

General Description

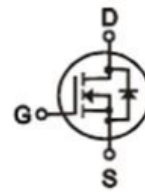
The ZM065N02S combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

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

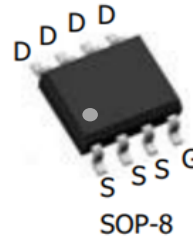
- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

Product Summary


$V_{DS}=20V$

$R_{DS(ON)}=6.5m\Omega$

$I_D=16.5A$


Ordering Information:

Part NO.	ZM065N02S
Marking	ZM065N02
Packing Information	REEL TAPE
Basic ordering unit (pcs)	4000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	$I_D@T_C=25^\circ C$	16.5	A
	$I_D@T_C=75^\circ C$	12.5	A
	$I_D@T_C=100^\circ C$	10.4	A
Pulsed Drain Current ①	I_{DM}	49.5	A
Total Power Dissipation	$P_D@T_C=25^\circ C$	3.4	W
Total Power Dissipation	$P_D@T_A=25^\circ C$	0.69	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}	70	mJ

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	36	° C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	180	° 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}	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	0.3	0.65	1.0	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 16A$		6.0	8.0	m Ω
		$V_{GS} = 4.5V, I_D = 16A$		6.5	8.5	m Ω
		$V_{GS} = 2.5V, I_D = 12A$		8.0	10.4	m Ω
Forward Trans conductance	g_{FS}	$V_{DS} = 25V, I_D = 10A$		10		s

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$f = 1MHz$	-	1660	-	pF
Output capacitance	C_{oss}		-	135	-	
Reverse transfer capacitance	C_{rss}		-	125	-	

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

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD} = 25V$	-	11.5	-	nC
Gate - Source charge	Q_{gs}	$I_D = 8A$	-	3.6	-	
Gate - Drain charge	Q_{gd}	$V_{GS} = 10V$	-	5.8	-	

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

Fig.1 Power Dissipation

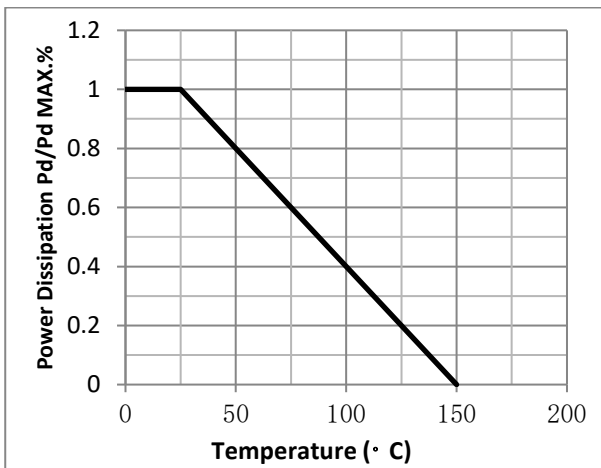


Fig.2 Typical output Characteristics

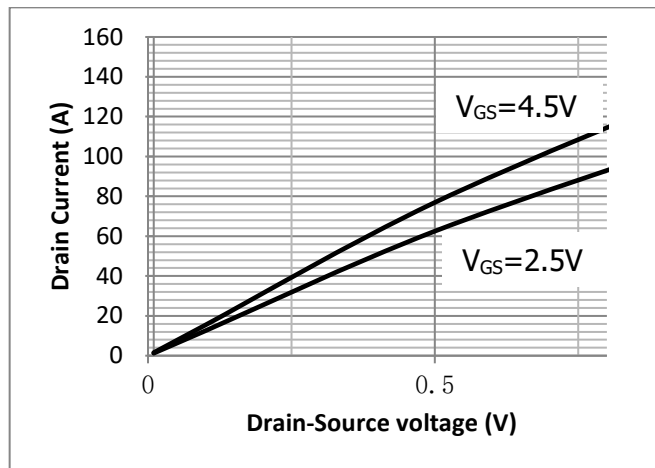


Fig.3 Threshold Voltage V.S Junction Temperature

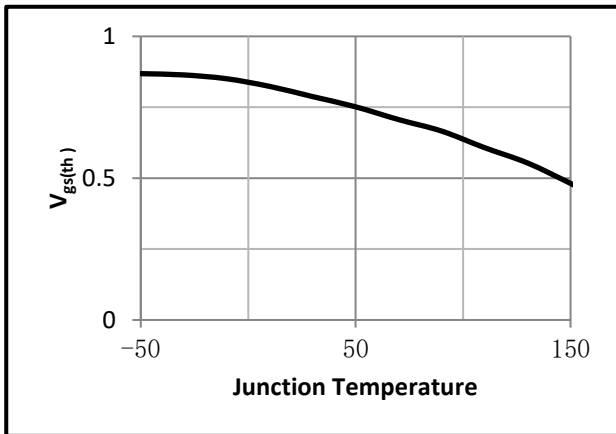


Fig.4 Resistance V.S Drain Current

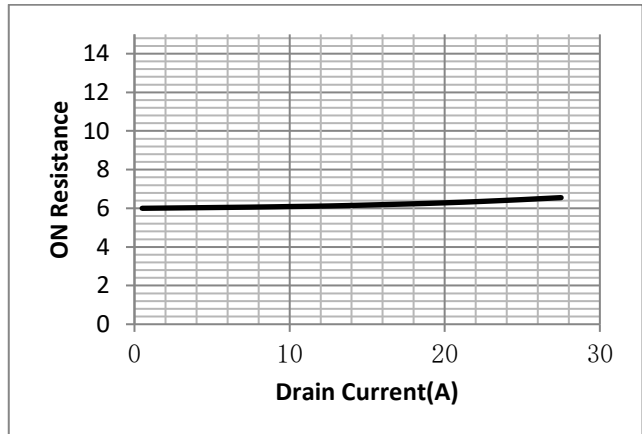


Fig.5 On-Resistance VS Gate Source Voltage

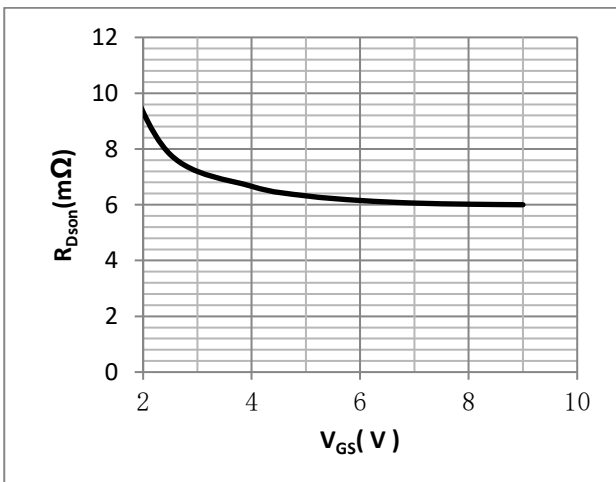


Fig.6 On-Resistance V.S Junction Temperature

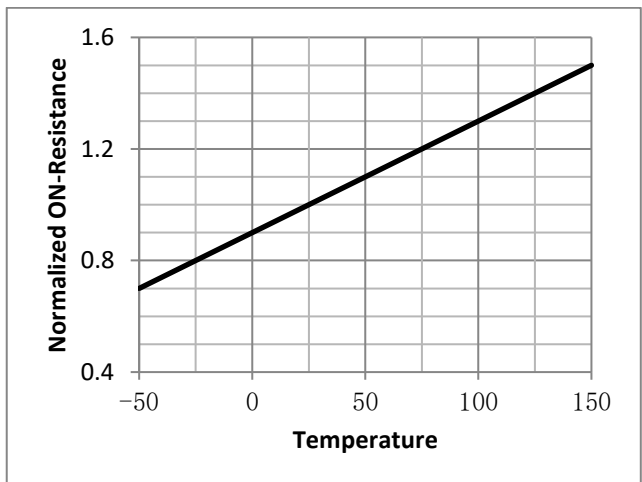


Fig.7 Switching Time Measurement Circuit

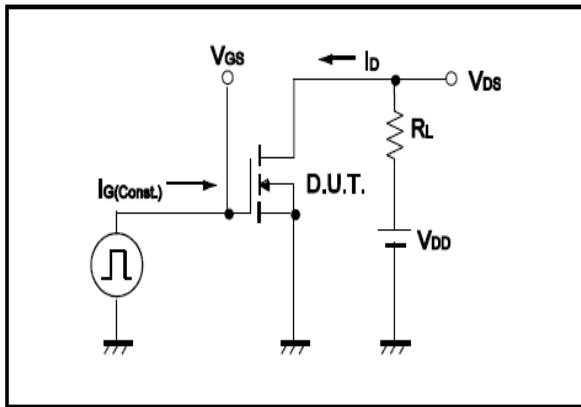


Fig.8 Gate Charge Waveform

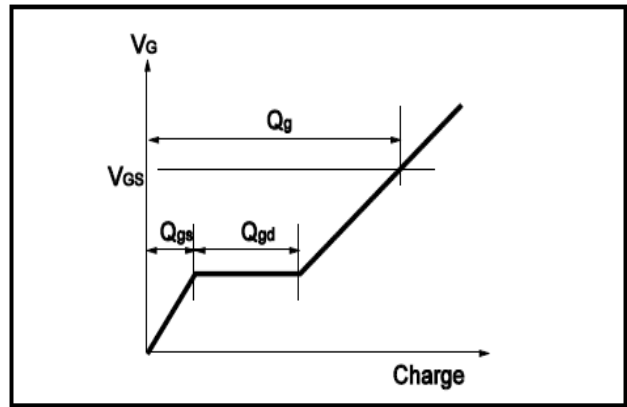


Fig.9 Switching Time Measurement Circuit

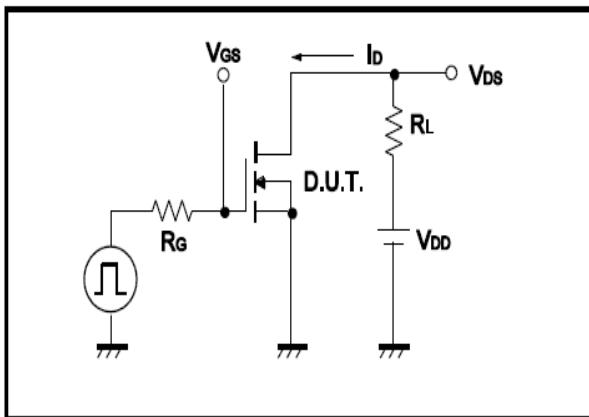


Fig.10 Gate Charge Waveform

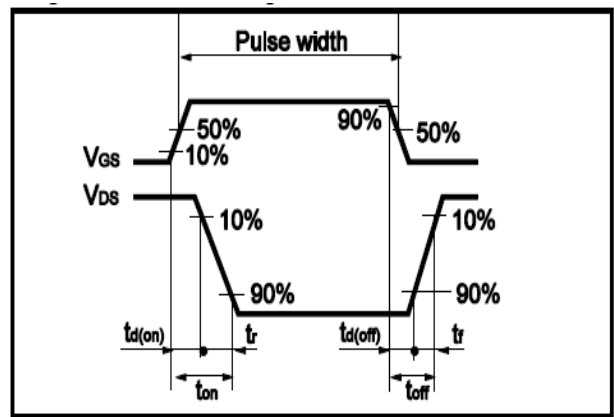


Fig.11 Avalanche Measurement Circuit

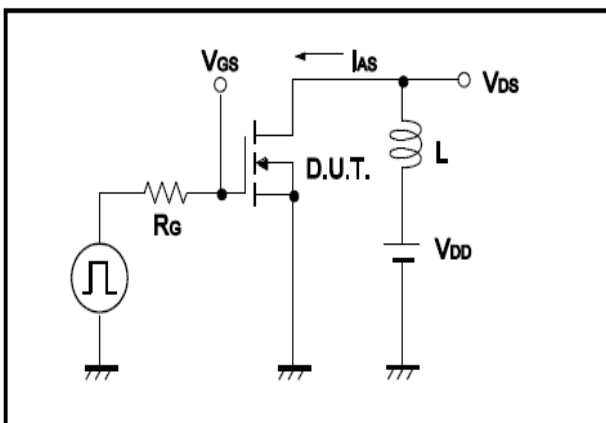
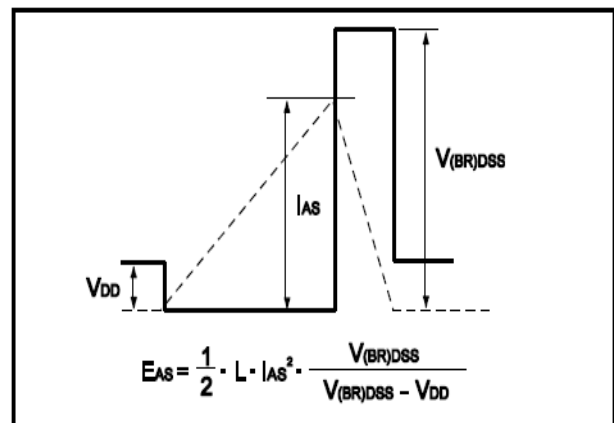


Fig.12 Avalanche Waveform





●Dimensions(SOP8)

Unit: mm

SYMBOL	min	TYP	max	SYMBOL	min		max
A	4.80		5.25	C	1.30		1.75
A1	0.37		0.49	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	0.10	0.20	0.23
B1	3.80		4.10	D		1.05	
B2		5.00		D1	0.40		0.62

