● General Description

The ZM062N03N combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

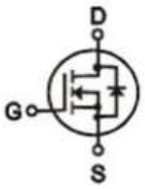
● Features

- ■ 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

● Product Summary

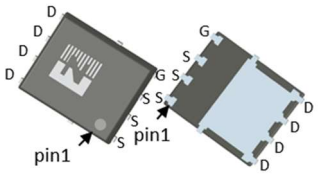


V_{DS} =30V

$R_{DS(ON)}$ =6.2mΩ

I_D =55A

RoHS



DFN5×6

●Ordering Information:

Part NO.	ZM062N03N
Marking	ZM062N03
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

●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℃	55	A
	$I_{D@}$TC=75℃	42	A
	I_D @TC=100℃	35	A
	$I_{D@}T_A$=25℃	18	A
	$I_{D@}T_A$=70℃	14	A
Pulsed Drain Current ①	I_{DM}	140	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	60	W
Total Power Dissipation(TA=25℃)	P_D@TA=25℃	2	W
Operating Junction Temperature	T_J	-55 to 150	℃

Storage Temperature	T_{STG}	-55 to 150	℃
Single Pulse Avalanche Energy	E_{AS}	110	mJ

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	2.1	° C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	62.5	° 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=20A		6.2	8.5	mΩ
		V_{GS}=4.5V, I_D=10A		10	12	mΩ
Forward Transconductance	g_{FS}	V_{DS} =25V, I_D=10A		5.4		s
Source-drain voltage	V_{SD}	Is=20A		0.8	1.2	V

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	VDS=25V f = 1MHz	-	1150	1380	pF
Output capacitance	Coss		-	230	276	
Reverse transfer capacitance	Crss		-	113	135	

●Gate Charge characteristics(T_a = 25℃)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Gate Risistance	R_g	f = 1MHz		1.8		Ω
Total gate charge	Q_g	V_{DD} =15V I_D = 20A	-	12	-	nC
Gate - Source charge	Q_{gs}		-	4	-	

Gate - Drain charge	Q_{gd}	V_{GS} = 10V	-	6	-	
Turn-ON Delay time	$t_{D(on)}$	V_{GS}=10V, V_{DS}=15V R_G =3.3Ω, I_D=15A		4.5		ns
Turn-ON Rise time	t_r			12		ns
Turn-Off Delay time	$t_{D(off)}$			26		ns
Turn-Off Fall time	t_f			7.5		ns

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

Fig.1 Power Dissipation

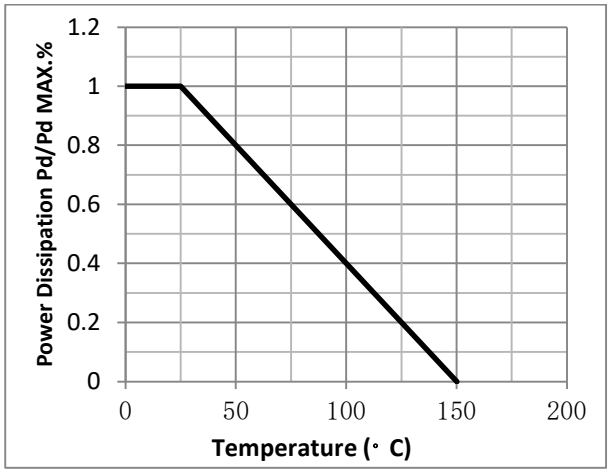


Fig.2 Typical output Characteristics

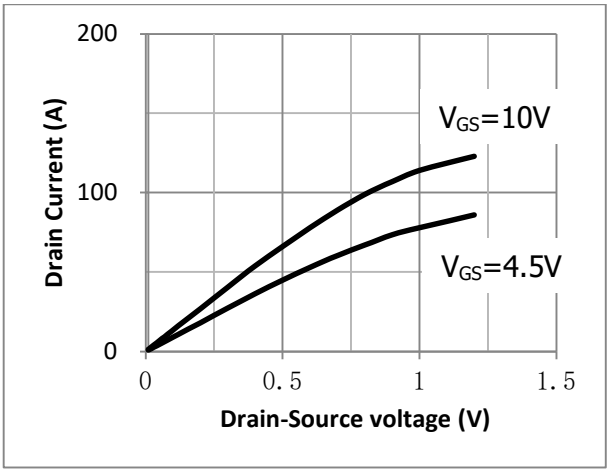


Fig.3 Threshold Voltage V.S Junction Temperature

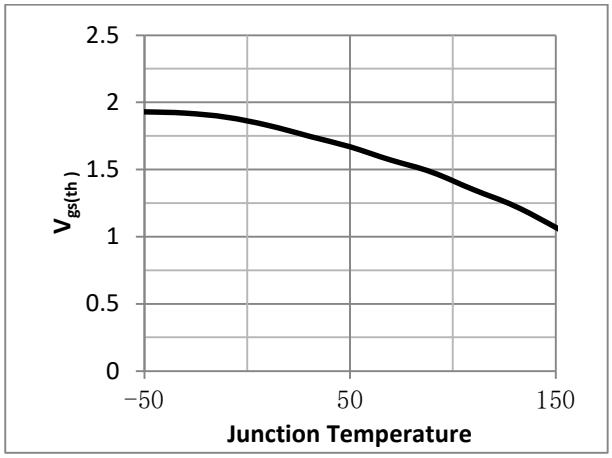


Fig.4 Resistance V.S Drain Current

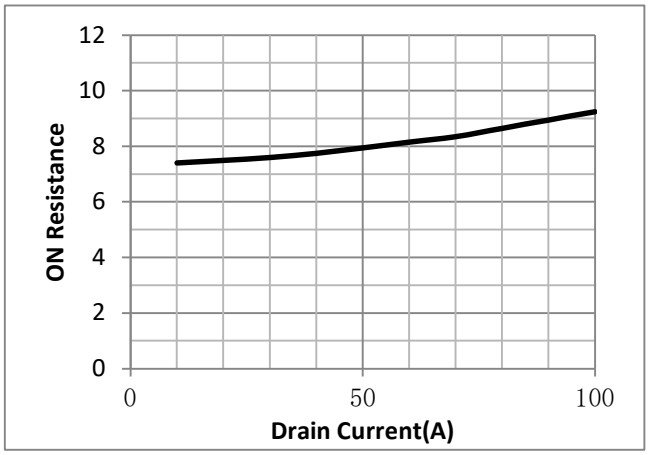


Fig.5 On-Resistance VS Gate Source Voltage

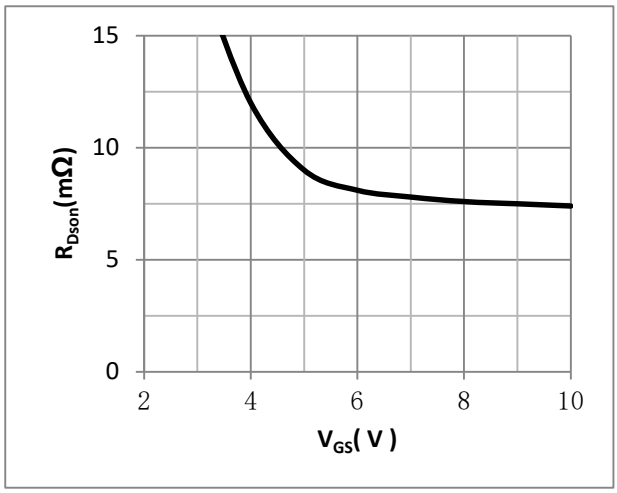


Fig.6 On-Resistance V.S Junction Temperature

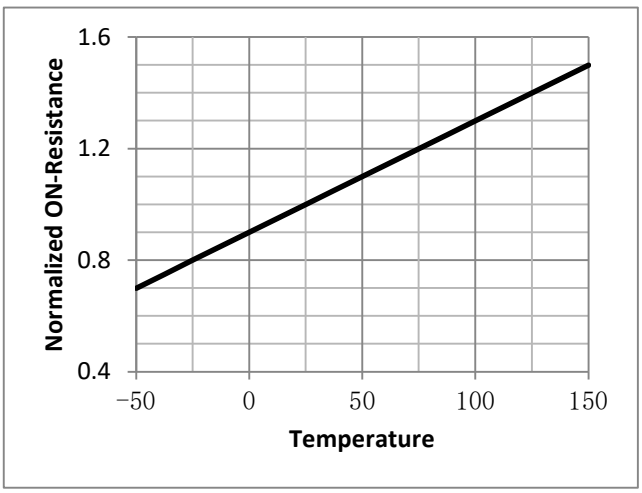


Fig.7 Gate Charge Measurement Circuit

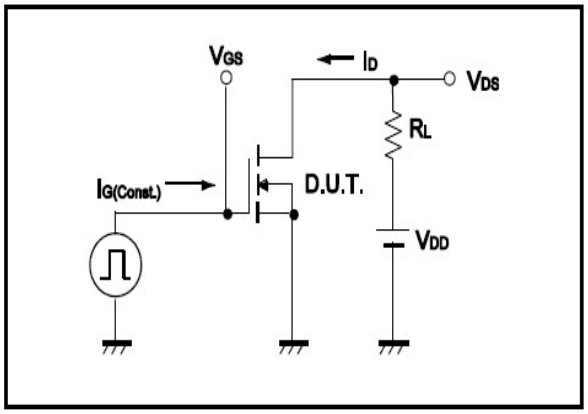


Fig.8 Gate Charge Waveform

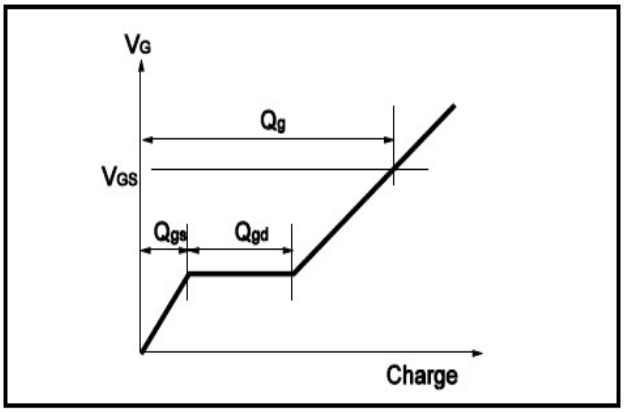


Fig.13 Resistive Switching Test Circuit

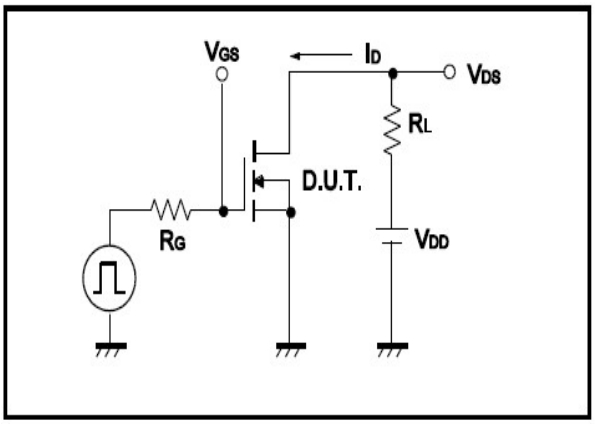


Fig.14 Resistive Switching Test Waveform

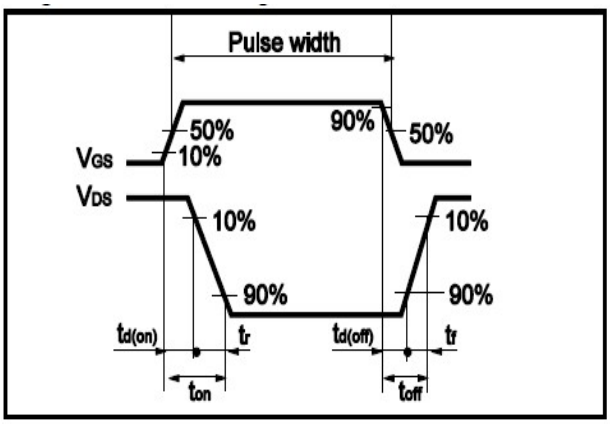


Fig.11 Avalanche Measurement Circuit

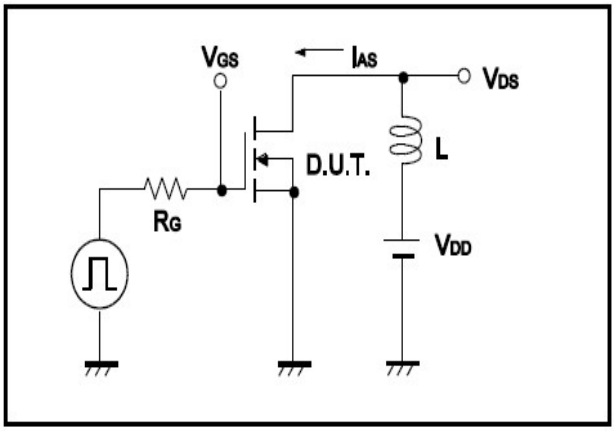
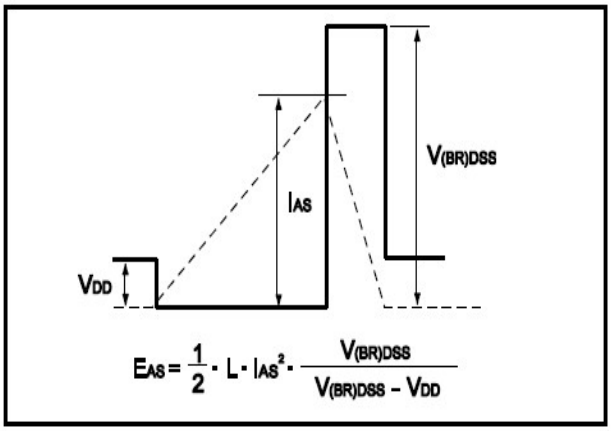
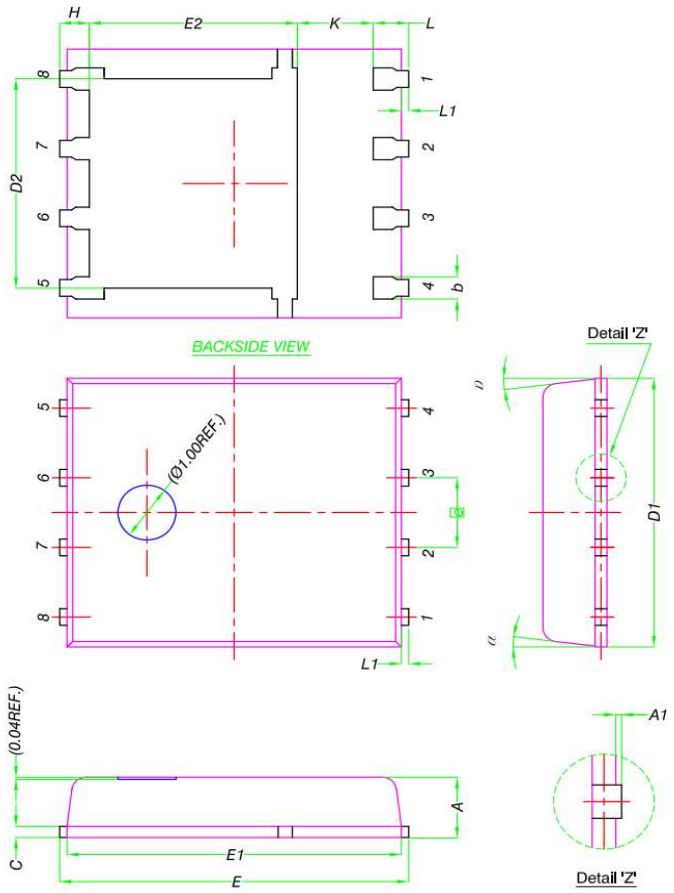


Fig.12 Avalanche Waveform



●Dimensions（DFN5×6）

Unit：mm



DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0	-	0.05
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
α	0°	-	12°