

• General Description

The ZM200N06M combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance

• Application

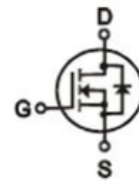
- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

• Ordering Information:

Part NO.	ZM200N06M
Marking	ZM200N06
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

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

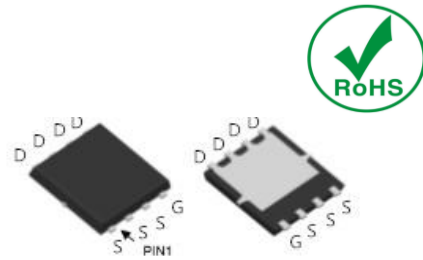
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	20	V
Continuous Drain Current	$I_{D@TC=25^\circ\text{C}}$	33	A
	$I_{D@TC=75^\circ\text{C}}$	25	A
	$I_{D@TC=100^\circ\text{C}}$	21	A
Pulsed Drain Current ①	I_{DM}	99	A
Total Power Dissipation($TC=25^\circ\text{C}$)	$P_D@TC=25^\circ\text{C}$	17	W
Total Power Dissipation($TA=25^\circ\text{C}$)	$P_D@TA=25^\circ\text{C}$	0.9	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}	65	mJ

• Product Summary


$V_{DS} = 60\text{V}$

$R_{DS(ON)} = 20\text{m}\Omega$

$I_D = 33\text{A}$



DFN3 x 3

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R _{thJC}	-	-	7.3	° C/W
Thermal resistance, junction - ambient	R _{thJA}	-	-	138	° C/W
Soldering temperature, wave soldering 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	60			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} =60V, 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 =20A		20	26	mΩ
		V _{GS} =4.5V, I _D =16A		24	31	mΩ
Forward Transconductance	g _{FS}	V _{DS} =25V, I _D =5A		14		s
Source-drain voltage	VSD	I _S =20A			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C _{iss}	f = 1MHz	-	1650	-	pF
Output capacitance	C _{oss}		-	340	-	
Reverse transfer capacitance	C _{rss}		-	160	-	

•Gate Charge characteristics(T_a = 25°C)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q _g	V _{DD} = 30V	-	19	-	nC
Gate - Source charge	Q _{gs}	I _D = 3A	-	9	-	
Gate - Drain charge	Q _{gd}	V _{GS} = 10V	-	11	-	

Note: ① Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

Fig.1 Power Dissipation

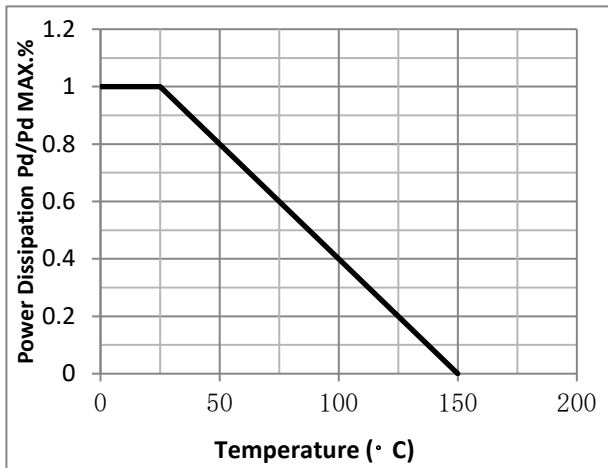


Fig.2 Typical output Characteristics

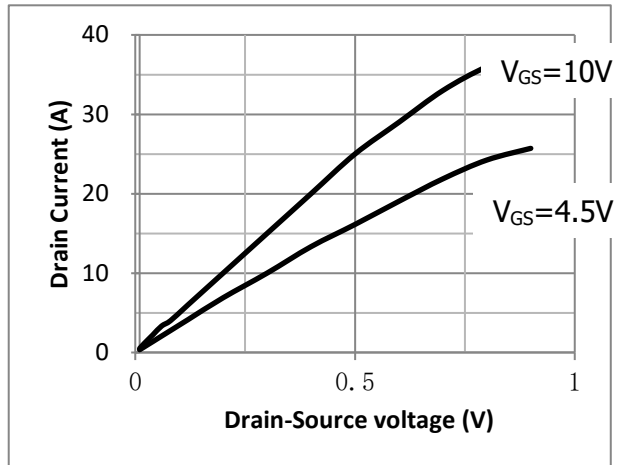


Fig.3 Threshold Voltage V.S Junction Temperature

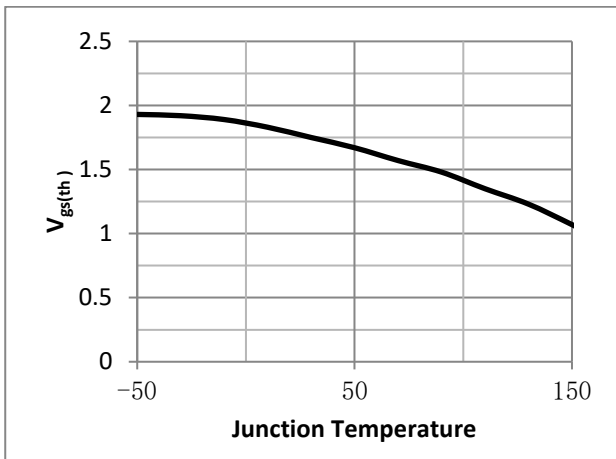


Fig.4 Resistance V.S Drain Current

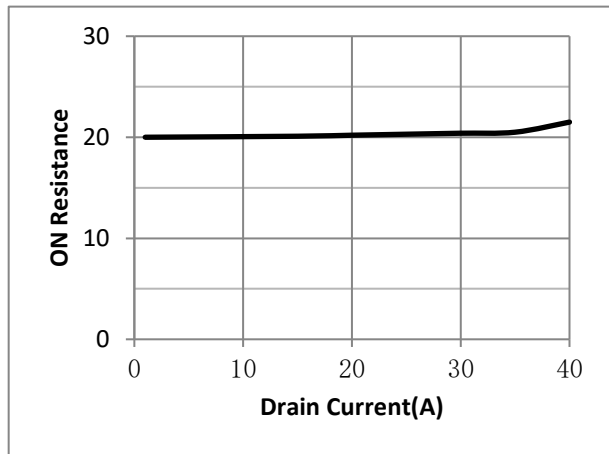


Fig.5 On-Resistance VS Gate Source Voltage

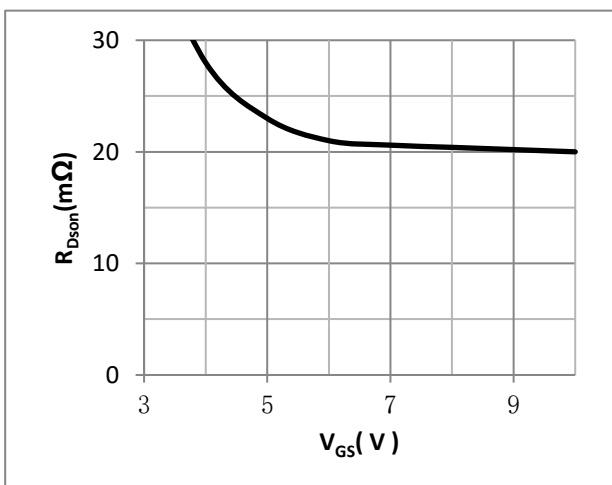


Fig.6 On-Resistance V.S Junction Temperature

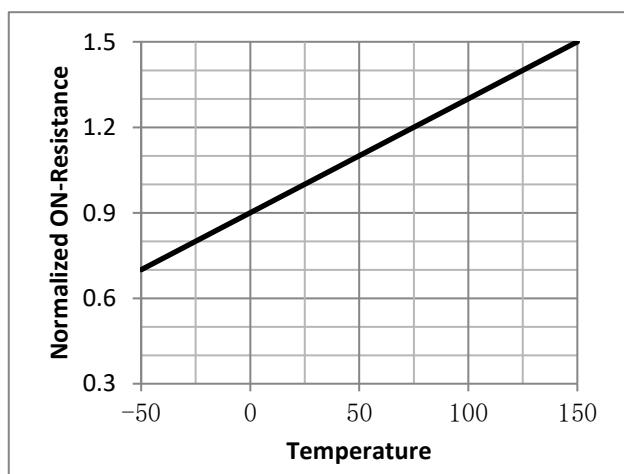


Fig.7 Switching Time Measurement Circuit

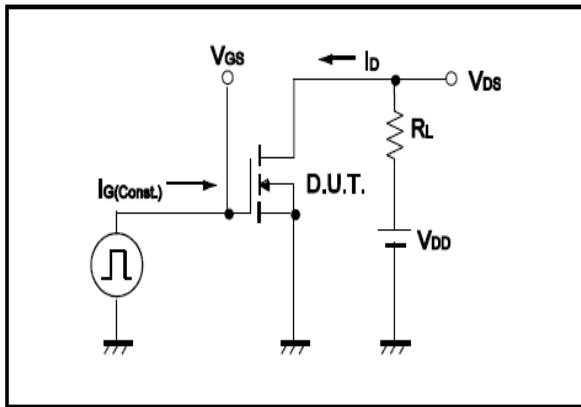


Fig.8 Gate Charge Waveform

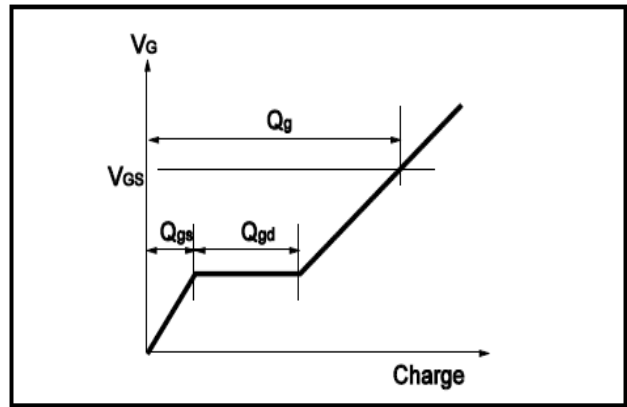


Fig.9 Switching Time Measurement Circuit

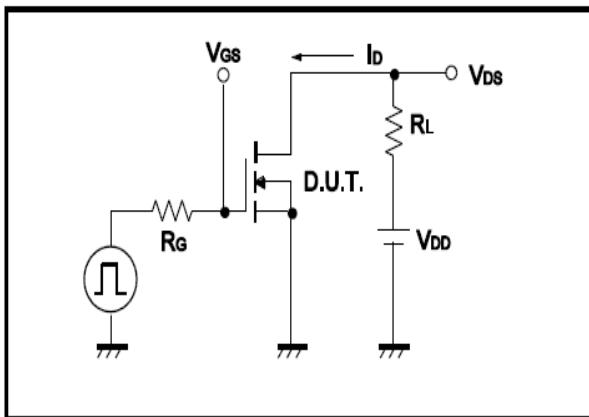


Fig.10 Gate Charge Waveform

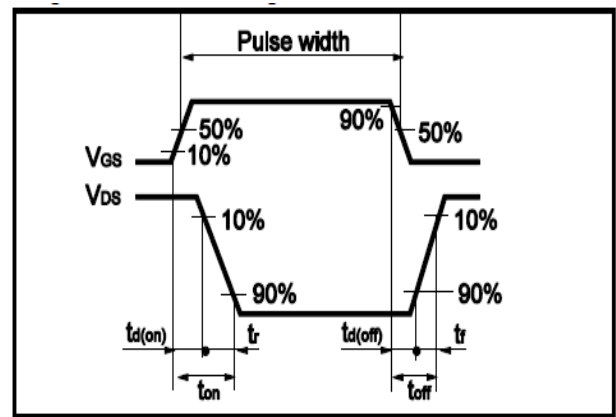


Fig.11 Avalanche Measurement Circuit

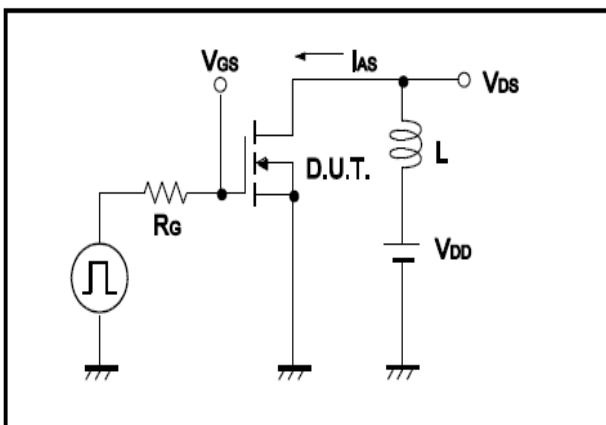
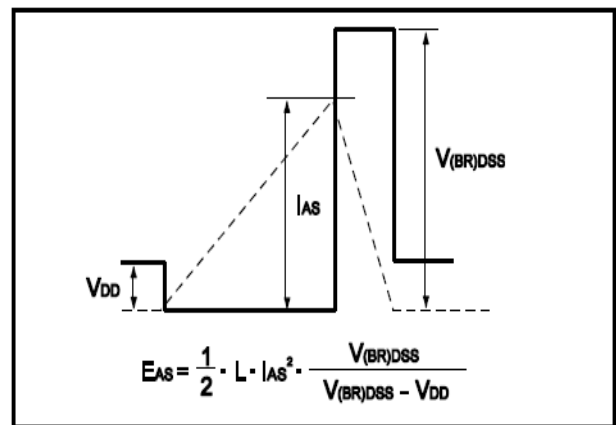


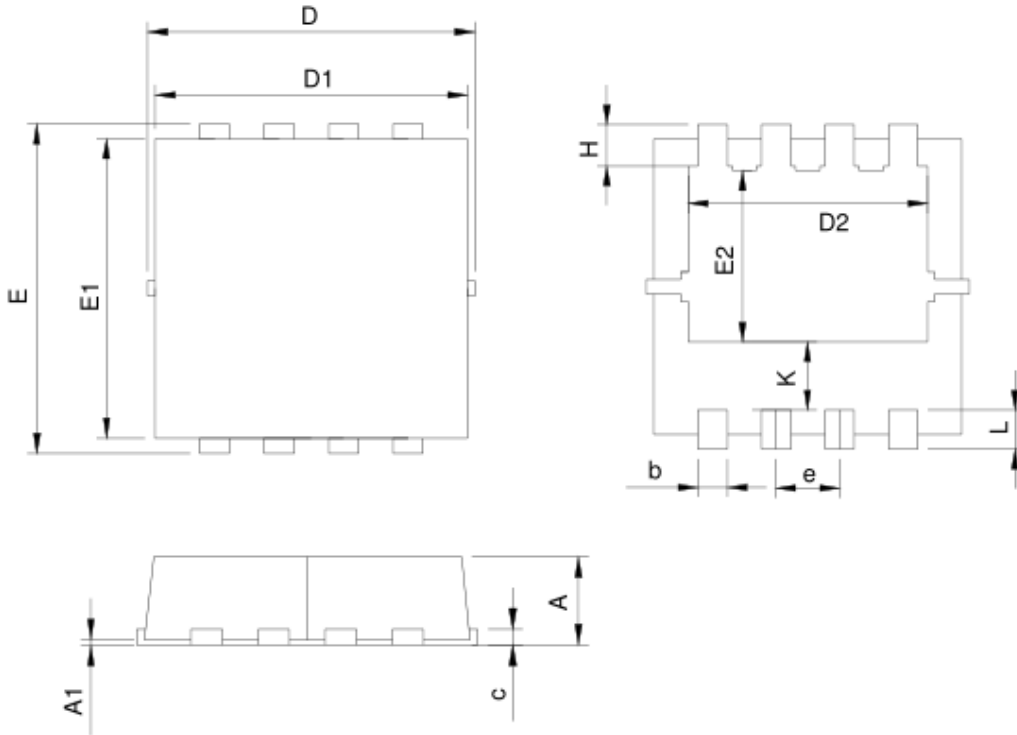
Fig.12 Avalanche Waveform





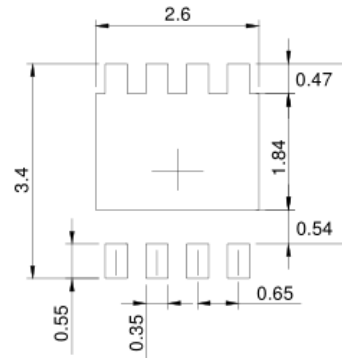
•Dimensions(DFN3×3)

Unit: mm



SYMBOL	DFN3.3x3.3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.14	0.20	0.006	0.008
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.55	0.093	0.100
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.84	0.065	0.072
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



UNIT: mm