

• General Description

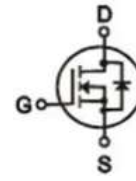
The ZM027N03M combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• 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

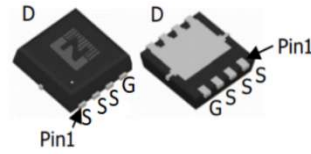
- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industria

• Product Summary


$V_{DS} = 30V$

$R_{DS(ON)} = 2.9m\Omega$

$I_D = 65A$


DFN3 x 3
• Ordering Information:

Part NO.	ZM027N03M
Marking	027N03
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

• 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($T_C=25^\circ C$)	I_D	65	A
Pulsed Drain Current ^①	I_{DM}	195	A
Total Power Dissipation ^②	P_D	22	W
Total Power Dissipation($T_A=25^\circ C$)	$P_D@T_A=25^\circ C$	1	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$
Single Pulse Avalanche Energy@L=0.1mH	E_{AS}	80	mJ
Avalanche Current@L=0.1mH	I_{AS}	40	A

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case ^②	R _{thJC}	-	-	5.6	° C/W
Thermal resistance, junction - ambient	R _{thJA}	-	-	125	° 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	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 =24A		2.9	3.6	mΩ
		V _{GS} =4.5V, I _D =12A		4.6	5.5	mΩ
Forward Trans conductance	g _{FS}	V _{DS} =25V, I _D =10A		30		s

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C _{iss}	V _{DS} =25V f = 1MHz	-	2800	-	pF
Output capacitance	C _{oss}		-	420	-	
Reverse transfer capacitance	C _{rss}		-	280	-	

●Gate Charge characteristics(T_a = 25°C)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q _g	V _{DD} =15V I _D = 24A V _{GS} = 10V	-	27	-	nC
Gate - Source charge	Q _{gs}		-	8.6	-	
Gate - Drain charge	Q _{gd}		-	13.8	-	

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

② Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate;

Fig.1 Gate-Charge Characteristics

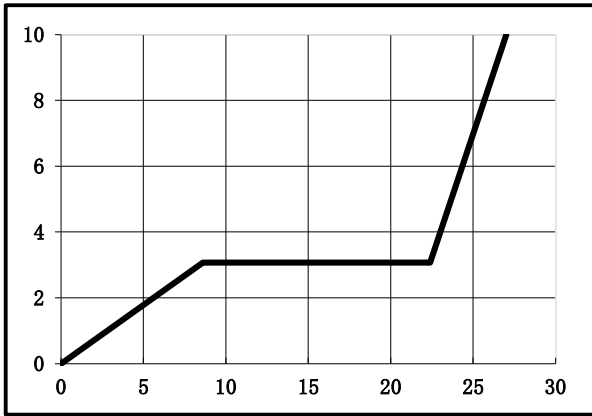


Fig.2 Capacitance Characteristics

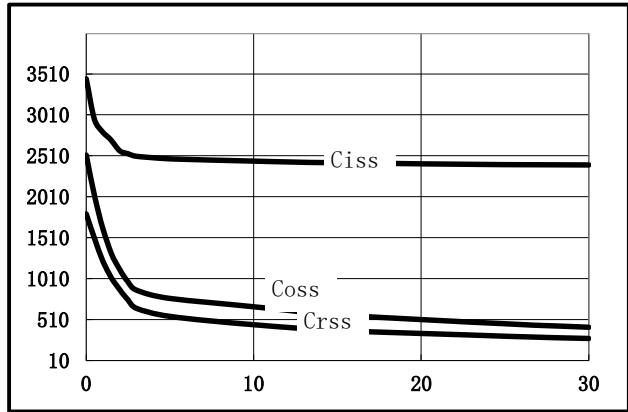


Fig.3 Power Dissipation

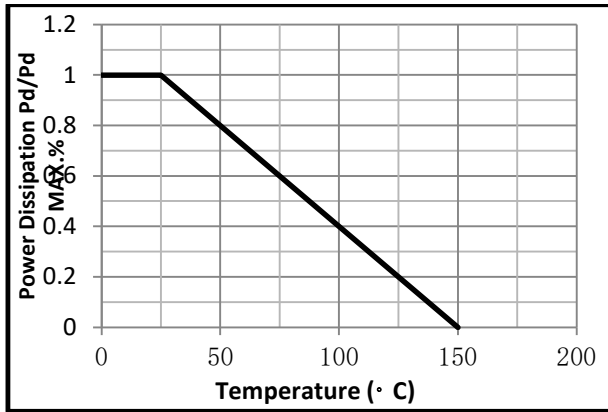


Fig.4 Typical output Characteristics

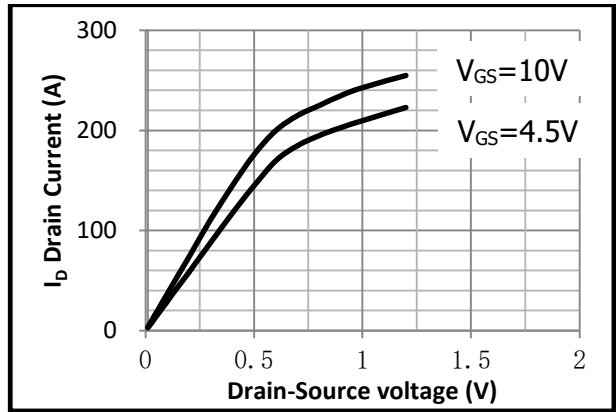


Fig.5 Threshold Voltage V.S Junction Temperature

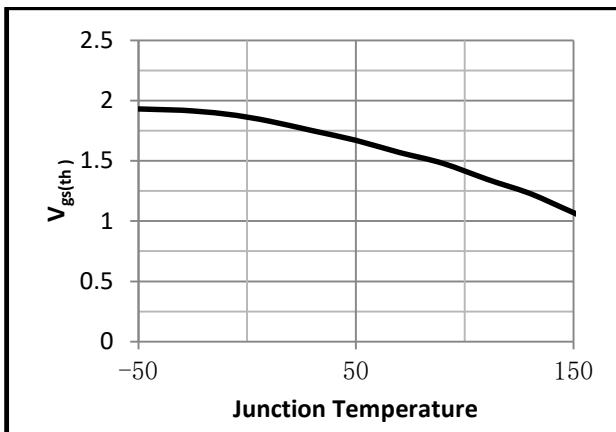


Fig.6 Resistance V.S Drain Current

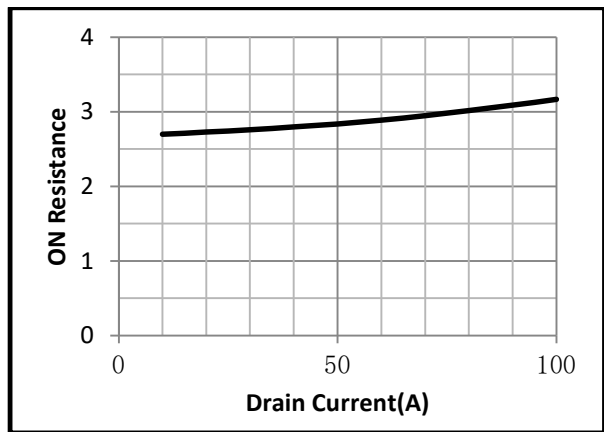


Fig.7 On-Resistance VS Gate Source Voltage

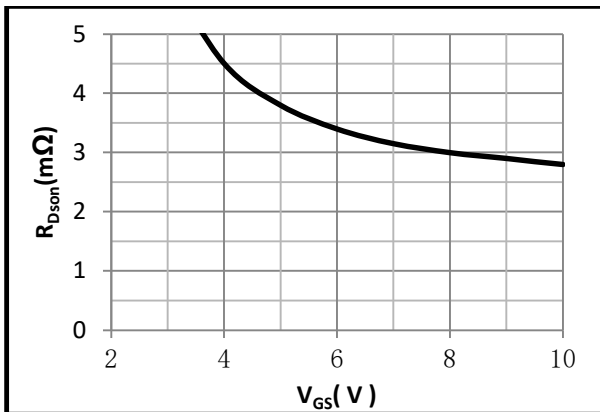


Fig.8 On-Resistance V.S Junction Temperature

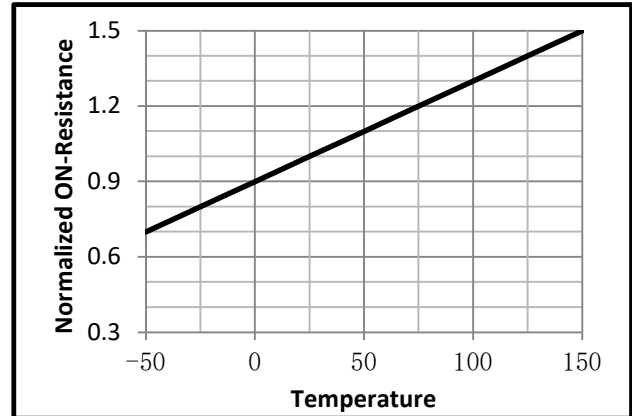


Fig.9 Gate Charge Measurement Circuit

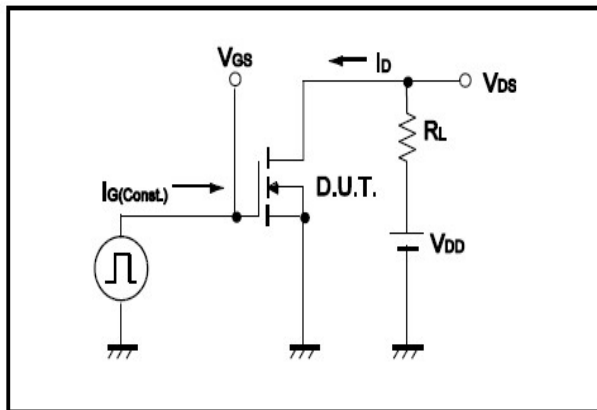


Fig.10 Gate Charge Waveform

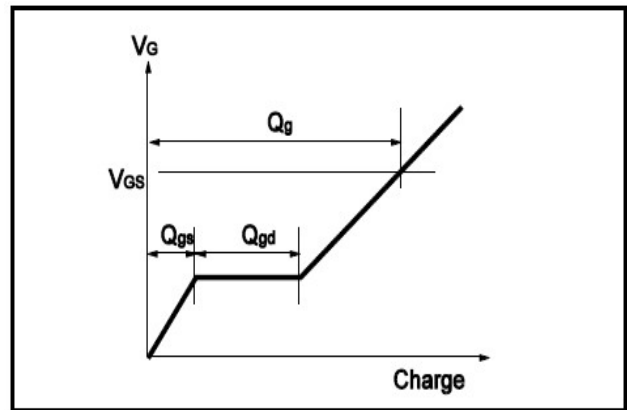


Fig.11 Switching Time Measurement Circuit

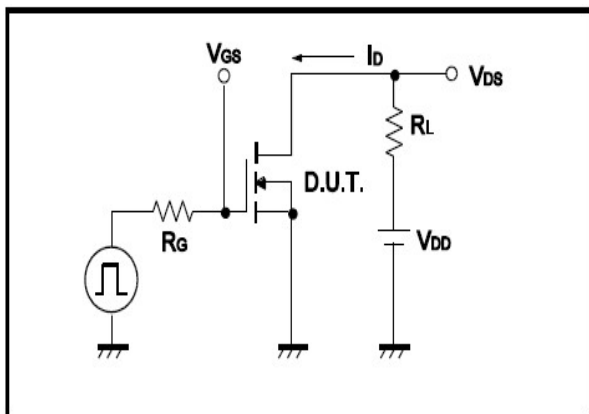


Fig.12 Switching Time Waveform

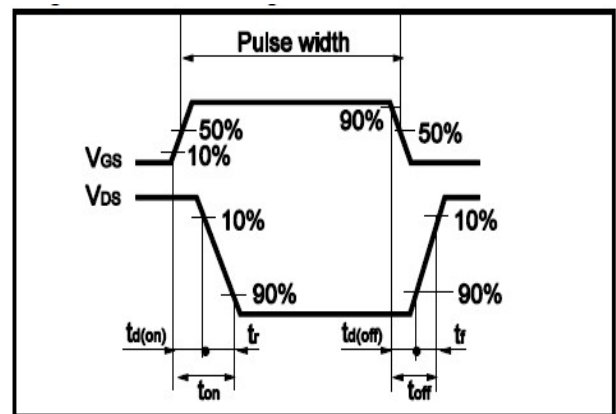


Fig.13 Avalanche Measurement Circuit

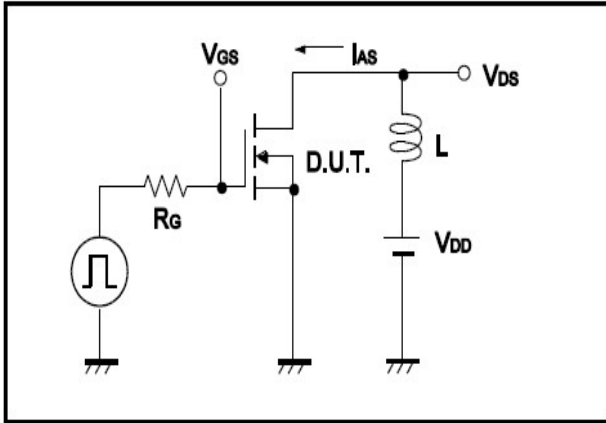
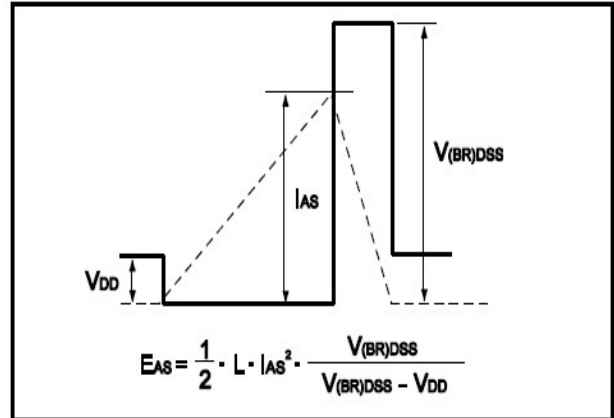


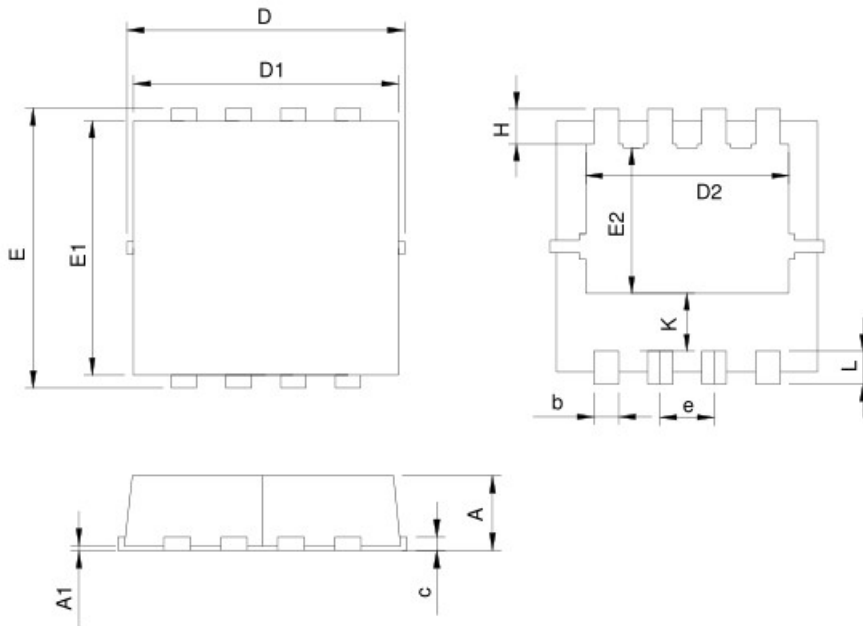
Fig.14 Avalanche Waveform





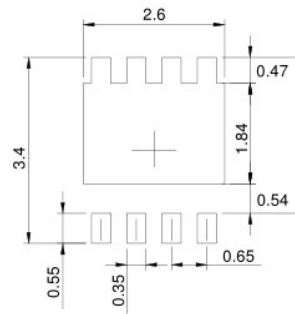
•Dimensions(DFN3x3)

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