

• General Description

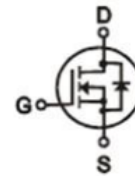
It combines advanced SGT MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• 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

- SMPS 2nd Synchronous Rectifier
- BLDC Motor driver

• Product Summary


$V_{DS} = 100V$

$R_{DS(ON)} = 75m\Omega$

$I_D = 16A$



TO-251

• Ordering Information:

Part NO.	ZMS800N10I
Marking	ZMS800N10
Packing Information	TUBE
Basic ordering unit (pcs)	3600

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_D @ TC=25^\circ C$	16	A
	$I_D @ TC=75^\circ C$	12	A
	$I_D @ TC=100^\circ C$	10	A
Pulsed Drain Current ^①	I_{DM}	48	A
Total Power Dissipation($TC=25^\circ C$)	$P_D @ TC=25^\circ C$	50	W
Total Power Dissipation($TA=25^\circ C$)	$P_D @ TA=25^\circ C$	2.5	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$

**•Thermal resistance**

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	2.5	$^{\circ}C/W$
Thermal resistance, junction - ambient	R_{thJA}	-	-	50	$^{\circ}C/W$
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}	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.8	2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=16A$		75	90	m Ω
		$V_{GS}=4.5V, I_D=12A$		86	105	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=4A$		2		S
Diode Forward Voltage	V_{FSD}	$I_S=16A$			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=25V$ $f = 1MHz$	-	266	-	pF
Output capacitance	C_{oss}		-	138	-	
Reverse transfer capacitance	C_{rss}		-	25	-	

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

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD}=25V$ $I_D=8A$ $V_{GS}=10V$	-	4.7	-	nC
Gate - Source charge	Q_{gs}		-	1.2	-	
Gate - Drain charge	Q_{gd}		-	0.64	-	

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

Fig.1 Power Dissipation Derating Curve

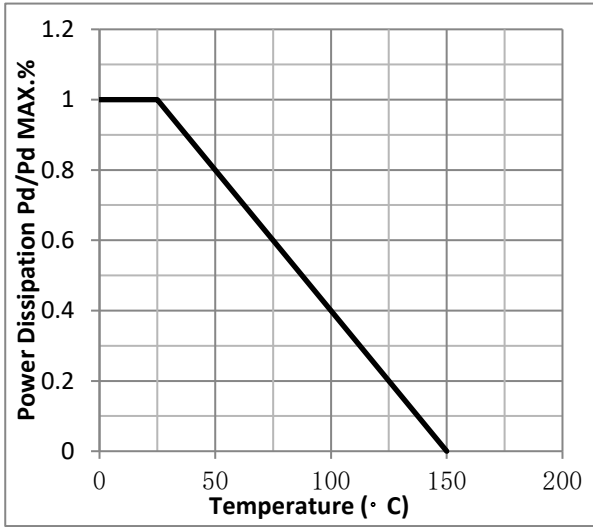


Fig.2 Typical output Characteristics

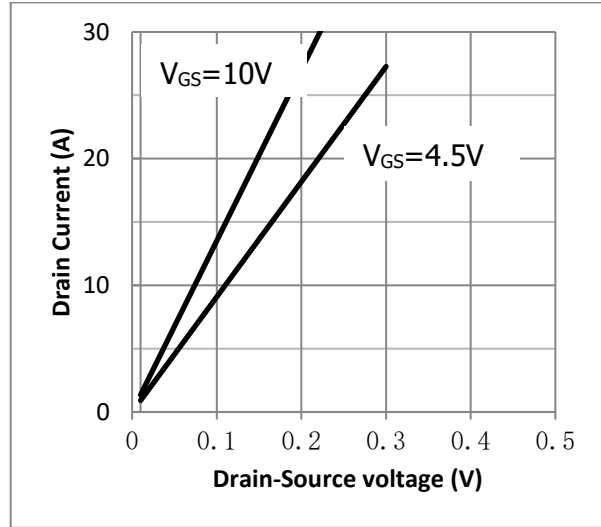


Fig.3 Threshold Voltage V.S Junction Temperature

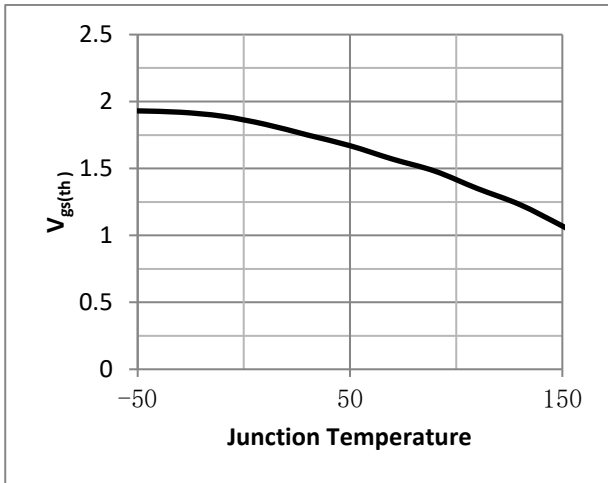


Fig.4 Resistance V.S Drain Current

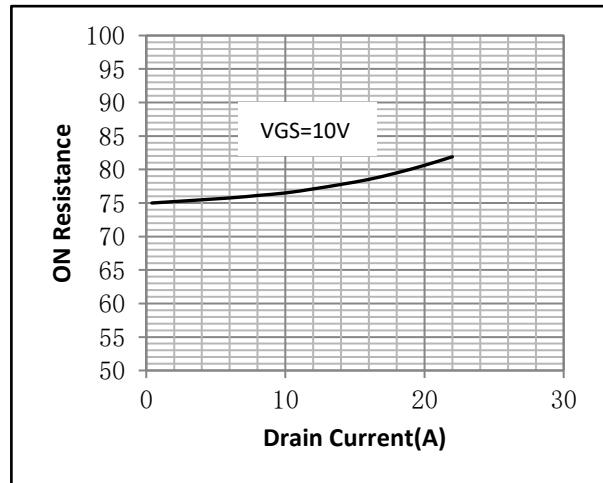


Fig.5 On-Resistance VS Gate Source Voltage

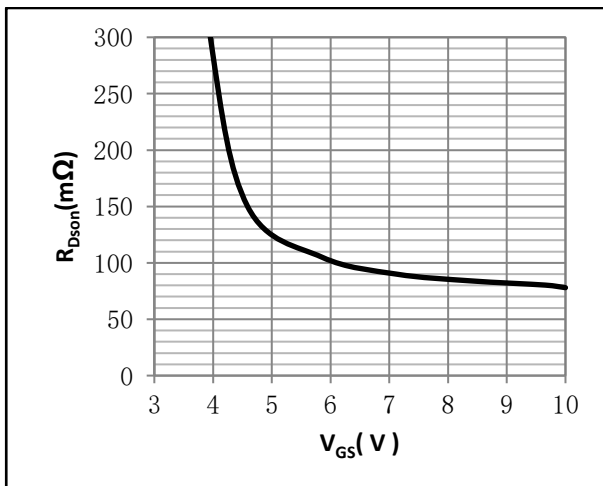


Fig.6 On-Resistance V.S Junction Temperature

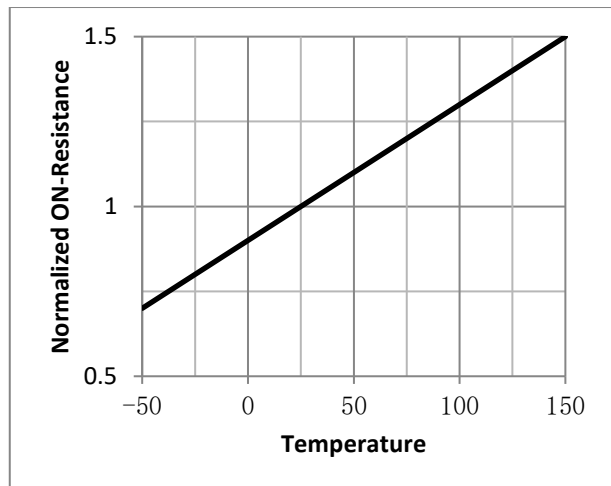


Fig.7 Gate Charge Measurement Circuit

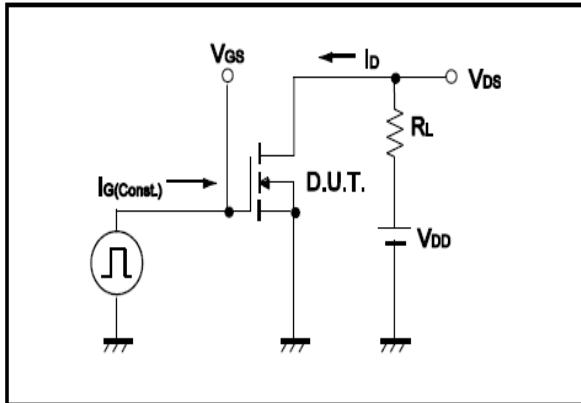


Fig.8 Gate Charge Waveform

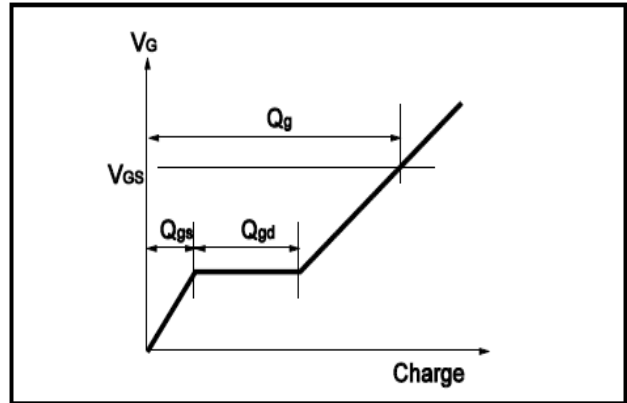


Fig.9 Switching Time Measurement Circuit

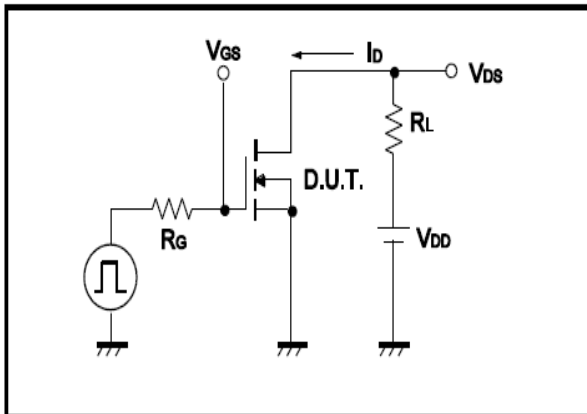


Fig.10 Switching Time Waveform

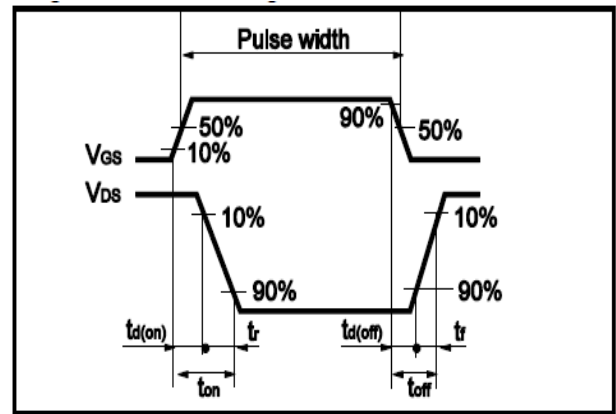


Fig.11 Avalanche Measurement Circuit

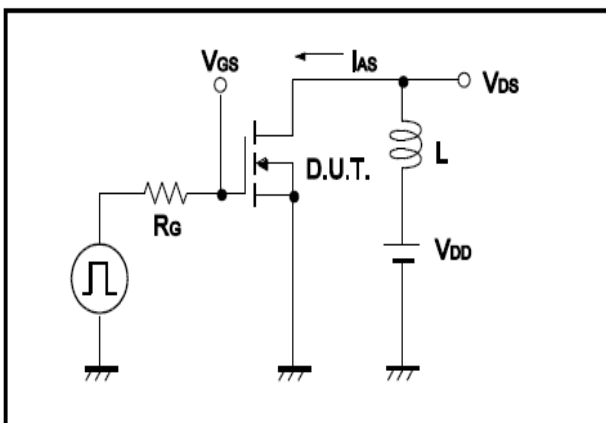
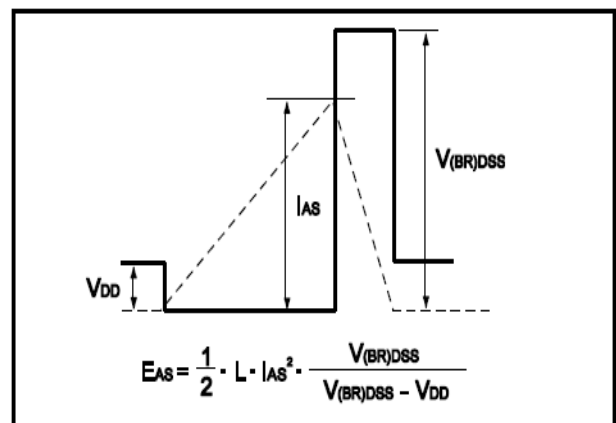


Fig.12 Avalanche Waveform



•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	2.30	2.35
b1	0.70	0.90	L	7.00	9.20
c	0.45	0.70			
c1	0.45	0.70			

