	4.80		5.00	C	1.30		1.50
A1	0.37		0.47	C1	0.55		0.75
A2		1.27		C2	0.55		0.65
A3		0.41		C3	0.05		0.20
B	5.80		6.20	C4	0.19	0.20	0.23
B1	3.80		4.00	D		1.05	
B2		5.00		D1	0.40		0.62