

• General Description

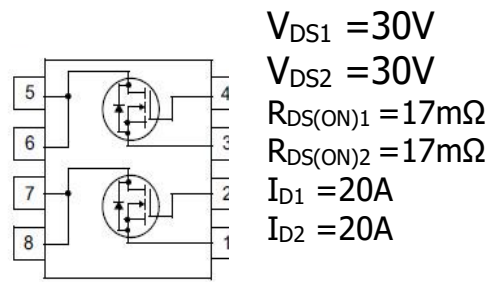
The ZMD68307M combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. Two N Channel MOSFET inside for dual DIE implication.

• Features

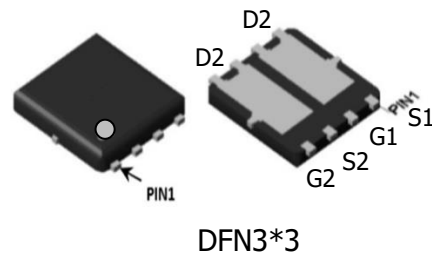
- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Dual DIE in one package

• Application

- Power Management in Notebook Computer
- BLDC Motor driver

• Product Summary


$V_{DS1} = 30V$
 $V_{DS2} = 30V$
 $R_{DS(ON)1} = 17m\Omega$
 $R_{DS(ON)2} = 17m\Omega$
 $I_{D1} = 20A$
 $I_{D2} = 20A$


• Ordering Information:

Part NO.	ZMD68307M
Marking	68307
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

• P Channel Absolute Maximum Ratings ($T_c = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_{D@TC=25^\circ C}$	20	A
	$I_{D@TC=75^\circ C}$	15.2	A
	$I_{D@TC=100^\circ C}$	12.6	A
Pulsed Drain Current ^①	I_{DM}	40	A
Total Power Dissipation($TC=25^\circ C$)	$P_D@TC=25^\circ C$	3.6	W
Total Power Dissipation($TA=25^\circ C$)	$P_D@TA=25^\circ C$	0.69	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$
Single Pulse Avalanche Energy	E_{AS}	10	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}	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	1.8	2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=10A$		17	22	m Ω
		$V_{GS}=4.5V, I_D=8A$		23	30	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=5A$		6		s
Source-drain voltage	V_{SD}	$I_S=10A$			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$f = 1MHz$	-	650	-	pF
Output capacitance	C_{oss}		-	180	-	
Reverse transfer capacitance	C_{rss}		-	95	-	

•Gate Charge characteristics($T_a = 25^\circ C$)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD}=25V$	-	10	-	nC
Gate - Source charge	Q_{gs}	$I_D=8A$	-	3	-	
Gate - Drain charge	Q_{gd}	$V_{GS}=10V$	-	5	-	

•N Channel characteristics curve

Fig.1 Power Dissipation Derating Curve

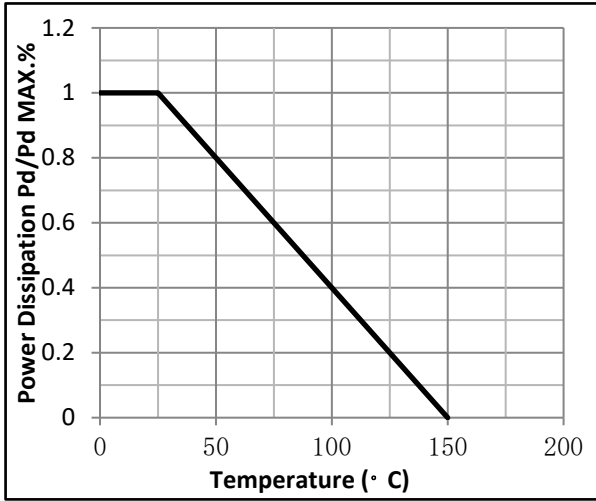


Fig.2 Typical output Characteristics

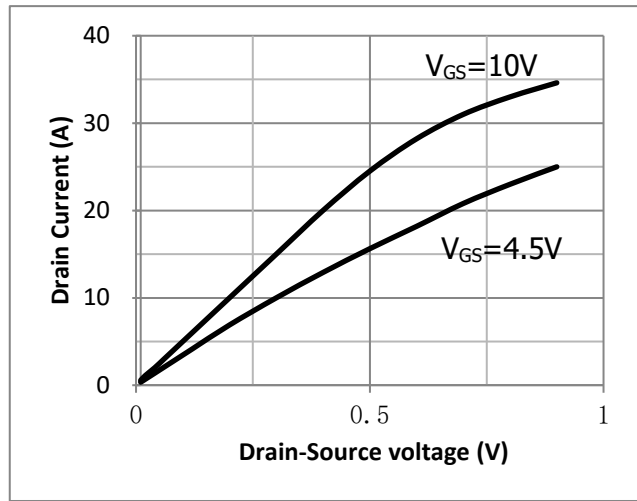


Fig.3 Threshold Voltage V.S Junction Temperature

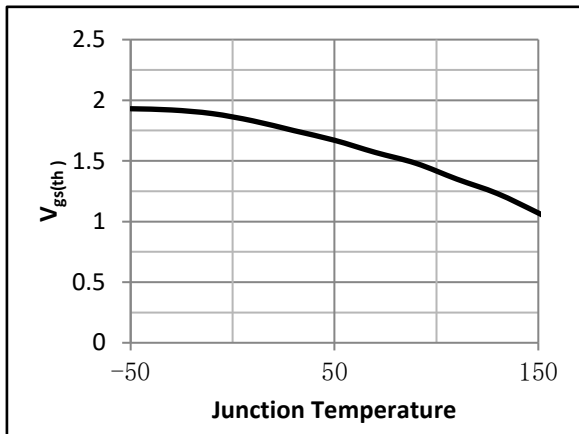


Fig.4 Resistance V.S Drain Current

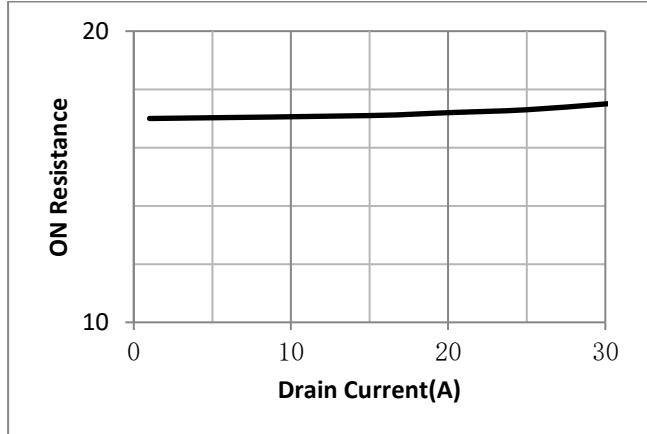


Fig.5 On-Resistance VS Gate Source Voltage

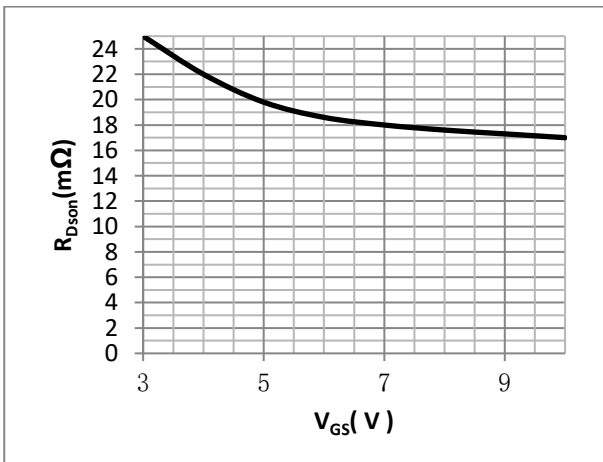
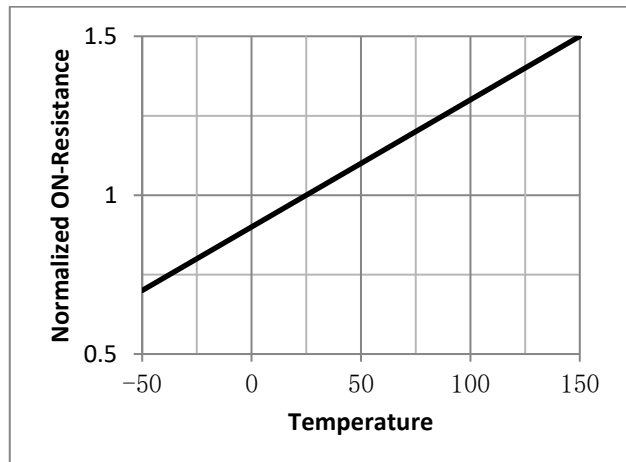


Fig.6 On-Resistance V.S Junction Temperature



• Test Circuit

Fig.1 Switching Time Measurement Circuit

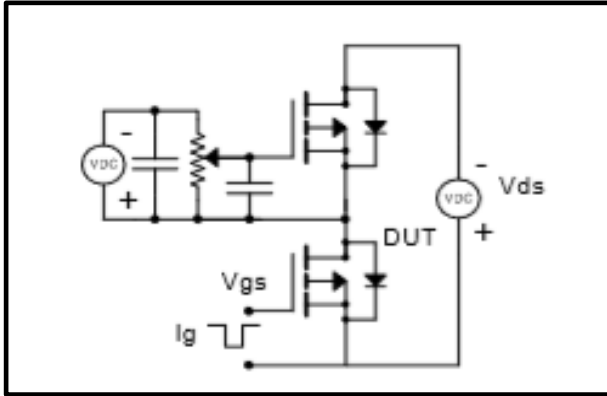


Fig.2 Gate Charge Waveform

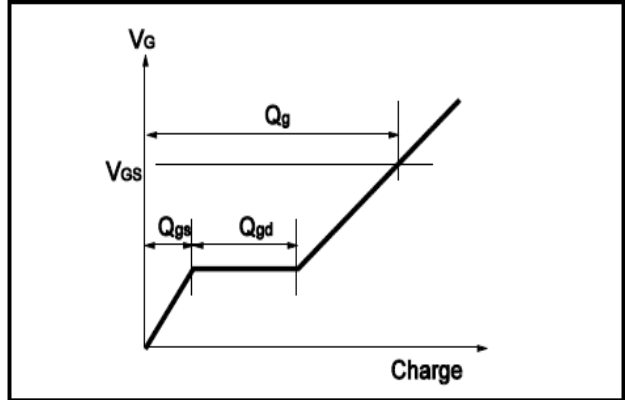


Fig.3 Switching Time Measurement Circuit

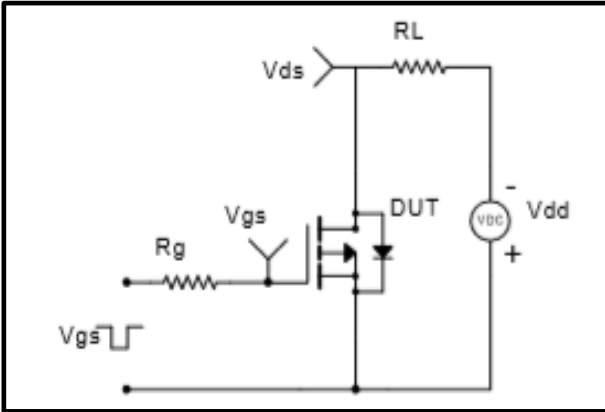


Fig.4 Gate Charge Waveform

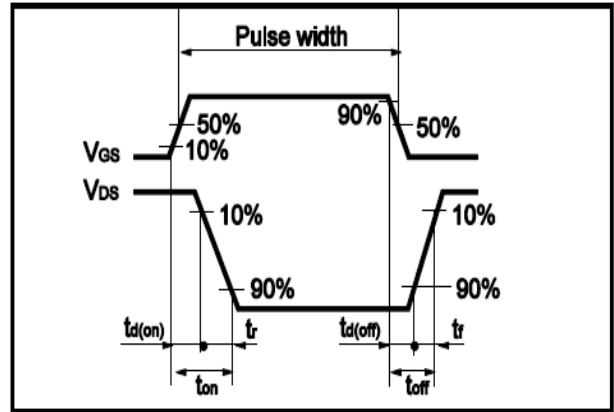


Fig.5 Avalanche Measurement Circuit

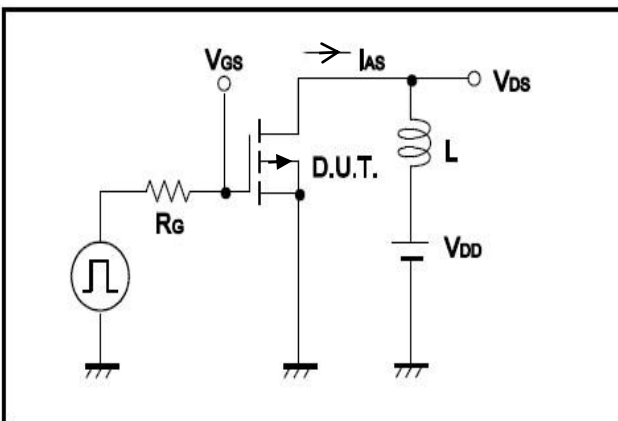
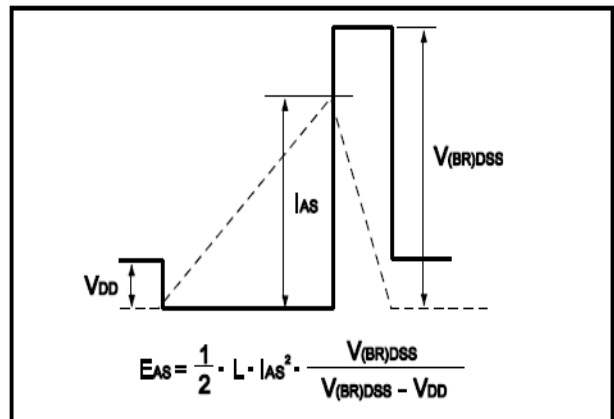


Fig.6 Avalanche Waveform



•Dimensions(DFN3*3)

Unit: mm

<i>A</i>	0.70	0.75	0.80
<i>b</i>	0.25	0.30	0.35
<i>c</i>	0.10	0.15	0.25
<i>D</i>	3.25	3.35	3.45
<i>D1</i>	3.00	3.10	3.20
<i>D2</i>	1.78	1.88	1.98
<i>D3</i>	---	0.13	---
<i>E</i>	3.20	3.30	3.40
<i>E1</i>	3.00	3.15	3.20
<i>E2</i>	2.39	2.49	2.59
<i>e</i>	0.65BSC		
<i>H</i>	0.30	0.39	0.50
<i>L</i>	0.30	0.40	0.50
<i>L1</i>	---	0.13	---
<i>K</i>	0.30	---	---
θ	---	10°	12°
<i>M</i>	*	*	0.15

