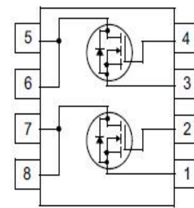
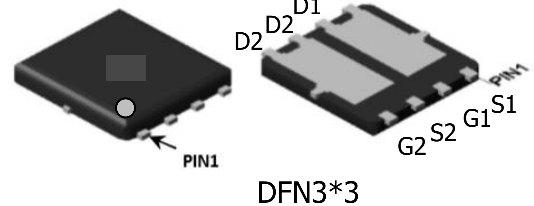
• General Description

The ZMD68310M 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.

• Product Summary



V_{DS1} =30V
V_{DS2} =30V
$R_{DS(ON)1}$ =10mΩ
$R_{DS(ON)2}$ =10mΩ
I_{D1} =12A
I_{D2} =12A



DFN3*3

• 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.	ZMD68310M
Marking	68310
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

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℃	12	A
	I_D@TC=75℃	9	A
	I_D@TC=100℃	7.5	A
Pulsed Drain Current ①	I_{DM}	36	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	3.2	W
Total Power Dissipation(TA=25℃)	P_D@TA=25℃	0.65	W
Operating Junction Temperature	T_J	-55 to 150	℃
Storage Temperature	T_{STG}	-55 to 150	℃
Single Pulse Avalanche Energy	E_{AS}	65	mJ

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	39	° C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	190	° 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}=±20V, V_{DS} =0V			±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A		10	16	mΩ
		V_{GS}=4.5V, I_D=8A		20	26	mΩ
Forward Transconductance	g_{FS}	V_{DS} =10V, I_D=5A		4		s
Source-drain voltage	V_{SD}	Is=10A			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	f = 1MHz	-	850	-	pF
Output capacitance	Coss		-	190	-	
Reverse transfer capacitance	Crss		-	100	-	

•Gate Charge characteristics(T_a = 25℃)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Qg	V_{DD} =25V I_D = 8A V_{GS} = 10V	-	10	-	nC
Gate - Source charge	Qgs		-	3.5	-	
Gate - Drain charge	Qgd		-	5	-	
Body Diode Reverse Recovery Time	trr	I_F=20A, di/dt=100A/μs		6.5		nS
Body Diode Reverse Recovery Charge	Qrr	I_F=20A, di/dt=100A/μs		7		nC

•N Channel characteristics curve

Fig.1 Power Dissipation Derating Curve

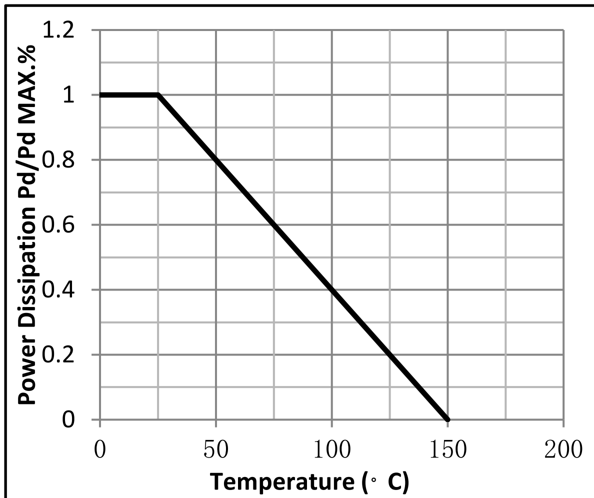


Fig.2 Typical output Characteristics

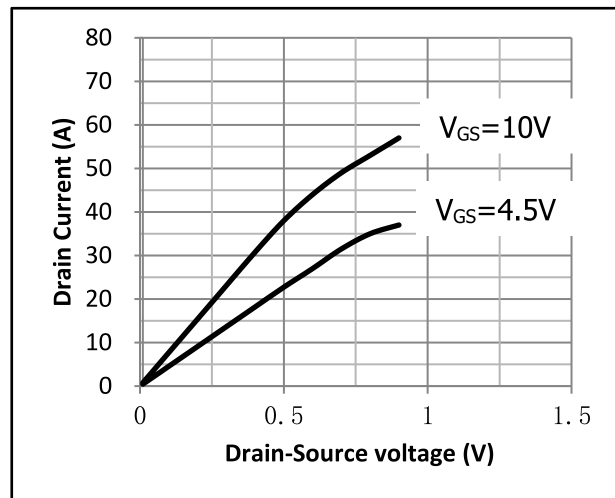


Fig.3 Threshold Voltage V.S Junction Temperature

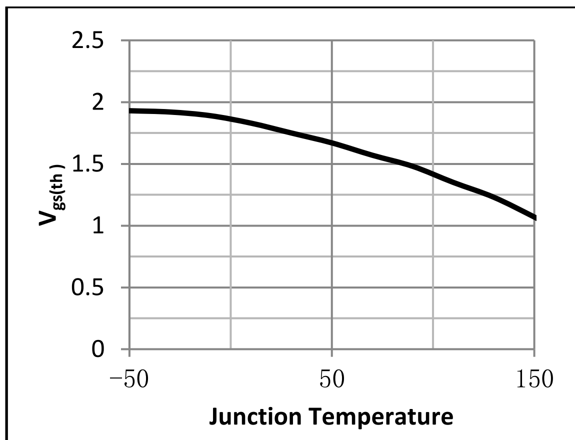


Fig.4 Resistance V.S Drain Current

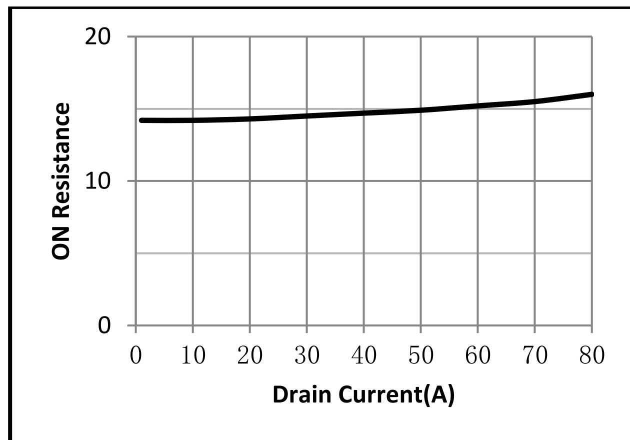


Fig.5 On-Resistance VS Gate Source Voltage

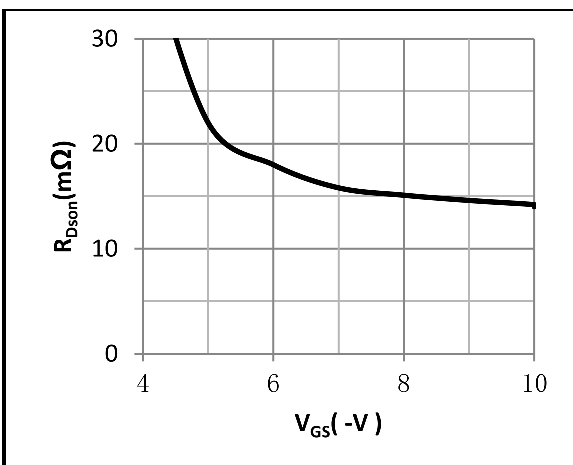
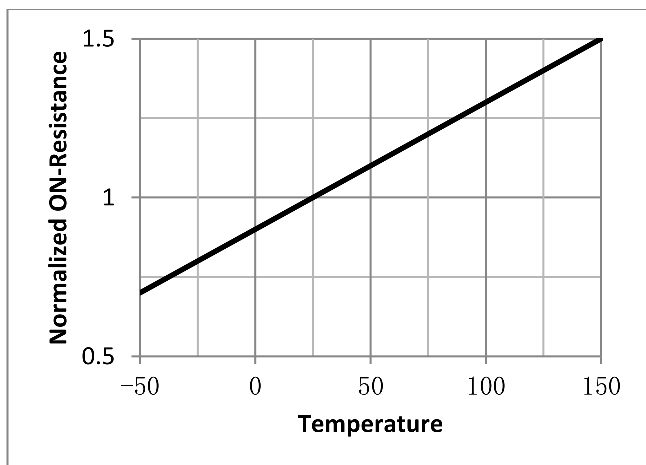


Fig.6 On-Resistance V.S Junction Temperature



●Test Circuit

Fig.1 Switching Time Measurement Circuit

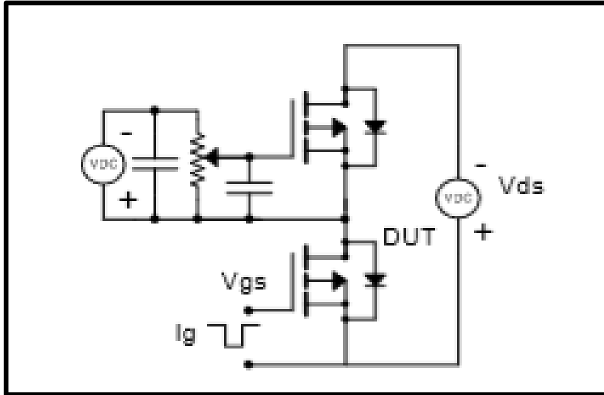


Fig.2 Gate Charge Waveform

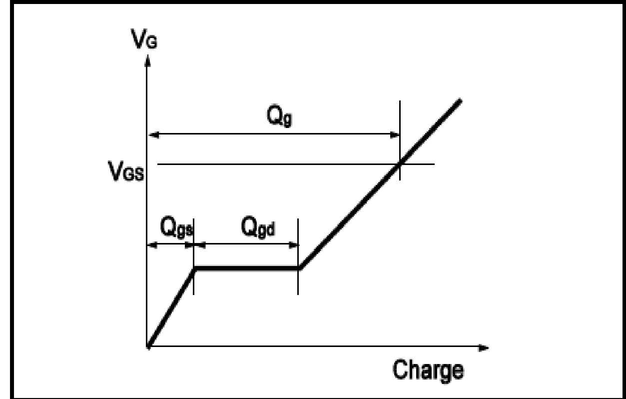


Fig.3 Switching Time Measurement Circuit

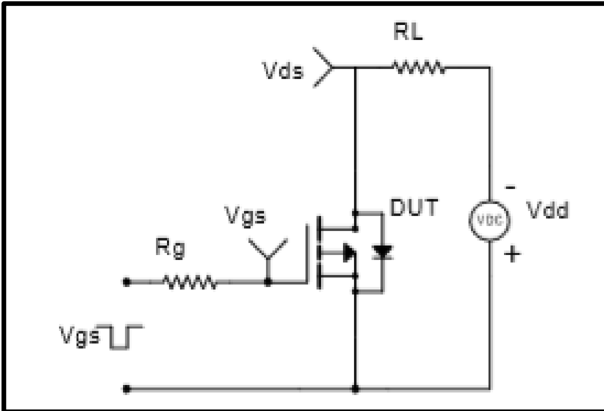


Fig.4 Gate Charge Waveform

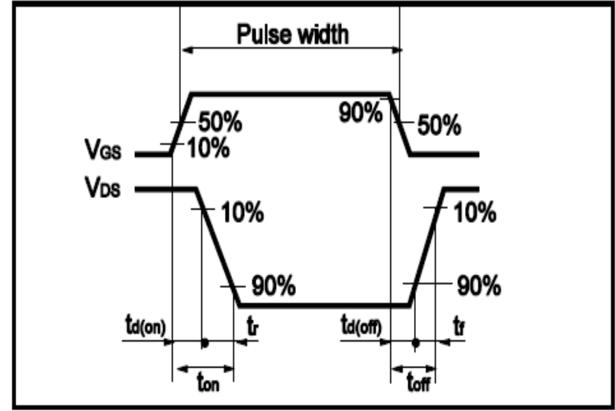


Fig.5 Avalanche Measurement Circuit

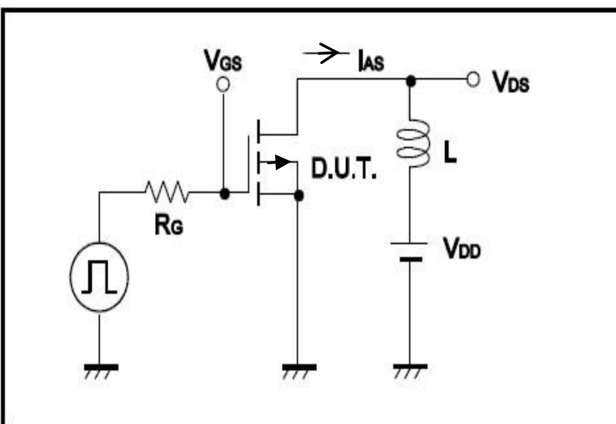
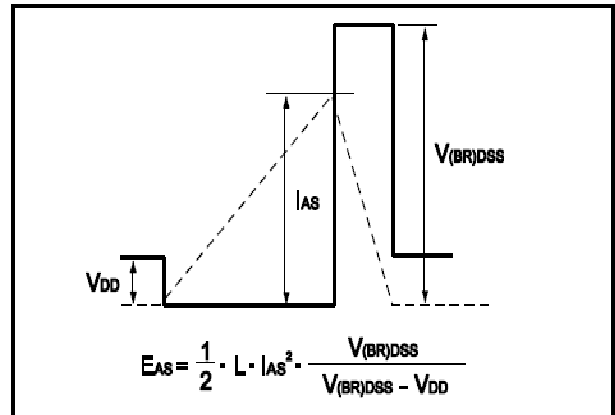
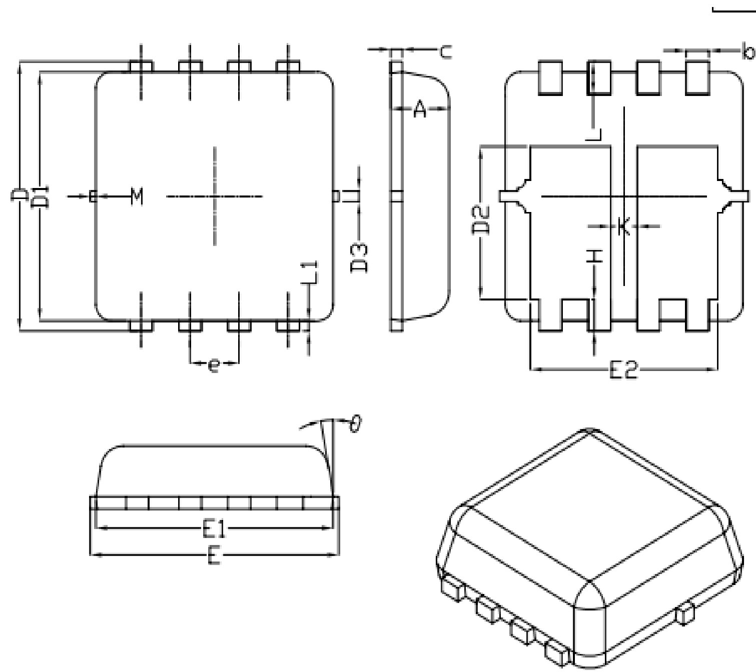


Fig.6 Avalanche Waveform



•Dimensions（DFN5×6）

Unit：mm



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
K	0.30	---	---
θ	---	10°	12°
M	*	*	0.15
* Not specified			