

• General Description

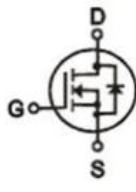
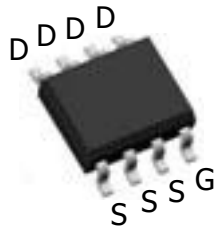
The ZM030N04S combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• 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 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

	$V_{DS} = 45V$ $R_{DS(ON)} = 3m\Omega$ $I_D = 28A$
 <p style="text-align: center;">SOP-8</p>	<ul style="list-style-type: none"> ■ RoHS COMPLIANT

• Ordering Information:

Marking	ZM030N04
Packing	REEL TAPE
Basic ordering unit (pcs)	4000
Normal Package Material Ordering Code	ZM030N04S-TAP
Halogen Free Ordering Code	ZM030N04S-TAP-HF

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	45	V
Gate-Source Voltage	V_{GS}	20	V
Continuous Drain Current($T_C=25^\circ C$)	I_D	25	A
Pulsed Drain Current ^①	I_{DM}	80	A
Total Power Dissipation($T_C=25^\circ C$)	$P_D@T_C=25^\circ C$	4.2	W
Total Power Dissipation($T_A=25^\circ C$)	$P_D@T_A=25^\circ C$	0.76	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$
Single Pulse Avalanche Energy	E_{AS}	280	mJ

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	32	°C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	170	°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}	$V_{GS} = 0V, I_D = 250\mu A$	45			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}	$V_{DS} = 45V, V_{GS} = 0V$			1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 25A$		3	3.8	m Ω
		$V_{GS} = 4.5V, I_D = 18A$		4.3	5	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = 25V, I_D = 10A$		32		S

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	f = 1MHz	-	4400	-	pF
Output capacitance	C_{oss}		-	650	-	
Reverse transfer capacitance	C_{rss}		-	380	-	

●Gate Charge characteristics($T_a = 25^\circ C$)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD} = 20V$	-	35	-	nC
Gate - Source charge	Q_{gs}	$I_D = 10A$	-	11	-	
Gate - Drain charge	Q_{gd}	$V_{GS} = 10V$	-	14	-	

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

Fig.1 Power Dissipation

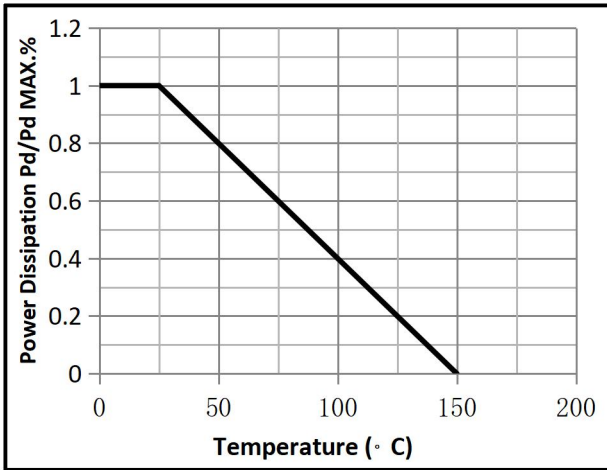


Fig.2 Typical output Characteristics

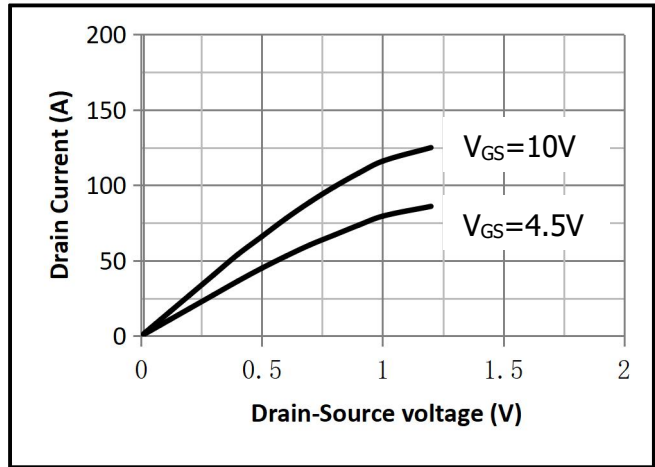


Fig.3 Threshold Voltage V.S Junction Temperature

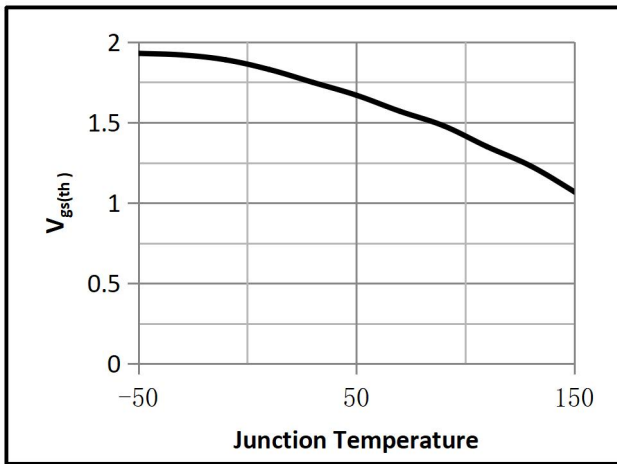


Fig.4 Resistance V.S Drain Current

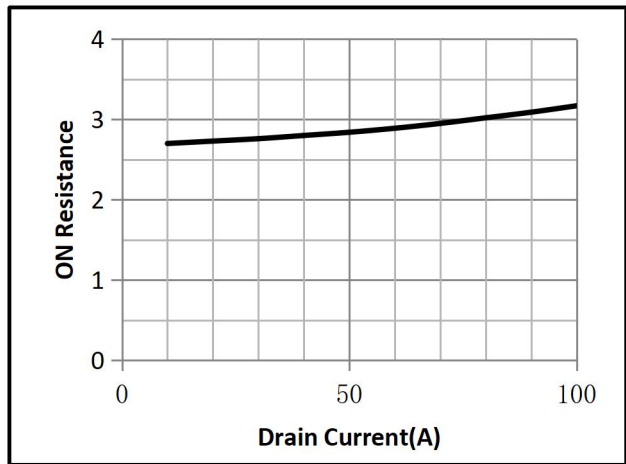


Fig.5 On-Resistance VS Gate Source Voltage

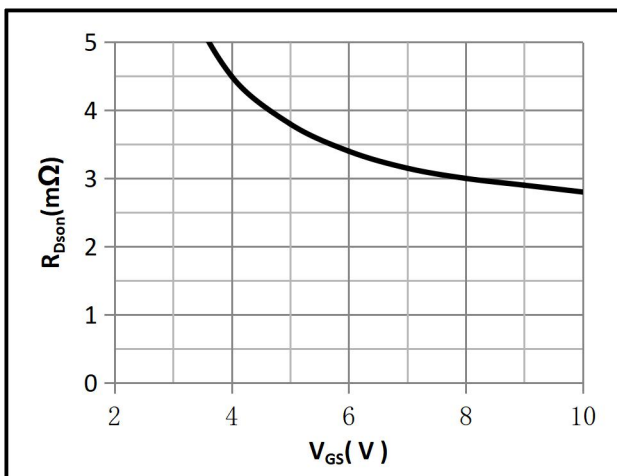


Fig.6 On-Resistance V.S Junction Temperature

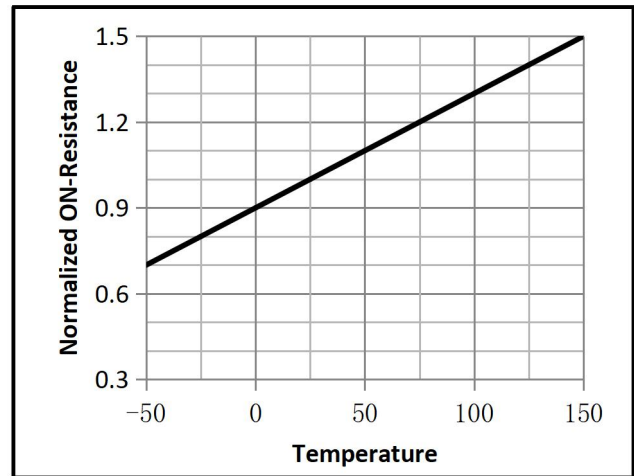


Fig.7 Switching Time Measurement Circuit

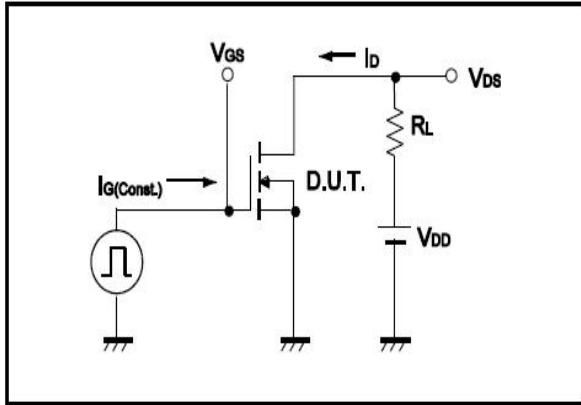


Fig.8 Gate Charge Waveform

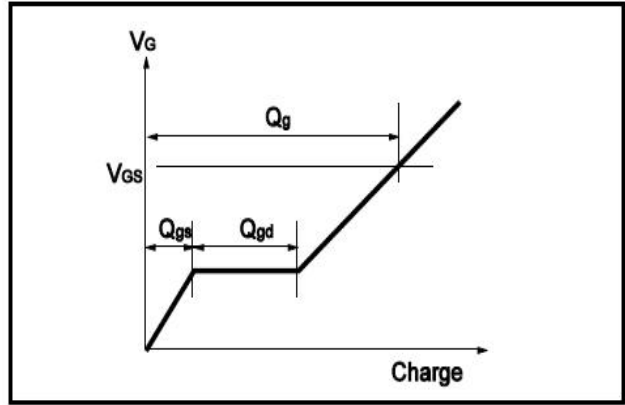


Fig.9 Switching Time Measurement Circuit

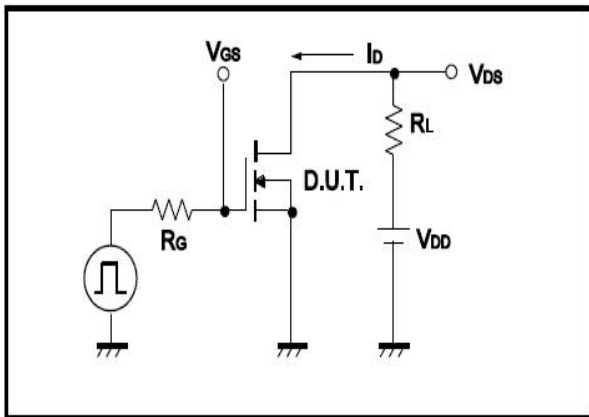


Fig.10 Gate Charge Waveform

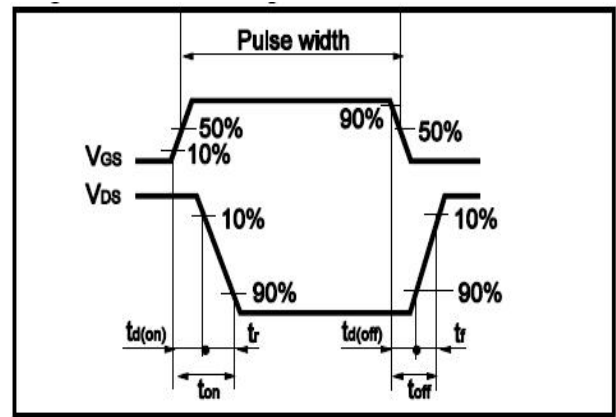


Fig.11 Avalanche Measurement Circuit

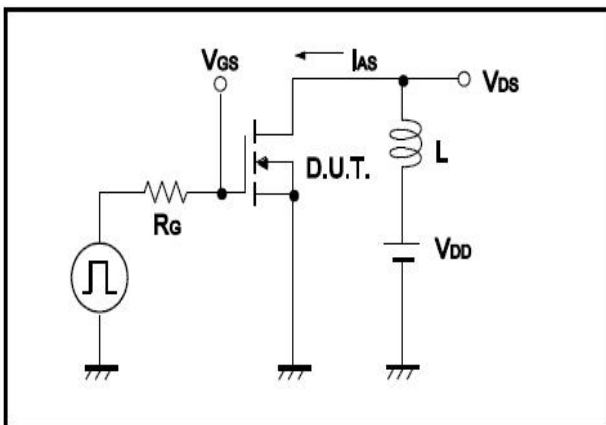
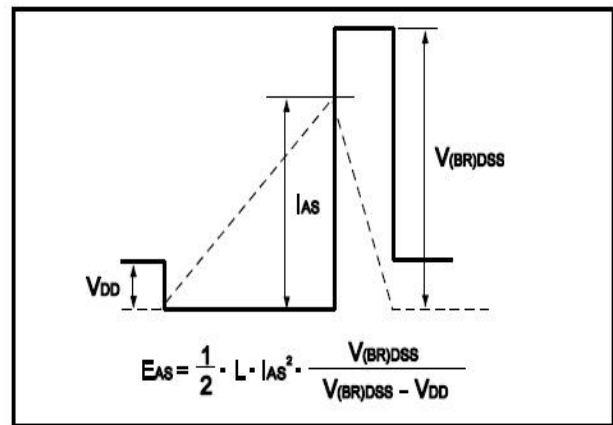


Fig.12 Avalanche Waveform



●Dimensions(SOP8)

SYMBOL	min	TYP	max	SYMBOL	min		max
A	4.80		5.00	C	1.30		1.50
A1	0.37		0.47	C1	0.55		0.75
A2		1.27		C2	0.55		0.65
A3		0.41		C3	0.05		0.20
B	5.80		6.20	C4	0.19	0.20	0.23
B1	3.80		4.00	D		1.05	
B2		5.00		D1	0.40		0.62

