

**• General Description**

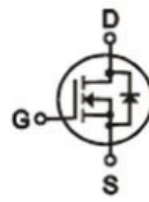
The ZM098N06I combines advanced trench MOSFET technology with a low resistance package to provide extremely low  $R_{DS(ON)}$ .

**• 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**

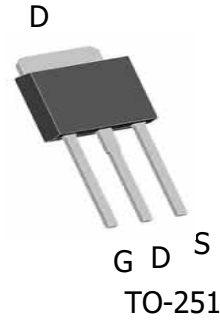
- MB/VGA Vcore
- SMPS 2<sup>nd</sup> Synchronous Rectifier
- POL application
- BLDC Motor driver

**• Product Summary**


$V_{DS} = 65V$

$R_{DS(ON)} = 11m\Omega$

$I_D = 50A$


**• Ordering Information:**

Part NO.	ZM098N06I
Marking	ZM098N06
Packing Information	REEL TAPE
Basic ordering unit (pcs)	900

**• Absolute Maximum Ratings ( $T_C = 25^\circ C$ )**

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	65	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_{D@TC=25^\circ C}$	50	A
	$I_{D@TC=75^\circ C}$	35	A
	$I_{D@TC=100^\circ C}$	31.5	A
Pulsed Drain Current <sup>①</sup>	$I_{DM}$	104	A
Total Power Dissipation	$P_D@TC=25^\circ C$	70	W
Total Power Dissipation	$P_D@TA=25^\circ C$	2.8	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	$E_{AS}$	280	mJ
Avalanche Current @L=0.1mH	$I_{AS}$	75	A

**•Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	$R_{thJC}$	-	-	1.8	$^{\circ}C/W$
Thermal resistance, junction - ambient	$R_{thJA}$	-	-	45	$^{\circ}C/W$
Soldering temperature, wavesoldering for 10s	$T_{sold}$	-	-	265	$^{\circ}C$

**•Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	65			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2		2.5	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1.0	$\mu A$
Gate- Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=24A$		11	13	$m\Omega$
		$V_{GS}=4.5V, I_D=12A$		14	17	$m\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=25V, I_D=10A$		30		S
Source-drain voltage	$V_{SD}$	$I_S=24A$			1.28	V

**•Electronic Characteristics**

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	$C_{iss}$	$f = 1MHz$	-	3220	-	pF
Output capacitance	$C_{oss}$		-	149	-	
Reverse transfer capacitance	$C_{rss}$		-	106	-	

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

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	$Q_g$	$V_{DD}=25V$	-	30	-	nC
Gate - Source charge	$Q_{gs}$	$I_D=8A$	-	9	-	
Gate - Drain charge	$Q_{gd}$	$V_{GS}=10V$	-	15	-	

Note: ① Pulse Test : Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$  ;

Fig.1 Power Dissipation

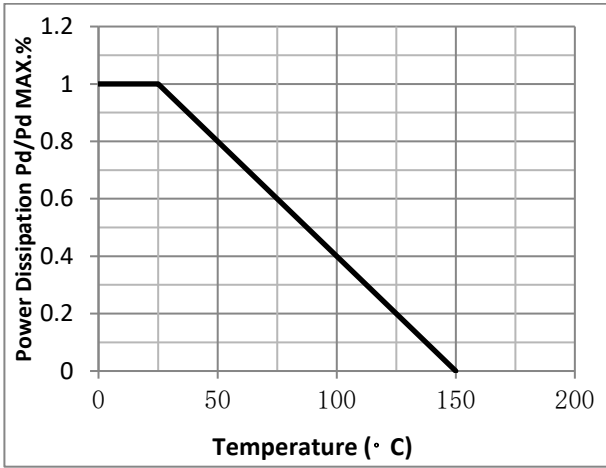


Fig.2 Typical output Characteristics

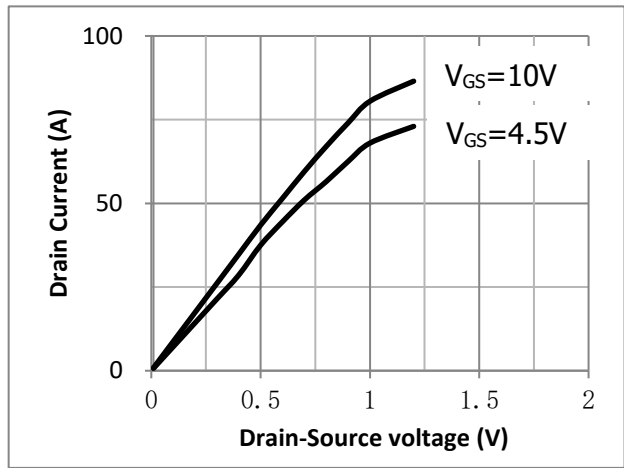


Fig.3 Threshold Voltage V.S Junction Temperature

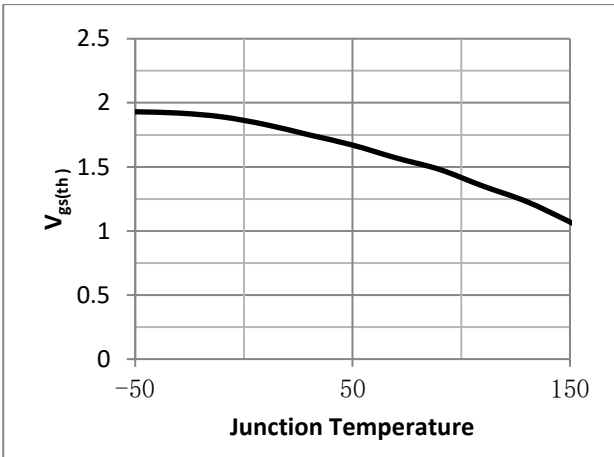


Fig.4 Resistance V.S Drain Current

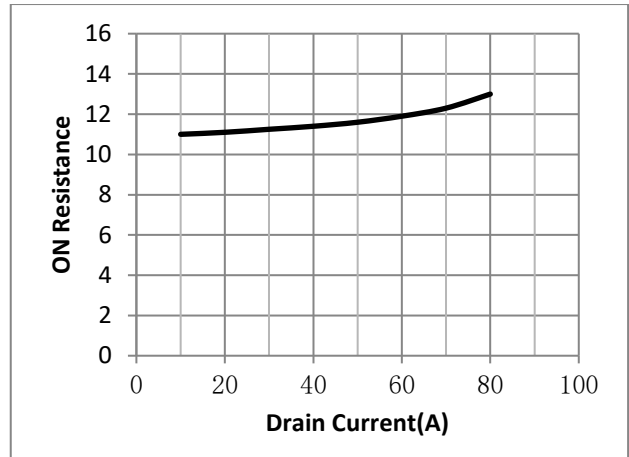


Fig.5 On-Resistance VS Gate Source Voltage

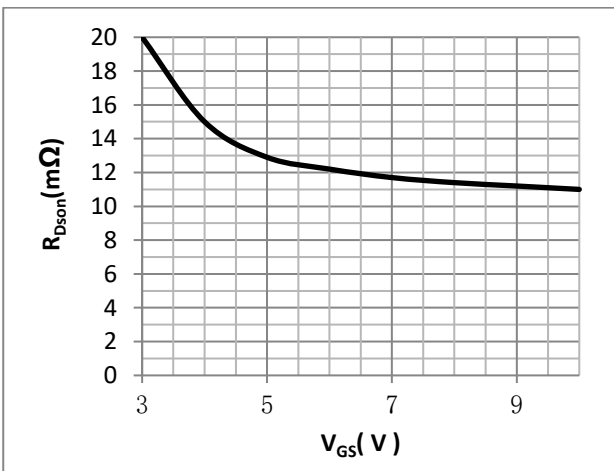


Fig.6 On-Resistance V.S Junction Temperature

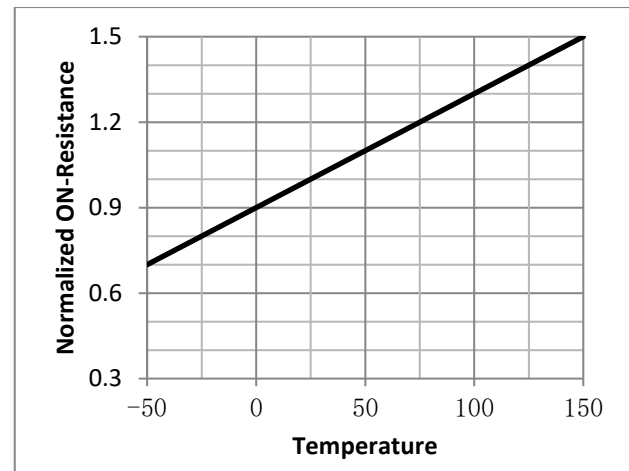


Fig.7 Switching Time Measurement Circuit

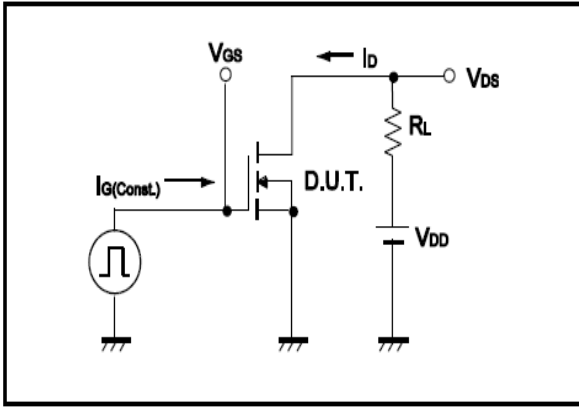


Fig.8 Gate Charge Waveform

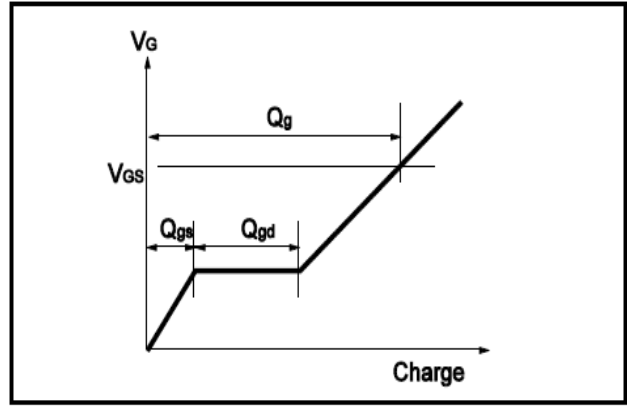


Fig.9 Switching Time Measurement Circuit

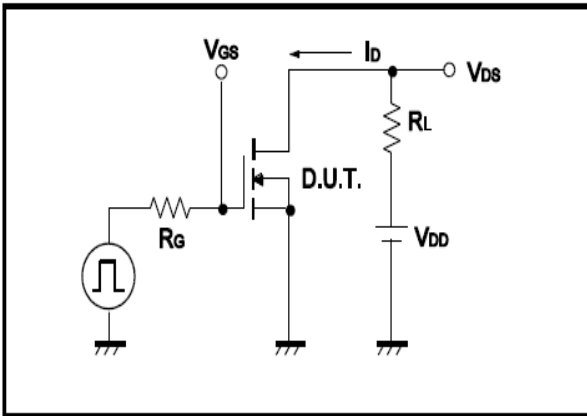


Fig.10 Gate Charge Waveform

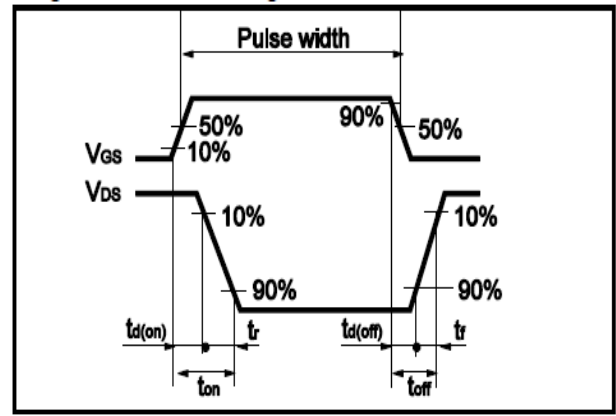


Fig.11 Avalanche Measurement Circuit

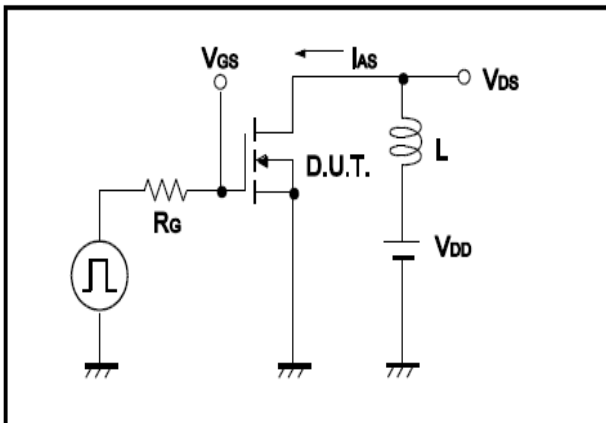
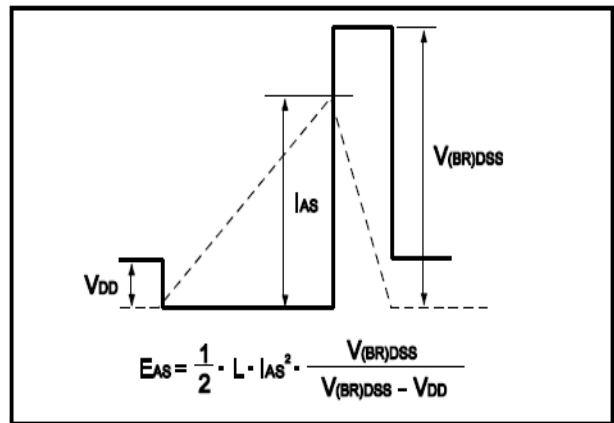


Fig.12 Avalanche Waveform



•Dimensions(TO-251)

Unit: mm

SYMBOL	min	max	SYMBOL	min	max
A	2.10	2.50	D	6.35	6.80
A1	0.95	1.30	D1	5.10	5.50
B	0.80	1.25	E	5.30	6.30
b	0.50	0.80	e	2.24	2.35
b1	0.70	0.90	E1	4.43	4.73
c	0.45	0.60	L	7.00	9.40
c1	0.45	0.60			

