● General Description

It 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.

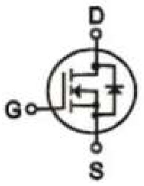
● Features

- ■ 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

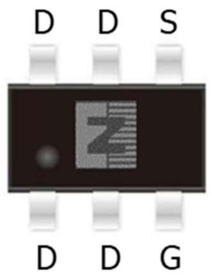
● Product Summary



V_{DS} =100V

$R_{DS(ON)}$ =90mΩ

I_D =3.5A



SOT23-6

●Ordering Information:

Part NO.	ZMS900N10U
Marking	900N10
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

●Absolute Maximum Ratings (T$_C$ =25℃)

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℃	3.5	A
	$I_{D@}$TC=75℃	2.6	A
	I_D @TC=100℃	2.2	A
Pulsed Drain Current ①	I_{DM}	10.5	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	2	W
Total Power Dissipation(TA=25℃)	P_D@TA=25℃	1.3	W
Operating Junction Temperature	T_J	-55 to 150	℃
Storage Temperature	T_{STG}	-55 to 150	℃
Single Pulse Avalanche Energy	E_{AS}	5	mJ

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	60	° C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	100	° 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	100			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =250uA	1.3	1.8	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=100V, 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=3.5A		90	100	mΩ
		V_{GS}=4.5V, I_D=2A		95	105	mΩ
Forward Transconductance	g_{FS}	V_{DS} =10V, I_D=2A		2		s
Diode Forward Voltage	V_{FSD}	I_S=3.5A			1.28	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V f = 1MHz	-	266	-	pF
Output capacitance	Coss		-	138	-	
Reverse transfer capacitance	Crss		-	25	-	

•Gate Charge characteristics(T_a = 25℃)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Qg	V_{DD} =25V I_D = 2A V_{GS} = 10V	-	4.7	-	nC
Gate - Source charge	Qgs		-	1.2	-	
Gate - Drain charge	Qgd		-	0.64	-	

Note: ① Pulse Test : Pulse width ≤ 10μs, Duty cycle ≤ 1% ;

Fig.1 Power Dissipation Derating Curve

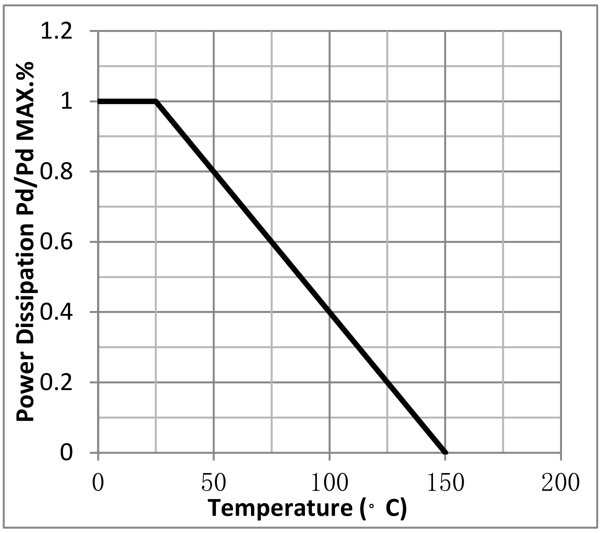


Fig.2 Typical output Characteristics

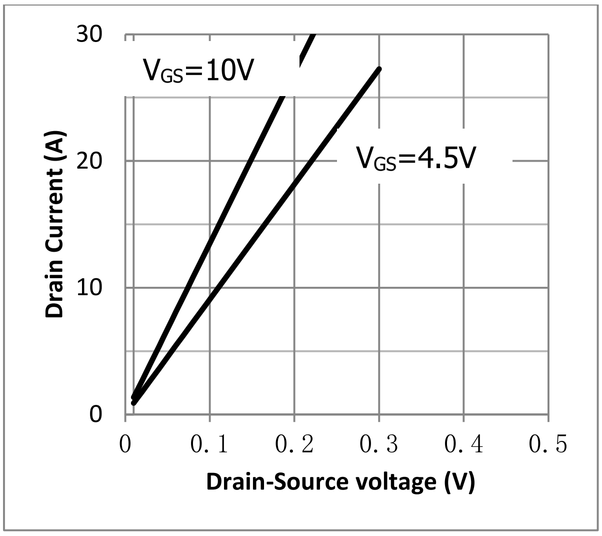


Fig.3 Threshold Voltage V.S Junction Temperature

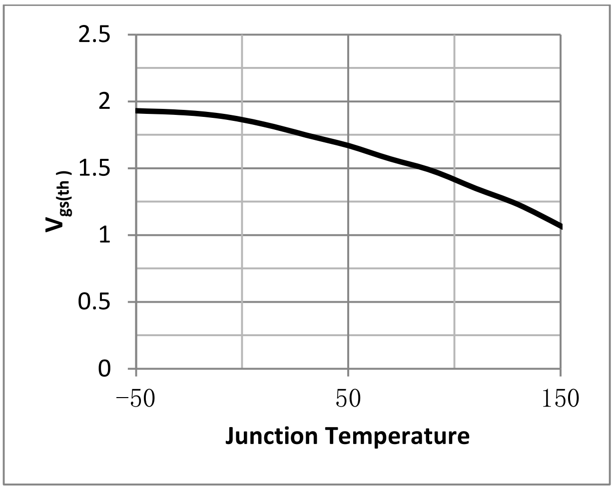


Fig.4 Resistance V.S Drain Current

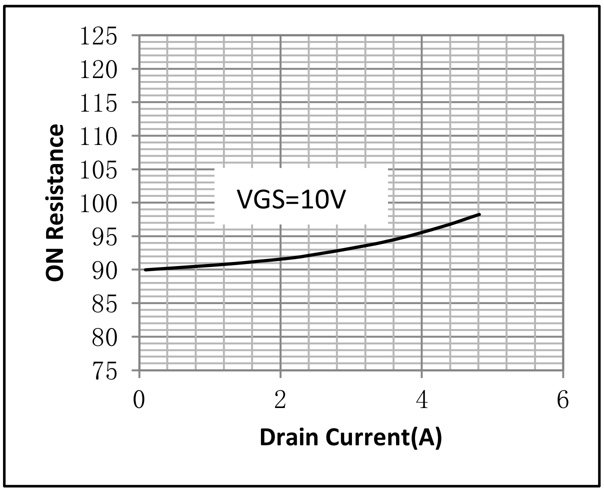


Fig.5 On-Resistance VS Gate Source Voltage

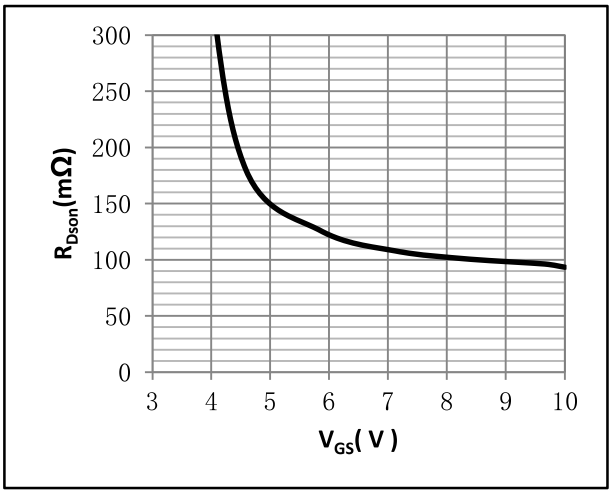


Fig.6 On-Resistance V.S Junction Temperature

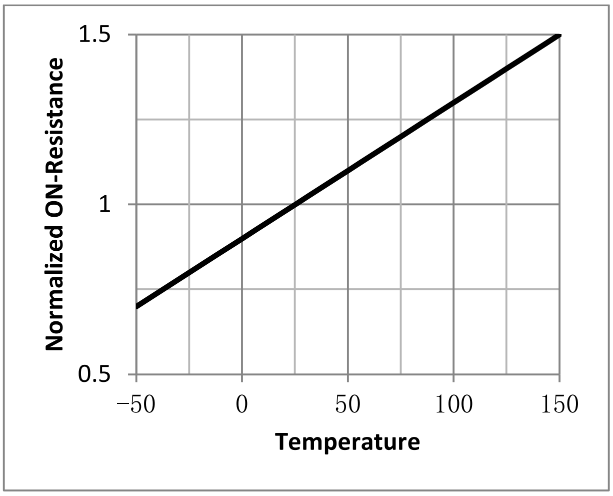


Fig.7 Gate Charge Measurement Circuit

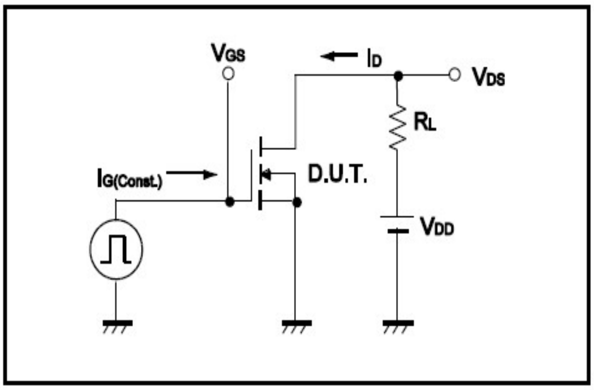


Fig.8 Gate Charge Waveform

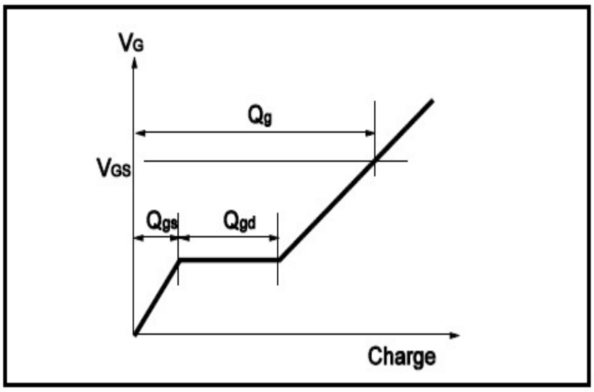


Fig.9 Switching Time Measurement Circuit

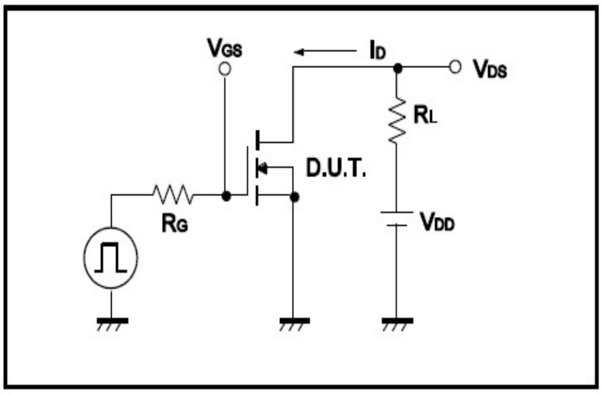


Fig.10 Switching Time Waveform

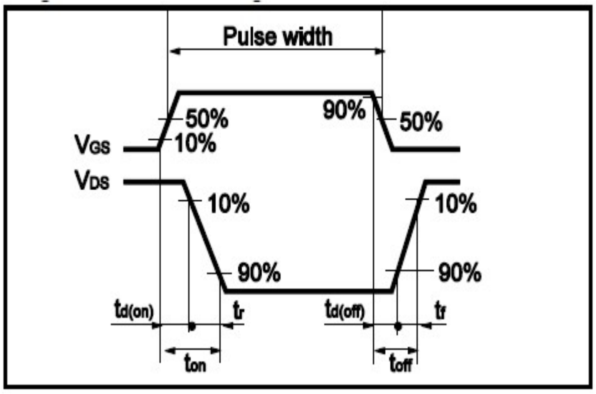


Fig.11 Avalanche Measurement Circuit

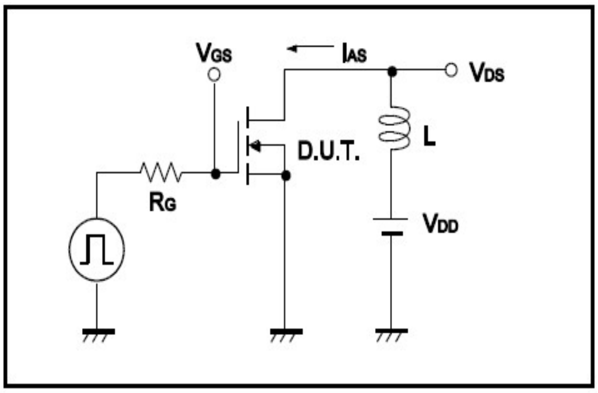
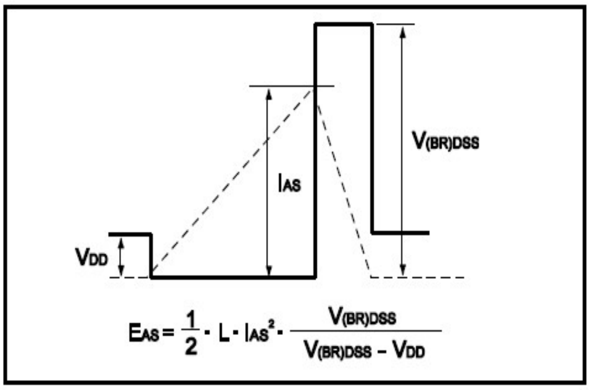


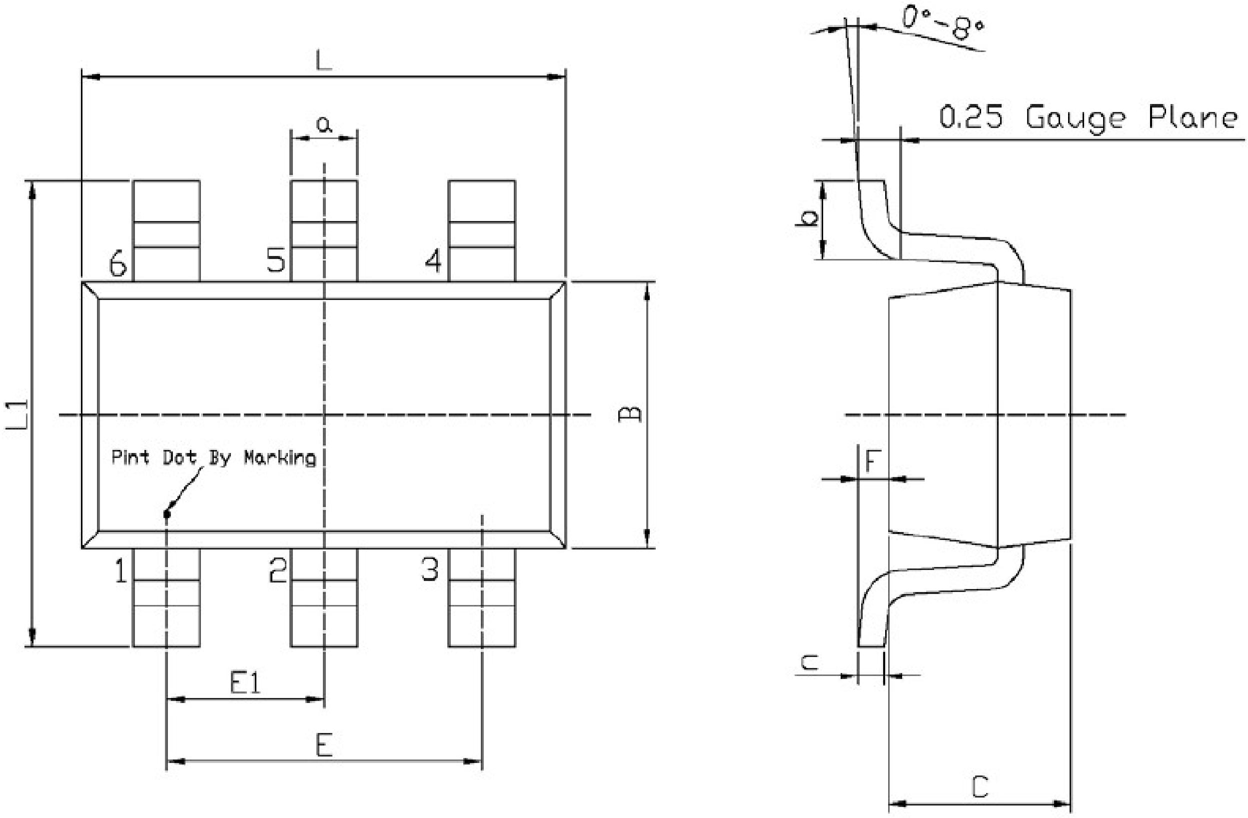
Fig.12 Avalanche Waveform

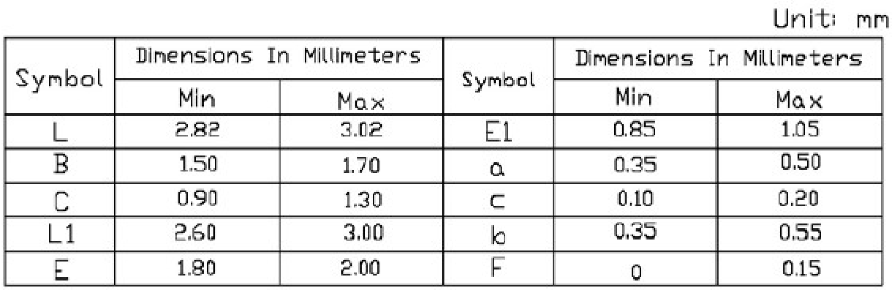


$$E_{AS} = \frac{1}{2} \cdot L \cdot I_{AS}^2 \cdot \frac{V_{(BR)DSS}}{V_{(BR)DSS} - V_{DD}}$$

•Dimensions(SOT23-6)

Unit: mm





Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.82	3.02	E1	0.85	1.05
B	1.50	1.70	a	0.35	0.50
C	0.90	1.30	c	0.10	0.20
L1	2.60	3.00	b	0.35	0.55
E	1.80	2.00	F	0	0.15