

• General Description

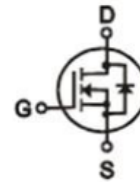
It combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

• 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

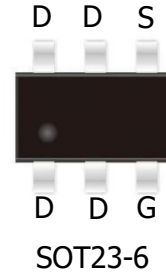
- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

• Product Summary


$V_{DS} = 100V$

$R_{DS(ON)} = 90m\Omega$

$I_D = 3.5A$


• Ordering Information:

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

• Absolute Maximum Ratings (T_C =25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$I_D @ T_C = 25^\circ C$	3.5	A
	$I_D @ T_C = 75^\circ C$	2.6	A
	$I_D @ T_C = 100^\circ C$	2.2	A
	$I_D @ T_A = 25^\circ C$	2.7	A
	$I_D @ T_A = 75^\circ C$	2.0	A
	$I_D @ T_A = 100^\circ C$	1.7	A
Pulsed Drain Current ^①	I_{DM}	10.5	A
Total Power Dissipation	$P_D @ T_C = 25^\circ C$	2	W
Total Power Dissipation	$P_D @ T_A = 25^\circ C$	1.3	W
Operating Junction Temperature	T_J	-55 to 150	°C



Storage Temperature	T_{STG}	-55 to 150	°C
Single Pulse Avalanche Energy	E_{AS}	1.25	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}	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	1.3	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	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 5A$		90	100	m Ω
		$V_{GS} = 4.5V, I_D = 5A$		95	115	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = 10V, I_D = 4A$		2		s

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$f = 1MHz$	-	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	$V_{DD} = 25V$	-	4.7	-	nC
Gate - Source charge	Q_{gs}	$I_D = 8A$	-	1.2	-	
Gate - Drain charge	Q_{gd}	$V_{GS} = 10V$	-	0.64	-	

Note: ① Pulse Test : Pulse width $\leq 10\mu s$, Duty cycle $\leq 1\%$;

Fig.1 Power Dissipation Derating Curve

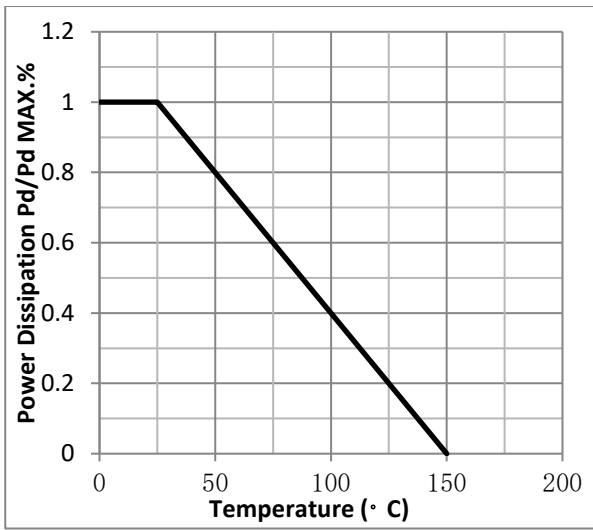


Fig.2 Typical output Characteristics

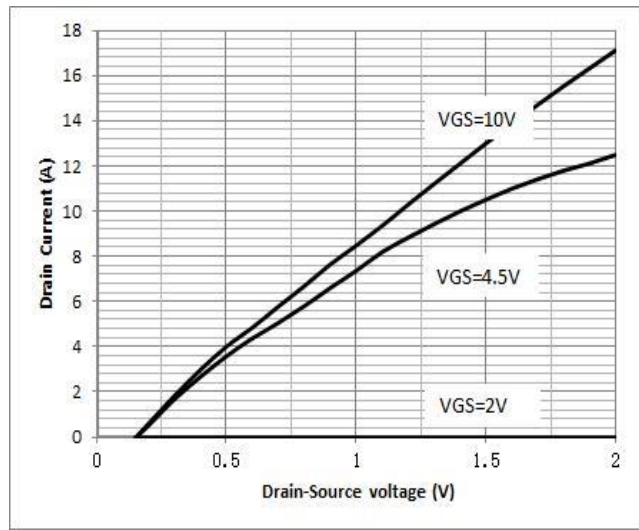


Fig.3 Threshold Voltage V.S Junction Temperature

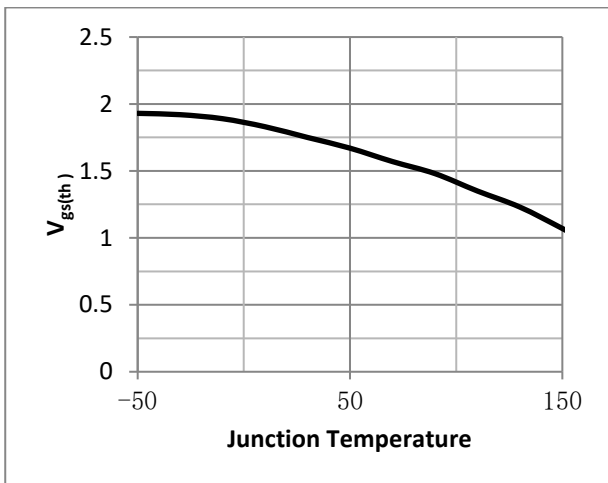


Fig.4 Resistance V.S Drain Current

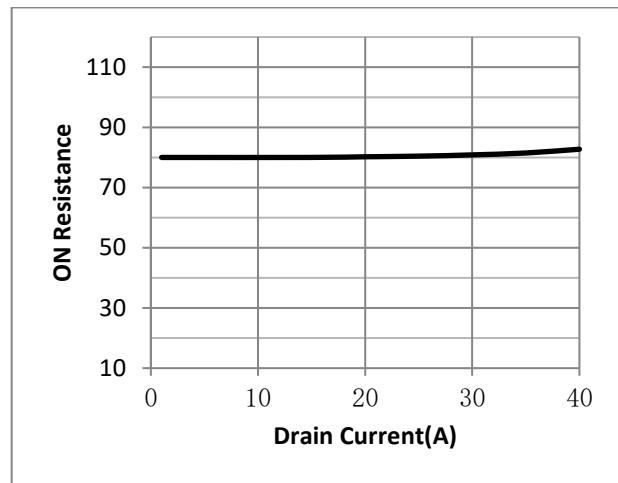


Fig.5 On-Resistance VS Gate Source Voltage

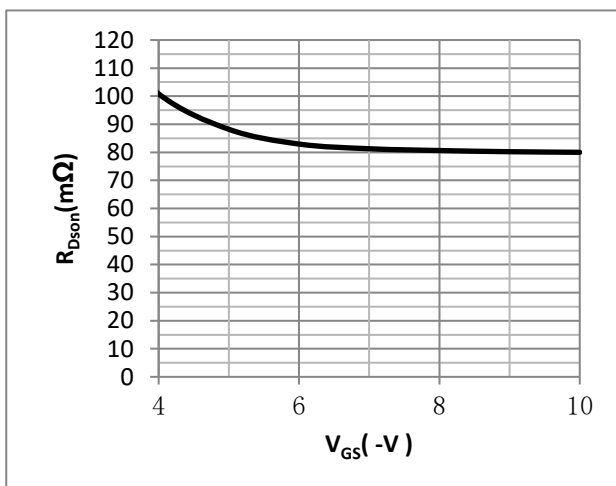


Fig.6 On-Resistance V.S Junction Temperature

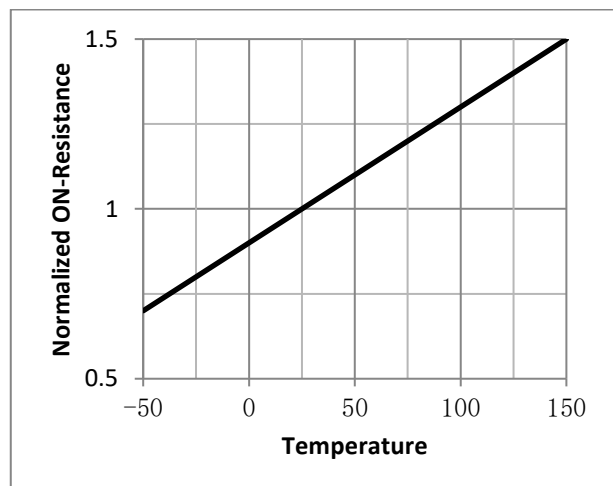


Fig.7 Switching Time Measurement Circuit

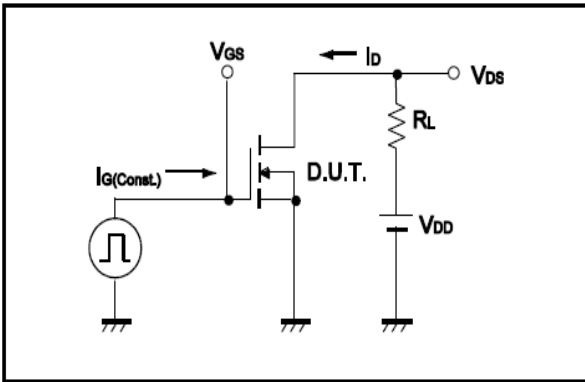


Fig.8 Gate Charge Waveform

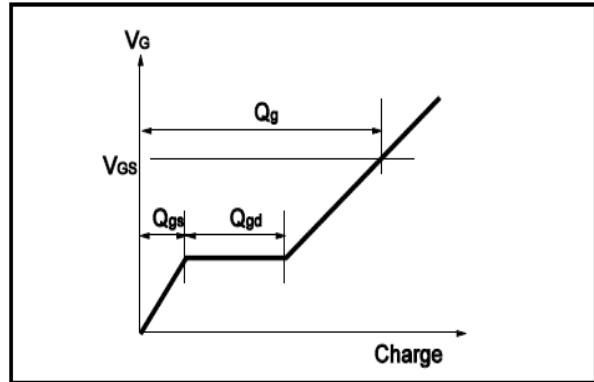


Fig.9 Switching Time Measurement Circuit

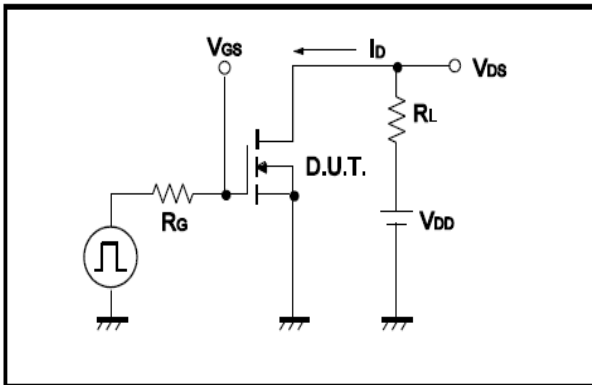


Fig.10 Gate Charge Waveform

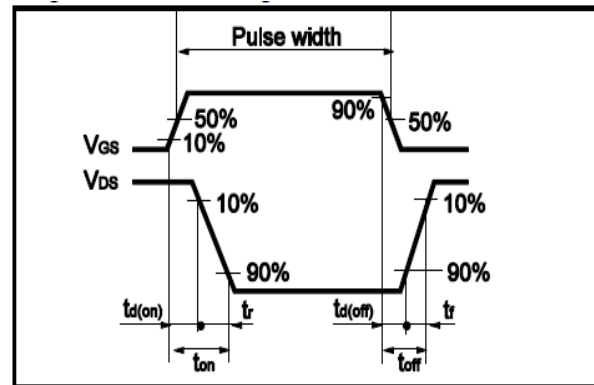


Fig.11 Avalanche Measurement Circuit

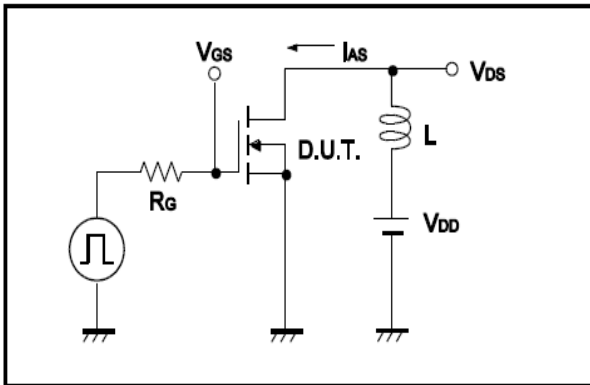
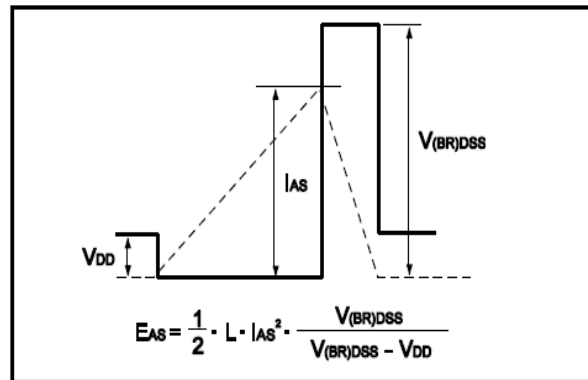


Fig.12 Avalanche Waveform





•Dimensions(SOT23-6)

Unit: mm

