

• General Description

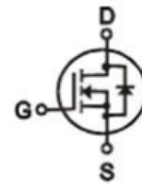
The ZM085N08F combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

• 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

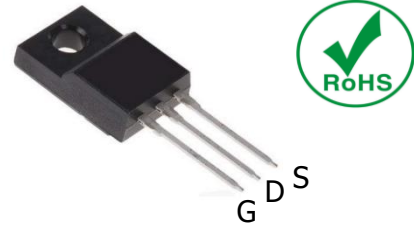
- SMPS 2nd Synchronous Rectifier
- BLDC Motor driver

• Product Summary


$V_{DS} = 80V$

$R_{DS(ON)} = 8.5m\Omega$

$I_D = 50A$



TO-220F

• Ordering Information:

Part NO.	ZM085N08F
Marking	ZM085N08
Packing Information	Bulk Tube
Basic ordering unit (pcs)	500

• Absolute Maximum Ratings (T_c =25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$I_{D@TC=25^{\circ}C}$	50	A
	$I_{D@TC=75^{\circ}C}$	38	A
	$I_{D@TC=100^{\circ}C}$	32	A
Pulsed Drain Current ①	I_{DM}	180	A
Total Power Dissipation(TC=25°C)	$P_D@TC=25^{\circ}C$	85	W
Operating Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 175	°C
Single Pulse Avalanche Energy	E_{AS}	450	mJ

•Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	2.8	$^{\circ}C/W$
Thermal resistance, junction - ambient	R_{thJA}	-	-	62	$^{\circ}C/W$
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}	$V_{GS} = 0V, I_D = 250\mu A$	80	85		V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	1.3		2.3	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$			1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 40A$		8.5	11.5	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = 10V, I_D = 20A$		25		s

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	f = 1MHz	-	3300	-	pF
Output capacitance	C_{oss}		-	260	-	
Reverse transfer capacitance	C_{rss}		-	170	-	

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

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD} = 25V$	-	65	-	nC
Gate - Source charge	Q_{gs}	$I_D = 8A$	-	13	-	
Gate - Drain charge	Q_{gd}	$V_{GS} = 10V$	-	24	-	

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

Fig.1 Power Dissipation Derating Curve

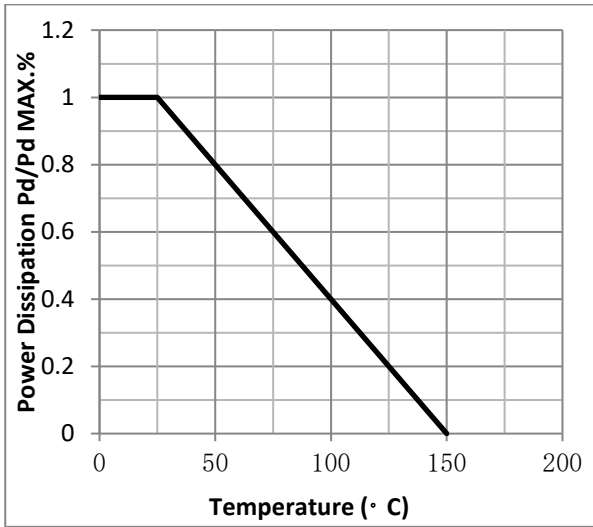


Fig.2 Typical output Characteristics

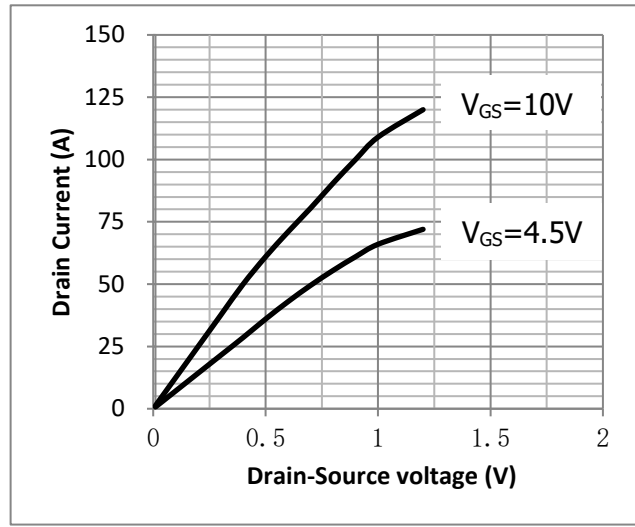


Fig.3 Threshold Voltage V.S Junction Temperature

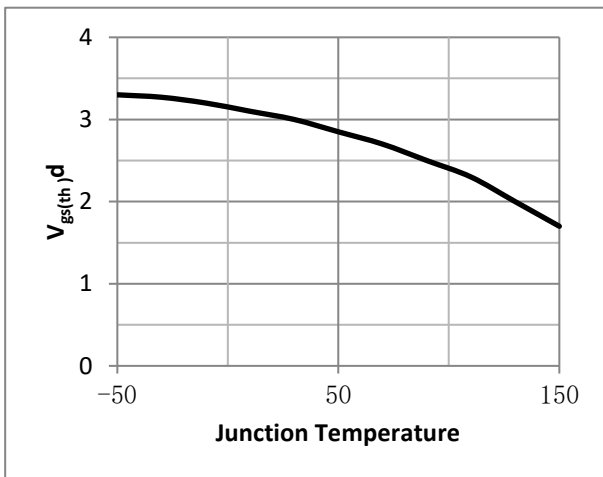


Fig.4 Resistance V.S Drain Current

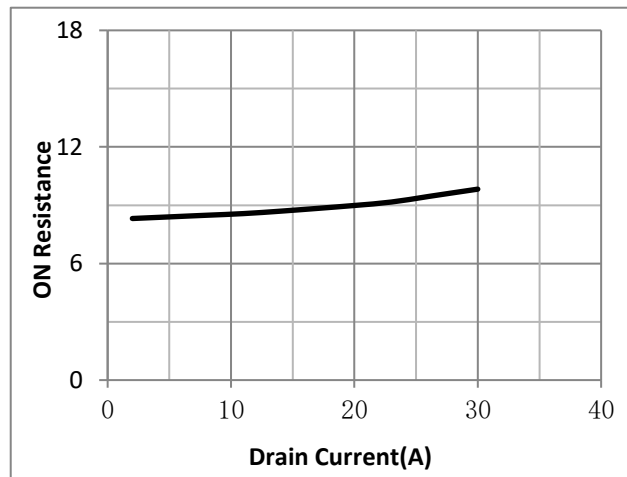


Fig.5 On-Resistance VS Gate Source Voltage

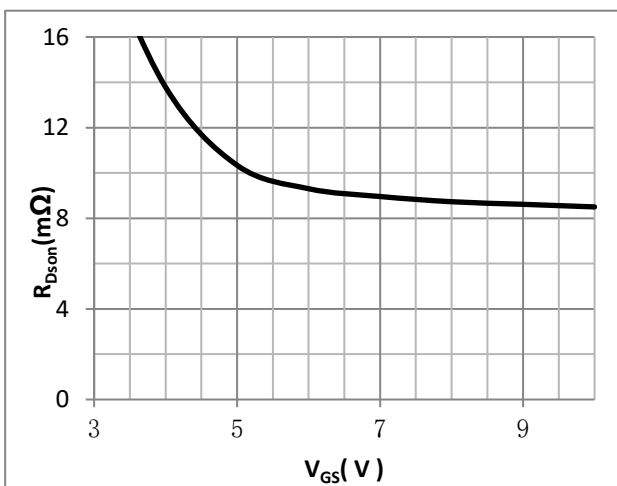


Fig.6 On-Resistance V.S Junction Temperature

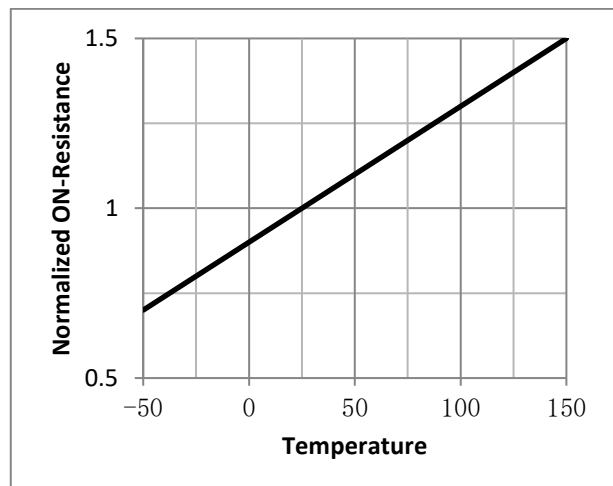


Fig.7 Switching Time Measurement Circuit

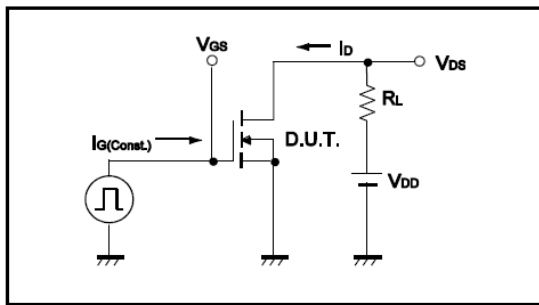


Fig.8 Gate Charge Waveform

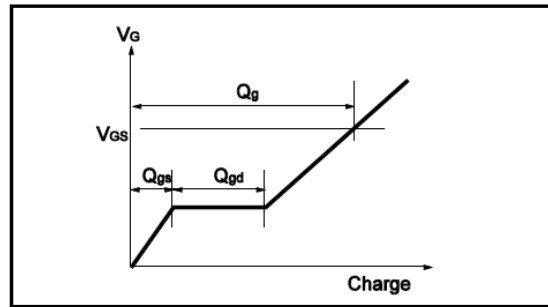


Fig.9 Switching Time Measurement Circuit

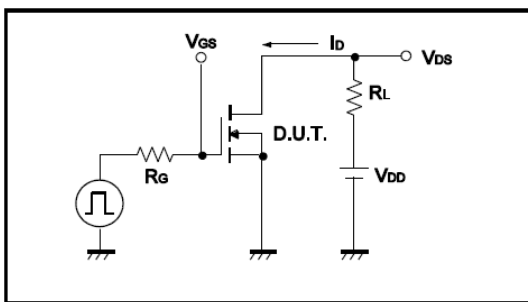


Fig.10 Gate Charge Waveform

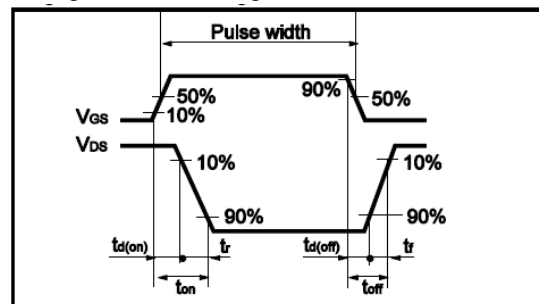


Fig.11 Avalanche Measurement Circuit

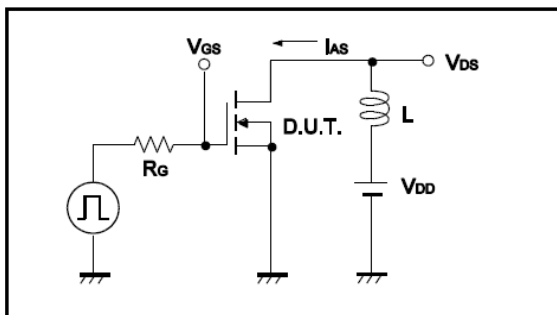
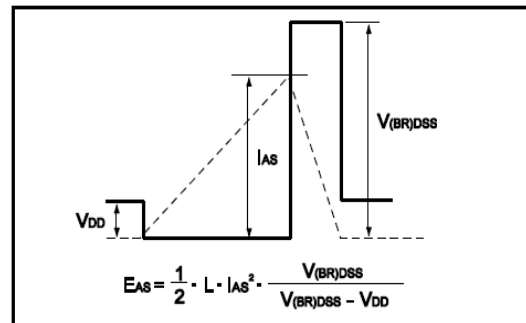


Fig.12 Avalanche Waveform





• Dimensions (TO-220)

Unit: mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	4.40		4.95	e		2.54	
A ₁	2.30		2.90	L	12.50		14.30
b	0.45		0.90	L ₁	9.10		10.05
b ₁	1.10		1.70	L ₂	15.00		16.00
c	0.35		0.90	L ₃	3.00		4.00
D	14.50		17.00	øp	3.00		3.50
D1	6.10		9.00	Q	2.30		2.80
E	9.60		10.30				

